

PUB-677  
Vol. 2b  
July 1990

JOURNAL OF  
**GLENN T. SEABORG**  
1971-

*June 30, 1973 - December 31, 1973*

Lawrence Berkeley Laboratory  
University of California

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**GLENN T. SEABORG**

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This work was supported by the U.S. Department of Energy  
under Contract DE-AC03-76SF00098



Seaborg, Toni and Sol Linowitz, Helen Seaborg  
Camino Real Hotel, Mexico City  
July 1, 1973

Sunday, July 1, 1973 - Mexico City

We had breakfast in our suite. It was another foggy morning. I took a Retina picture out of our 17th floor hotel window of the city, ending the Retina roll #1.

At 9:00 a.m., we met Dick and Jean Bolin in the lobby. Rafael came by at 9:15 a.m., 15 minutes late, then the Bolins rode with Helen and me in our car to Tepoztlan. We passed the Cortez Tomb near the Zocato Square and the large Olympic stadium on the outskirts of Mexico City along the way.

On the way, Dick described the program in which he is involved in Nogales-Parque Industrial de Nogales--in which they manufacture, with Mexican labor and American management, a number of products such as chain saws, radios, hand calculators, color television sets, loft luggage, brake bands, saxophones, electric organ parts, etc.--involving such companies as Rockwell International (Collins Radio, Unicom, two other divisions), Teledyne-Packard Bell, Teledyne Systems, Memorex, Magnovox, Motorola. The productivity of their Mexican labor is 15% above that in Los Angeles at a cost of one fifth as much per man hour. There are about 12,000 Mexicans working for these various companies in Nogales. This is part of the "Border Industrialization Program" and President Echeverria has visited it twice and stated this is the model border industrialization program in Mexico. Counting all the places in addition to Nogales, there are about 400 plants and 50,000 jobs, and this should grow by a factor of ten by 1980.

We arrived at Tepoztlan, about 75 kilometers from our hotel, at 10:30 a.m. We passed over mountains about 9,000 feet high on the

Sunday, July 1, 1973 (con't)

way. At Tepoztlan, we met Eduardo Wygard and his son Andrew at the Convent and Cathedral. We all drove on over the rough cobblestone streets to the base of the mountain which has the Aztec Pyramid on top (this is the same climb that the wealthy Pedro and I made yesterday).

We all set off together. At the beginning, I took movies of Andrew, the Bolins and Helen (Rafael didn't accompany us). The attendant who collects the pesos at the top passed us on the way up. Andrew and I reached the top first, each paid our peso admittance charge, and waited about 10 minutes for the arrival of Dick. I took movies of Dick paying his peso. We then climbed to the top of the little Pyramid Tepozteco, a climb of only 12 steep steps, after a prior ascent of about 20 feet. From here we had a good view of Tepoztlan, its Convent-Cathedral (late 16th century vintage) just below, and of Cuernavaca in the broad valley in the distance. There are remnants of the walls (3 sides) and 3 pillars which were part of the religious center that was here. A Swedish general working for Pancho Villa found a priest still here (about 1913)--all described in a book Gringo Rebel, written by the Swedish general.

I took some movies from the top of the Pyramid of Tepoztlan and, with zoom lens, of Cuernavaca, and from the base, of the Pyramid with kids running up and down the steps. Andrew and I then walked around to the other side of the hill where we had a view of Yautepec in the distance. Closer we saw the village Izcatepec, and, with the help of Andrew's binoculars, the home of his parents, the Wygards. Dick headed down, met Jean at the ladder, which is as far as she climbed (a few hundred feet from the top). Helen arrived in about half-an-hour and climbed to the top of the Pyramid. I took movies of her as she did so. I took a Minox picture of Helen and Andrew in front of the stone house (park headquarters) and one of Tepoztlan in the distance.

Andrew, Helen and I headed down, met dozens of youngsters on the way up, joined the rest of our party at the bottom at 1:30 p.m. The Bolins, Andrew, Helen and I then rode with Rafael to the nearby weekend home of the Edward Wygards (whom I had met at the Bolins' party during my visit to Mexico City in May, 1972) in Izcatepec. We passed the YMCA camp en route, used by Boy Scouts, Girl Scouts and Trail Rangers.

We arrived at the Wygards's place, Casa Huilotepec, shortly before 2:00 p.m. Here we met Mrs. Edward Wygard, Wita. The Bolins, Helen and I had lunch with Edward and Wita Wygard and their son Andrew. Theirs is a very nice weekend place with a swimming pool and an inspiring view of the surrounding mountains, including the mountain we had climbed. Edward worked with Dick at Arthur D. Little Co. in Mexico City and, when they closed their Mexico City office, he, like Dick, became an independent consultant. Andrew now works with him in his consultant business. Jean gave Helen a number of Teotihuacan artifacts mounted on green cloth on a board in a picture frame.

After lunch, Andrew and I climbed the hill "Huilotepec" (Hill of the Dove) overlooking the Wygards's place. On top of this, a village cross is under construction, but it seems that construction has been

suspended. I found the central part of an obsidian arrowhead on the way--perhaps 3-400 years old. Helen took two Retina pictures and movies of the group--the Bolins, Edward, Wita and Edward Wygard and their dog Pinto--with the mountains in the background.

We (the Bolins, Helen and I) left at 4:30 p.m. in our car with Rafael driving. We saw a rather serious accident near the top of the mountain area that we had to pass over on the way back to Mexico City. We passed by just a few minutes after it happened and tried to arrange for an ambulance when we reached a roadside business area a few miles further on, but were told that an ambulance was already on the way. (We saw it on the way a few minutes later.) Again there was rain in the mountain area, but not as bad as yesterday.

We arrived back at the Hotel at 6:00 p.m. Helen and I went up to our suite, changed clothes, rode with Rafael to the Camino Real Hotel. We went up to the Linowitzes suite, then went with Sol and Toni to the Azulejos Room where we had dinner. We had a very pleasant evening of conversation with a good deal of emphasis on Watergate and possible Democratic candidates for President of the United States in 1976. Sol told us of his luncheon with Eugene McCarthy, who believes himself to be the most viable candidate. He also told us of John Mitchell's drinking problem and his loss of his position with his law firm. He related his talk with Scoop Jackson, who we agreed could be an excellent Democratic Presidential candidate if he would modify his war-like stance.

We also discussed Pete's law school admittance problem and the need to obtain a definite decision soon from American University and Georgetown University because of the August 15 starting date of Golden Gate Law School where he has been admitted. Sol also suggested that I send him copies of my AAAS Retiring President's Address so he can make arrangements with someone like Senator Scoop Jackson to have it put on the Congressional Record. We had a waiter take two pictures of the four of us with our Olympus camera. After dinner, Sol and Toni accompanied Helen and me part way on our walk back to the Fiesta Palace Hotel.

Monday, July 2, 1973 - Mexico City

Helen and I had breakfast in our suite, after which I rode with Rafael to Commission Federal de Electricidad [CFE] (Atoyac 97). (Helen went shopping this morning.) At CFE I went to the office of Raul Oropeza Ordonez on the mezzanine floor. Here I met with Oropeza (Director) and Silvano Juan Perez (Subdirector) of the Institute of Investigations of Electric Industry. After talking a while we went up to the conference room on the 11th floor. Here, to an over-capacity crowd of about 100 people, I was introduced by Oropeza and gave a talk, "Energy for the Future," illustrated with slides. The talk began at 10:00 a.m. and lasted about an hour, followed by nearly an hour of questions, presided over by Martin Kushner. The questions covered a broad range of topics related directly to my talk. After the talk, Oropeza walked with me to my car. He made it clear that he wants to keep in touch with me to pursue further some of the energy questions I discussed in my talk.

Monday, July 2, 1973 (con't)

I rode back to the Fiesta Palace Hotel with Rafael. Here Helen soon joined me following her shopping tour. She had purchased a copy of Gringo Rebel by I. Thord-Gray, three blouses, and some trinkets. We had lunch in our suite. I took some movies of views of Mexico City in beautiful weather from our hotel window (end of cartridge #4).

I received an envelope from Bueno with a number of retyped copies of the minutes of our meeting at La Normandie. Also included was a copy, in Spanish, of the document issued by the "Porque" group last week that caused so much concern by the Mexican Minister of Interior. Actually, the press coverage of this incident and the accompanying arrests of a few people in the newspapers of Mexico City was very slight and unobtrusive, so Bueno's recommendation that the incident be ignored was the correct one.

Helen and I went down to the lobby, where we ran into the Riesers who returned from their weekend excursion to Oaxaca this morning. I gave him a copy of the Bueno write-up of our La Normandie meeting. Helen and I then rode in the rain with Rafael to La Lagunilla, where she got out to do some shopping, after which I went on to the National Medical Center. The rain delayed the traffic even more than usual, so I was somewhat late in arriving. I checked at the AAAS office and found that Edward J. Wygard had left his address. I called the home of Fernando Alba Andrade (Director General, Instituto Nacional de Energia Nuclear) to learn the arrangements for my visit to the Institute tomorrow.

I then went to Auditorium No. 5 to hear the Symposium chaired by Renee C. Fox (Department of Psychology, University of Pennsylvania) on "Science, Development and Human Values." I heard the discussion of Carlos A. Mallman's (Presidente Ejecutivo, Fundacion Bariloche, Rio Negro, Argentina) talk, "Human Values and Welfare: Basic Wants and Needs," by Luis Villoro (Instituto de Investigaciones Filosoficas, Universidad Nacional Autonoma de Mexico, Ciudad Universitaria, Mexico, D.F.) and Richard Griego (Department of Mathematics and Statistics, University of New Mexico, Albuquerque).

After this, Renee Fox introduced Victor Urquidi, who presented Joe Valenzuela's (Director, Instituto de Tecnologia Industrial, Corporacion de Fomento de la Produccion, Santiago, Chile) paper on "Research Priorities for Economic Development in Latin America." After I left the session, I ran into Moshinsky and asked him for a copy of his evening lecture, which he delivered last Friday night and which I missed, but he said he didn't have a manuscript.

At about 5:30 p.m., I headed back to the Fiesta Palace Hotel with Rafael. I saw Bill Bevan--just returned from his and Mrs. Bevan's weekend in Yucatan--on the elevator and gave him a copy of the Bueno minutes of the meeting at La Normandie.

Helen was already in our suite, having returned from shopping. She bought shirts and blouses, "bark" pictures, a bag, molinillos (chocolate beaters), a straw house with a man in it, and a knife. We had dinner in our suite, then rode in our car with the Riesers, Harrison

Brown and Teresa Tellez to El Colegio de Mexico to attend a reception given by Urquidi for the participants in the Symposium, "Science, Development and Human Values." I gave Harrison Brown a copy of the Bueno minutes.

At the reception, we saw the Joseph B. Platts (he is President of Harvey Mudd College), Howard Lewis (U.S. National Academy Sciences), Carlos A. Mallman (who worked at Argonne in 1958-60, has worked in nuclear systematics, has now gone over entirely to science and human values area), Luis Manuel Peñalver (CONICIT, Caracas, Venezuela), Norman Borlaug, and Mr. and Mrs. Charles Weiss (he is on our AAAS International Committee). Helen and I talked to Urquidi about medical schools in Mexico to which Bill Cobb might apply for admission, and he said he will send us information on schools in Mexico City and Guadalajara.

Rieser and I talked to Antonio Bacigalupo (Universidad Nacional Agraria, Lima, Peru, whom I quoted in my Retiring President's Address) about the Peruvian Association for the Advancement of Science. This was founded in 1968--Bacigalupo was the first or one of the early presidents--and has become very inactive recently. Rieser may visit Lima around July 12 to talk to Bacigalupo, who is very anxious to reactivate the Association, and other Peruvians about steps to do this.

I talked to Bueno. He said he has said made a reservation for his daughter Marta to fly to San Francisco with us on Wednesday to stay with us at our home in Lafayette for a while. He said he has made arrangements for the Chinese delegation to visit CIMMYT as I suggested. (Later I learned from Borlaug that the visit has been set for Thursday.) He also said he has contacted Mrs. Adem and arranged for her to serve as an editor for the publication of papers given at "Science and Man in the Americas," as I had suggested.

Martin del Campo told me that Bueno plans to hold a little reception at a restaurant around noon on Wednesday for the officers and staff of AAAS in appreciation for their contributions to the success of the "Science and Man in the Americas" meeting. Letitia E. Obeng didn't show, so the lecture scheduled for this evening was not held. After the reception, Helen, the Riesers and I rode back to the Hotel with Rafael.

Tuesday, July 3, 1973 - Salazar - Mexico City

Helen and I had breakfast in our suite. We met the Albas and the Galvezes in the lobby and rode to the Centro Nuclear of the Instituto Nacional de Energia Nuclear at Salazar. I rode with Fernando Alba Andrade, Director General of the Institute, and Luis Galvez. Helen rode with Mrs. Alba and Mrs. Galvez. In a third car were the Alba's daughters Leticia and Marta, and their friend Brita Zangen, visiting from Dusseldorf, Germany. Leticia is a physics graduate and is now working in archaeological dating in a mass spectrometry group at the National Autonomous University of Mexico.

On the way, Alba reminded me that he was the first person in Mexico to obtain a Ph.D. degree in physics in a university in Mexico.

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(Two earlier Ph.D.'s, Sandoval Vallarta and Graef Fernandez, obtained their degrees in the United States.) Alba left his position as Director of the Institute of Physics at the National Autonomous University of Mexico to become Director General of the Instituto Nacional de Energia Nuclear and is on leave of absence from the University. Galvez is a chemical and nuclear engineer from the same University, is now on leave (but still teaching one course) to the Centro Nuclear. Alba, Galvez and Graef Fernandez accompanied President Echeverria on his trip to the People's Republic of China and visited the Institute of Atomic Energy in Peking while in China.

Alba and Galvez reminded me that I gave a luncheon in their honor in May, 1971, in Washington, D.C. soon after Alba became Director General of the National Institute of Nuclear Energy. Dr. and Mrs. Alba and Dr. and Mrs. Galvez attended the Conference on the Peaceful Uses of Atomic Energy in Geneva and the General Conference of the IAEA in Vienna in September 1971, where we saw them.

When we arrived at the Centro Nuclear, about 35 kilometers southwest of Mexico City, along the road to Cuernavaca part of the way, we went to the Reactor Building and into the office of Roberto Trevino, Coordinator (Director) of the Center. (The Center is at an altitude of 9,000 feet.) Here, in a conference room, we were served coffee and tea. Alba described the organization and program of the Center as follows. The Divisions are (1) Development, including reactor programs, etc. (2) Applied, including application of radioisotopes and radiation, (3) Research, and (4) Administration.

The main Division is the Development Division, where energy is developed. This has departments of (1) Exploration and exploitation (for uranium), (2) Fuel element investigation, (3) Reactor technology. (Note with respect to the first department, GEOMET should be notified.) They have a plane (Geometrics [Palo Alto] equipment is used) which flies at 300-400 feet to look for uranium ores ( $\text{Bi}^{214}$ ) and thorium ores ( $\text{Tl}^{208}$ ) looking for gamma rays with sodium iodide crystal detectors (nine 6-inch diameter by 4-inch thick crystals). They also make radon detectors (ground level measurements), cellulose nitrate (in which alpha particles produce holes which can be counted).

They plan to study a sodium loop, heated by outside sources. They do work to support the reactor being built at Laguna Verde near Vera Cruz, Mexico, which plans to build a second 650 MW boiling water reactor at Laguna Verde, then will study other reactor types, CANDU, HTGR, etc. for a plant to be built on the west coast before making a decision as to type. They are building a uranium mill, 120 tons per year capacity, about 30 miles north of the city of Chihuahua. They have found uranium deposits in the geological Burgos area in the state of Neuvo Lea in northeastern Mexico. They are going to buy a 100,000 curie cobalt-60 source from Canada. They will also build a 2.5 Mev, 6 milliamperes, electron accelerator. Both of these sources will be used for irradiation studies.

There is also work in biology, medicine, agriculture, hydrology, etc. In the service group, they have a computing center, radioiso-

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topes production center, mechanical shops, etc. They also have in the research division research programs on plasma physics, centrifuge separation of isotopes. They have a scientific and technical liaison group with industry, and they cooperate closely with National Autonomous University of Mexico and other universities.

In the state of Guanajuato they have an agricultural station where they develop fertilizers with the help of radioactive tracers. Here they are developing new strains of wheat by radiation-induced mutations. They cooperate with CIMMYT and the Agricultural School at Chapingo in this program. They are beginning to produce radioisotopes for use in Mexican hospitals--at present the hospitals get their main supply from the U.S. and Canada. Their reactor is a 1 MW, Triga Mark III.

At the end of the briefing, we all (including Trevino) started our tour. We walked up two flights of stairs to the reactor. Here we met Dr. Sanchez, in charge of the reactor, who showed it to us. We then walked down to the reactor lower level where Dr. Brown showed us their Triple-axis neutron spectrometer, which operates at 0.015  $\pm$  6% e.v. They are also doing neutron activation analysis. They are just getting started on work at the reactor in neutron measurements, etc. I only saw the one (Triple-axis) spectrometer. They have a PDP-15 computer which they use as a multi-channel analyzer at the reactor. I met Dr. C. Antonio Ponce, head of scientific and other workers union.

We then visited the uranium analysis labs, in a wing of the reactor building. We next walked downstairs to the radioisotope production center, just getting started. They plan to produce iodine-131 and TC-99 via Mo-99. We saw the hot cells under construction. They plan to synthesize some radiopharmaceuticals. I met one of the chemical engineers, Laura Morales. In a neighboring small building, we saw a uranium purification pilot plant.

We walked up to the Research Building. I took movies of the whole group and the grounds. A Center photographer took a picture of the whole group with his camera and two pictures of the group with our Olympus camera.

In the Research Building we saw the Computer Center. We met the Center Director, Dr. Ortez, and Dr. Body (an Austrian), Advisor at the Center and Professor at the National Autonomous University of Mexico. They have a PDP-10 and a number of smaller computers. They are just installing a smaller PDP-15. We went on to the Plasma Physics Laboratory. Here Mario Vazquez, who is in charge of this work, showed us the experiments they are studying on Multipole Lineal Confinement. They have observed lifetimes of 500 microseconds. They have measured a product of Ion Density x Time of  $10^{11}$  to  $10^{12}$ . The work is confined to lithium plasmas. In the same lab they are studying the separation of uranium isotopes in metallic form by centrifugation.

We next went to the Tandem Accelerator, where we met Marcos Mazari, Director of the Division of Research (an old friend of mine). The Tandem (High Voltage Engineering Company) delivers 12 Mev protons

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and deuterons and 4-6 charged ions of energy 48-72 Mev. They are installing a heavy ion source to accelerate several kinds of heavy ions--perhaps up to sulfur. We saw the many Steering magnets, spectrometers, etc. in the experimental area.



Centro Nuclear, Salazar, Mexico, July 3, 1973: Luis Galvez, Fernando Alba Andrade, GTS, Helen, Mrs. Alba, Mrs. Galvez, Trevino; Leticia and Marta Alba and Brita Zangen in center front.

We all rode in the three cars to the main Machine Shop near the entrance to the Centro Nuclear Grounds. They build practically all the equipment used in their experiments on the site. We saw the tank being built for the 2.5 Mev electron accelerator. In the neighboring building we saw the work on ceramic uranium oxide fuel elements. They will manufacture the fuel elements for the second or so recharge of the Laguna Verde reactor. In a room at the end of this building, we saw the experimental ultracentrifuge. This was shown us by Dr. James Keith, who has an MIT B.S. and a National Autonomous University of Mexico Ph.D. In another room, we saw homemade cellulose nitrate sheets used for alpha particle detection (used to detect radon in uranium exploration).

We then all rode in the three cars to the cafeteria where we had lunch in a little side room. This was the first use, or inauguration, of this room. Mazuri joined us, so the luncheon group consisted of

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the Albas and their two daughters, the Galvezes, Trevino, Brita Zangen, Mazuri, Helen, and me. It was a good, multi-course meal.

After lunch, Helen and I rode back to Mexico City with Dr. and Mrs. Alba, they dropping us off at the National Medical Center. Helen did some exploration of the shops in the neighborhood; I went to the AAAS office. I met with Walter Berl, who wanted to get my views of how the meeting "Science and Man in the Americas" has gone; I indicated that it has been very successful in my opinion.

I then met with Bevan and Rieser to plan follow-up actions to the meeting. Bevan will send out a questionnaire to AAAS members (meeting participants?) to learn about reactions to the meeting. He will also prepare letters for me to sign to be sent to appropriate people thanking them for attending the meeting, support of the meeting, etc. These will include a hint of the future, a sense of carrying on with future such meetings, etc. Rieser will explore the possibility of having the next meeting three years hence when he visits Brazil later this week and next and will explore this and ways of revitalizing the Peruvian Association for the Advancement of Science when he visits Lima next week. Bevan will make similar explorations when he visits Columbia, and possibly Venezuela, in October. Rieser will invite some Brazilians to the AAAS San Francisco meeting.

After this meeting, Helen and I met Letitia E. Obeng of Ghana and had a cup of tea with her in the National Medical Center restaurant. She arrived last night, too late for her lecture, because the correspondence with her said her lecture would be tonight. She gave her lecture at noon today. She recalled that we had met her during our visit to Accra, Ghana in January, 1970. She is the Director of an Institute of Marine Biology with about 35 people, including 12 scientists. She told us that Kwapong's term as Rector of the University of Accra has been completed (7 years) and he may not be reappointed. She also told us the M. Dowuona has resigned as Director of the Council of Scientific and Industrial Research. She rode with us to El Presidente Hotel, where she is staying, then Helen and I continued on to the National Museum of Anthropology. I took some movies at the entrance, including Helen.

We first saw the exhibits of orthodontology, as practiced in prehistoric times in Mexico, in a room near the entrance. I took an Olympus picture of a Sun God of the Mayans, Kinich Ahau, of classical period 450-880 A.D. We then paid our 10 pesos apiece entrance charge and went into the Sala Occidente. I took an Olympus picture of a female figure, another of figures found in the interior of a tomb in El Openo, Michoacan, carbon dated as 1300 B.C. and another of a burial scene (skeletons and artifacts) from Chupicuaro dated 500 B.C.; I took another of a display, "Clasico Evolutivo Teocratico," dated 200-800 A.D., one of a dog-like animal, 200-800 A.D., wasted one (no photoflash), and another of two stone figures Post Clasico 800-1200 A.D.

We then walked across the huge semi-open patio with its water sprays to the Sala Teotihuacan. I took an Olympus picture of the

funny duck-like figure together with many small artifacts like those Jean Bolin gave us, and another of the reproduction of the Wall of the Feathered Serpent at Cuidadella. Helen took another of a Water God moved from the Plaza of the Pyramid of the Moon at Teotihuacan, with me in it. I took another of a sculpture of a human cranium in a circular frame, the God of Death, moved from the Plaza of the Pyramid of the Sun at Tetihucan.

Next we entered the Sala Tolteca, then Sala Mexica, where I took an Olympus picture of a monument Stone of the Sun, erroneously referred to as the Aztec Calendar and another of the Stone of Tizoc with Helen.

We completed our tour at 6:30 p.m., then rode to the Fiesta Palace Hotel with Rafael. We had dinner in our suite, after which I rode in our car to the National Medical Center to hear the evening lecture by Antonio Cabrillo Flores (Ambassador of Mexico to the U.S. when we were first in Washington, and former Foreign Minister of Mexico, in which capacity I met with him in Mexico City to discuss the NPT) on "Human Rights in Today's World." While waiting for his talk to begin, I talked to Cabrillo Flores; he is now living in New York and is Secretary General of the U.N. Conference on Population. I also met Sidney Wise of the The New York Times, who said he enjoyed the TV program "Encuentro" last Saturday night and thought it was well done. Daniel Reyes of the "Instituto Nacional para el Estudio y Investigacion Cientifica del Agua, A.C." gave me a copy of a letter he has written to me and some accompanying material and said he will be in touch with me about this.

The program began about 15 minutes late. Vargas introduced Dr. Hector Fix Zamudio, Director of the Institute of Investigations of Law, UNAM [National Autonomous University of Mexico] who in turn introduced Antonio Cabrillo Flores. After the talk, I rode back to the Hotel; Helen spent the evening in our suite packing our suitcases.

We called home to tell Dianne that Marta Bueno will be coming home with us tomorrow to stay as our house guest for a while. Everything seems to be fine at home.

Wednesday, July 4, 1973 - Mexico City - Lafayette, California

Helen and I had breakfast in our suite. I took movies and a Retina picture of the city from our windows. We dropped by to see Leonard and Rosemary Rieser in their suite. He has changed their itinerary so that they will go to Rio de Janeiro first, then to Lima so that he will be in Lima when Bacilgalupo is there in order to attend a meeting devoted to discussions of ways to reactivate the Peruvian Association for the Advancement of Science. He gave me a note of appreciation to deliver to Bueno at the latter's farewell, "Vino de Honor," at the Kings Palace Hotel at 1:00 p.m. today because he and Rosemary must be on their way too early to make it possible for him to attend. He said that Harrison Brown has raised the question of whether the next "Science and Man in the Americas" three years from now might better be held in Caracas, Venezuela, than in Rio de Janeiro, Brazil; however, Leonard and I agreed that Brazil is the better place in view of the greater activity of the Brazilian Associa-

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tion and he will actively explore this possibility with the Brazilians during his visit there.

Helen and I then rode with Rafael to the National Medical Center. Helen attended the symposium on "Land Connections between North and South America" in Auditorium No. 9. I went to the AAAS office, where I saw Letitia Obeng, who gave me a copy of her lecture "Science, Technology and Human Progress: An African Viewpoint." I initiated a search for the reprints of my Science article (my Retiring President's Address), which have arrived at the National Medical Center but have been lost. Rieser would like to take some with him to Brazil and Peru to give to interested people.

At 11:30 a.m., I was interviewed by Segman, Managing Editor of MIT Review, on the results and accomplishments of the meeting here. I said it has been very successful, especially as a medium for exchange of information and establishing personal contacts. I described my suggestion for the creation of an American Association for the Advancement of Science and later an International Association for the Advancement of Science and the steps being taken in connection with the former. I mentioned the possibility of similar triennial meetings in other Latin American countries and described the crucial role of Dick Bolin in insuring the success of this meeting.

Since the reprints didn't arrive in time, Bolin called Rieser to make arrangements for them to be forwarded to him in Guatamala, Peru, or Brazil. Gabriel Dengo, Deputy Director, Central America Research Institute for Industry, Guatamala City, will try to deliver them to Rieser in Guatamala City. I made a presentation, on behalf of AAAS, of a pewter Thomas Jefferson cup to Judy Bolin and an inscribed pewter box to Dick Bolin, in recognition of their contributions to the success of the meeting.

As I was leaving Unidad de Congresos, I was interviewed by Octavio Raziell G. of El Nacional, Javier Martinez of El Universal, and Roberto Vizcaino of El Heraldo about my conclusions concerning the conference and hopes for the future. I said I thought the conference had been very successful, especially as a means for exchanging information and making contacts between people which will be of lasting benefit. I expressed the hope that there will be future conferences in Latin American countries on the same theme and that the "Call to Action" in my Retiring President's Address will be implemented.

I then rode in our car with Bevan and Butler to the King's Palace Hotel. En route, we agreed that I would meet with Bevan at AAAS headquarters on the afternoon of July 18 and have dinner with him that evening prior to the meeting of the AAAS Study Group on International Science to discuss follow-up actions to the Mexico City meeting.

At the King's Palace, we met Bueno and proceeded to the top floor for the "Vino de Honor" session. All of the staff of CONACYT and AAAS that had been concerned with the organization and operation of the conference were present. I took movies and three Olympus pictures.

Bueno made some remarks, thanking those present for their contributions to the success of the conference. He then presented me with a large, beautiful book on the National Museum of Anthropology and gave individual gifts to the others present. I responded with an expression of appreciation for Bueno's thoughtfulness in extending this recognition to the staff people, who had so much to do with the success of the conference, and with an expression of my own appreciation for the fine work of the staffs of CONACYT and AAAS. I presented Bueno with Rieser's letter of appreciation and with autographed copies of Man and Atom and Nuclear Milestones.

We then were served some cold cuts, along with wine. I sat in a group with Bueno, Bevan and Trumbull and invited Bueno to attend the AAAS meeting in San Francisco next year, which he accepted. We also talked further of follow-up to the meeting. Bueno said the plans are for formation of a Mexican Association for the Association of Science at a meeting on July 17. I said I will be meeting with Bevan in Washington on July 18 and would appreciate hearing of any progress made at the July 17 meeting. Bueno said he would send me a tape recording, in cassette form, of my Retiring President's Address.

Bueno rode with me in my car to the Fiesta Palace Hotel to say goodbye in a very cordial manner. I joined Helen in our suite. She had bought a Rebozo, candle holder, "bark" paintings, and trinkets during her shopping this morning.

We went down and checked out of the hotel. We then rode with Rafael to the Zocalo, where we visited the Zocalo Metro Station, on the way to the airport. In the Metro Station there are dioramas of Zocalo Square and Pyramids. I took an Olympus picture of the diorama of Zocalo Square. We then proceeded to the airport, said goodbye to Rafael upon arrival, and checked in on Western Airlines Flight No. 638.

Soon Mrs. Bueno and her friend Blasa Tamez arrived with Marta Bueno. We helped Marta check in, after some difficulty in finding the departure gate. Helen, Marta and I boarded Western Airlines Flight No. 638. I took movies of Helen and Marta boarding and going through luggage inspection. We left at 5:30 p.m., arrived in Los Angeles at 7:45 p.m., went through passport control and customs, reboarded our flight, left Los Angeles at 9:10 p.m., and arrived in San Francisco at 10:00 p.m.

Steve met us, and Mrs. Bueno's cousin Gloria L. Rodriguez and a friend were present to greet Marta. Helen, Marta and I rode home to Lafayette with Steve. He gave us the good news that Pete is probably being admitted to Georgetown University Law School. We placed Marta in Eric's room to occupy during her stay with us. She opened her suitcase and presented a nice hand mirror to Dianne and a beautiful necklace to Helen as gifts.

Thursday, July 5, 1973 - Berkeley

I drove in to work this morning with a suitcase full of papers and various items. I went over the most urgent items of my mail with Sheila and then tackled a huge pile of correspondence, etc.

Thursday, July 5, 1973 (con't)

At 10:00 a.m., Jack Hollander dropped in to discuss the President's energy message of last Friday. We agree that the creation of the new Energy Research and Development Administration (ERDA) is a fine idea, incorporating as it does essentially all of the Atomic Energy Commission's functions and adding the Office of Coal Research and Bureau of Mines from the Department of Interior, while transferring the regulatory and licensing functions to a new Nuclear Energy Commission (NEC) operating under the present 5-man Atomic Energy Commission. The ERDA would be under a single administrator. We agreed that the main problem will be to get Congressional approval of this reorganization. It is apparent that this new administration would be essentially what I suggested in my editorial in Science a year ago.

At 11:30 a.m., I went over to talk to Liljenzin and Kratz in 203, Building 70. Ted Norris arrived from Los Alamos a couple of days ago and is already starting to work. Kratz has received word that his leave of absence from GSI for a year has come through after all. I also met Davelo Lujan (the high school student between his junior and senior years) who is with us for the summer. Kratz is going to present a summary of our work at next Monday's Nuclear Chemistry seminar.

On the way back to the office, a little before noon, I ran into Bob Giaugue, who gave me the distressing news that Eugene Huffman is in Alta Bates Hospital with what appears to be terminal cancer of the liver.

At noon, I went with Jack Hollander to the auditorium of Building 50, where he gave to a packed house an excellent exposition of the overall energy picture in the United States and the reorganization for the administration of the energy program as described in President Nixon's message to Congress last Friday. I made a few comments, saying that I thought the plan was excellent but that there will be a fight in Congress led by some members of the JCAE opposing the concept of a single administrator for the ERDA; I estimated that the program has a 50:50 chance of passing Congress.

I then went with Jack to the cafeteria and had lunch with him at the table outside overlooking the campus. On the way back to the office, I met his new Assistant in the Energy and Environment Office, Miss Sydney Cameron.

Jens Kratz dropped in at 2:30 p.m. to tell me that he has obtained an agreement from Gunter Herrmann that GSI will purchase from Hewlett-Packard for our use a 4,000 channel pulse analyzer costing \$16,000. This may require approval from the AEC and the setting up of a special account number. Although GSI would nominally own the equipment, it would presumably remain here after Kratz's departure. We agreed that we will wait until Earl Hyde returns on Monday to set the machinery in motion for this.

Jose Carvalho dropped in at 3:20 p.m. to tell me that in David Shirley's absence he has talked to Bradley Moore regarding his

Thursday, July 5, 1973 (con't)

admission as a graduate student in the Department of Chemistry. Moore said that, if he could obtain three letters of recommendation, he might bolster his academic record, which is not especially strong, sufficiently to permit admission. Pimentel has agreed to write one letter; Jose will ask Sam Markowitz to write another, and he asked me to write the third, which I agreed to do.

I then called Robert Thorne (Manager of the AEC San Francisco Operations Office, which is now located in downtown Oakland) to discuss several matters to bring each of us up-to-date. I briefed him about my participation in the AAAS meeting in Mexico City. He told me that he had been in Washington last week and had spent some time with Dixy Lee Ray. He indicated that the proposed changes, including the establishment of ERDA, is pretty much as described in the newspapers. Bob indicated that some think the legislative timetable to get this enacted would require one year; others think two because of lobbyist pressure. I inquired about Chet Holifield's position, and Bob said he is still moderately negative. He thought Holifield is all in favor of the energy part of the proposal but does not favor the split-off from regulatory or the proposed single administrator. Apparently, Dixy's relations with Holifield are poor. Bob noted that Ramey was not reappointed and that he thought Ramey was treated rather shabbily (his term expired and no one said anything)--he doesn't know what Ramey plans to do.

He was sure this matter also disturbed Holifield. He surmised that Dixy may have extracted some plusses out of the Milt Shaw matter at the White House and in the industry, but it is ultimately too early to tell. Bob and I agreed that the proposed set-up makes a great deal of sense and is "almost too good to be true." I expressed the hope that someone could bring Holifield around. I asked him where Dixy's main support is on the Hill; he suggested Scoop Jackson (who will openly oppose Holifield on this) and Howard Baker; he thinks she has a fair amount of support from John Pastore and Melvin Price. Stuart Symington is a strong supporter. Bob told me that Milt Shaw is quite broken by the recent events. He may decide to go into industry; his AEC staff people are staying on at his request. Bob told me that Thomas Nemzek (Manager at Richland) has been appointed to take over Shaw's place. I indicated that I might try to see some of these people when I am in Washington this month, and Bob indicated he thought this would be useful--adding his hope that I might also see Dixy.

Bob next turned to the subject of the heavy ion program. He indicated some confusion about what is happening--whether the physics community is marshaled to downplay the concept or what--in light of his impression that Teem has gone out of his way to encourage Berkeley in this. I suggested that there are also some strong detractors on the East Coast (e.g., Allan Bromley) and there are the local problems, some of this tied in with selection of the new Director. Bob asked my views on the various candidates, which I gave him. He reported that in his conversations with Teem, he has the impression that Teem feels that, in the long run, heavy ions and non-nuclear energy things will be in the forefront of the Laboratory's program. I suggested that he

will find it being resisted as long as people think the money could go into their fields but that once we have a strong Director who will set the tone and line, I anticipate that people will come around.

Bob told me of a conversation he had had with Jerry Johnson when he was in Washington last week. Johnson indicated that he was rather disappointed in some of the proposals he had received from Hollander's program (e.g., in geothermal) because they appear to be too esoteric rather than having immediate, applicable value. Bob said he will talk with Jack about this, which I encouraged him to do. I noted our efforts here in arriving at cooperation with the campus in these matters. Bob told me that Dixy has set up a task force under Gerry Johnson to put together the first two reports, due September 1 and December 1, on the budget. \$100 million is brand new money. \$50 million has to go for coal (in addition to the \$50 million that is already in coal); \$10 million is for geothermal, \$10 million for new technologies, and some money is set aside for solar. Bob invited me to visit them at their new headquarters and indicated that he would like to chat further with me. He also asked if I would speak to the SAN office staff about my China visit, which I said I would be glad to do.

I sent John Vinciguerra a letter upon his retirement from the U.S. Atomic Energy Commission staff (copy attached). I airmailed to Sol Linowitz three copies of my Retiring President's Address (which he may arrange to have placed in the Congressional Record) as well as Mexico City newspaper clippings which covered his speech in Mexico City on June 27.

Dianne, Marta (Cha Cha) Bueno, Cathy Sherman, Suki and I took a hike to the water tank. Helen, Dianne, Marta and I had dinner in our patio--it had been a warm day but it became cool, even cold, as we were eating. Steve joined us toward the end of the meal, coming out from Berkeley.

Friday, July 6, 1973 - Berkeley

I continued working on the stack of mail that had accrued during my long absence.

At 10:15 a.m., I went with Sheila and Mary Neighbor (our summer employee who is typing my journal of the China trip) to the conference room in Building 70, where Philip Dauber showed my Bolex movies taken in China. He has spliced them into three reels, adding an illustrative map and titles before each segment. He suggested that I have a print made from the master copy for general use, which I probably will do.

Paul Lochak called me from Paris just before 11:00 a.m., so I interrupted our movie viewing to take the call. He wanted to know when I will be in France; I indicated that I will probably come in on Sunday night, September 9 or Monday morning, September 10, and I plan to fly to Sweden on Friday evening, September 14. He plans to visit me here to talk over my program in France; we will set a date for the last week of July or early August.

July 5, 1973

Dr. John V. Vinciguerra  
U.S. Atomic Energy Commission  
Washington, D.C. 20545

Dear John:

I have just learned that you are retiring from your long service with the U.S. Atomic Energy Commission.

Since my duties here require me to be at home now and then, I am sorry to say that I shall not be able to be at your party on July 11 in the, to me, very familiar Terrace Room of the Bethesda Naval Hospital Officers Club. (I have just returned from the Inter-American meeting of the AAAS in Mexico City, which Helen and I attended immediately after returning from our visit to the People's Republic of China.)

Based upon firsthand evidence, I can say that your devoted service with the Atomic Energy Commission has been extremely valuable to an extent that is almost unique. You have served in many capacities, always with efficiency, and some tact, and I can't picture how the AEC will be able to get along without you (maybe it won't be able to--I hear interesting rumors about the future!).

I hope to see you during some of my visits to Washington, perhaps at a Redskins' game. Do you think George Allen can do it again?

With best regards,

Cordially,

Glenn T. Seaborg

GTS/sms

Friday, July 6, 1973 (con't)

At 11:30 a.m., I received a call from Dr. Robert B. Aird (Professor Emeritus of Neurology, San Francisco Medical School) in connection with an invitation he has received to set up a group of Americans and Canadians for a visit to the People's Republic of China, to discuss epilepsy in both its medical and socio-psychological aspects. I suggested that he write Emil Smith. In response to his inquiry for other general advice, I suggested that he plan on an at least a one-year time scale and not write China directly because of their problems in getting translations processed.

I had lunch with Professor Richard Wilson of Harvard, Liljenzin, Kratz, and Norris at the table outside the cafeteria at the lower level. Wilson brought me up-to-date on a number of the activities in which he is involved with environmental groups in connection with their stands on nuclear power. He recommended to the Governor of Maine that the Maine Yankee reactor be licensed at 75% of full power, which recommendation was adopted and led to the dropping of opposition to the reactor by the local environmentalists. Wilson suggests that the Federal Power Commission be incorporated in the new regulatory Nuclear Energy Commission.

At 1:10 p.m., I attended a meeting of the Associate Directors in Edwin McMillan's office, until 1:50 p.m. Present were McMillan, Fidler, Brewer, Born, Birge, Elioff, Pappas, Kelly, Zackay, Bennett, and, on the sidelines, Robert Hinckley. We discussed the visit of the General Advisory Committee at LBL on Wednesday, July 10. Commissioner Clarence Larson will attend, but not his special assistant Jack Griffin. Instead, Technical Assistant to Doub, Tom Murley, will attend. Nuclear Chemistry is still scheduled to give its presentation by Hyde and me at 11:30 a.m. The tour from 3:00-4:00 p.m. will include the Bevatron and SuperHILAC. Hyde will be invited to the dinner hosted by Elsie McMillan at the University Club in Oakland on Thursday evening, July 12.

Pappas reported that he received a phone call yesterday, indicating that Keith Frye of OMB, who works for Dan Taft (who took Fred Schuldt's place), will visit LBL for a briefing on Wednesday, July 18 (I will be in Washington on that day). He wants a briefing on physical, biomedical and environmental research. He will meet with McMillan, then visit informally with people throughout the Lab. From 11:00 a.m. to noon, he will devote himself to the BEVALAC and heavy ion research program, including biomedical aspects. From 12:45-3:00 p.m., he will make a tour including the SuperHILAC and the ERA, with emphasis on its application to heavy ions. At 3:00 p.m., he will visit Nuclear Chemistry. Pappas pointed out that the JCAE authorization bill added \$300,000 for the BEVALAC and \$200,000 for the 184" cyclotron, but this was not incorporated in the House Appropriations bill.

After the meeting, George Pappas talked with me about Norman Milleron. I suggested that we check with Commissioner Larson during his visit as to the next step of action. After this, I talked to Ed Bennett to comment on his suggested Sierra Club Symposium for the AAAS San Francisco meeting. I said that it looks like a very good program,

but he should wait until Jane Kingston contacts Washington AAAS for final approval before he can make definite arrangements with the speakers.

At 2:30 p.m., I went up to see Ghiorso at the HILAC Building. I was delighted to see the hole in the ground in the parking lot where the workmen are driving the huge pipe through to construct the connection between the SuperHILAC and the Bevatron, to produce the BEVALAC. This long awaited project is finally under way! Ghiorso and I discussed progress on the SuperHILAC. He hopes to have the machine going again next week with krypton ions. We also discussed Koch's letter of June 27 to me inquiring about Nurmia's article for the Gmelin Transuranium Elements Handbook (Volume A: The Elements). I also talked by phone with Jose Alonso--his section is coming along fine, but Nurmia is in Helsinki and we don't know where his section stands. He will return on July 15, at which time I will respond to Koch's letter.

I also gave Al the article from Chemistry and Life, enclosed with Lew Keller's letter, concerning the element 104/105 controversy, for him to worry about. We discussed the LBL Directorship. Ghiorso is pushing hard for Sessler. On the way back, I stopped by to talk to Liljenzin, Kratz and Norris, indicating there is some hope for a krypton bombardment next week. I also dropped by to see Irwin Binder to discuss possible research problems for him, such as detailed identification of chlorine-39 and its energetics from argon bombardments of heavy targets.

Arthur Campbell (Harvey Mudd College) called me just after 4:30 p.m. in connection with a forthcoming invitation to me to be the principal speaker at the UNESCO International Congress on the Improvement of Teaching of Chemistry in Warsaw on Tuesday, September 18. I indicated that I will be in Oslo on the 18th; he didn't know how much leeway they would have, and we both agreed to look into this.

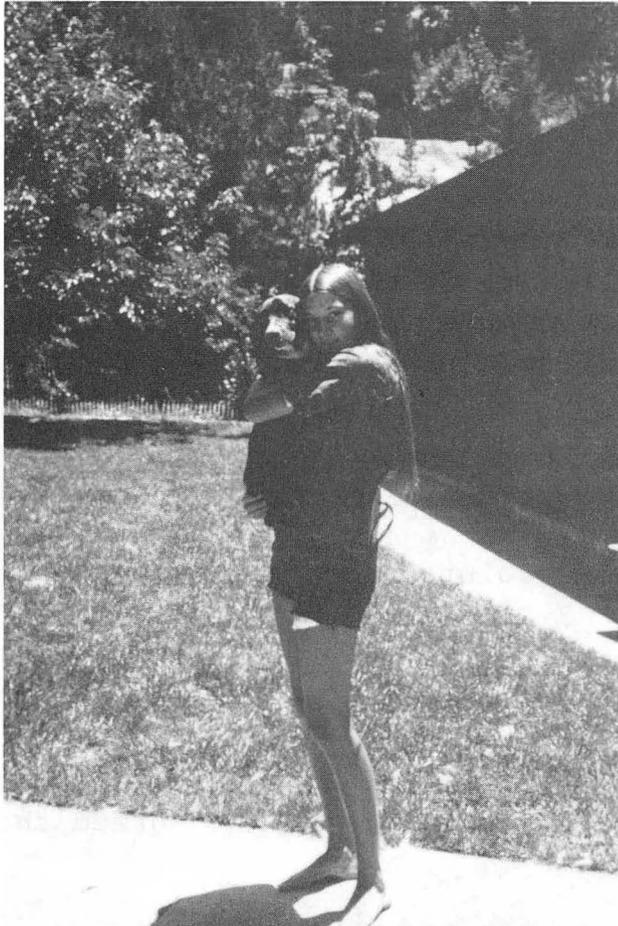
I accepted an invitation from Dr. Roland Lindner (Head, European Institute for Transuranium Elements) to serve as a member of the International Program Advisory Committee for the Fourth International Transplutonium Element Symposium, scheduled to be held at Baden-Baden, Germany, on September 15-18, 1975.

Marta, Suki and I took a hike to the water tank. Helen, Marta, Dianne, and I had dinner together. Steve spent the day and night with his friends in Berkeley. Jeanette called from Los Gatos to say she and Ray will visit us, arriving late tomorrow afternoon.

Saturday, July 7, 1973 - Muir Woods - San Francisco - Lafayette

Helen, Dianne, Marta and I drove to Muir Woods, over the San Rafael Bridge route. We had lunch in the Visitor Center (restaurant-store), walked through the valley floor area, then hiked up the Hillside Trail and Ben Johnson Trail, across to the Dipsea Trail, along the southern boundary of Muir Woods National Monument, and back to our starting point. I took movies and Retina pictures en route. We had some refreshments at the Visitors Center, Helen bought some redwood bookends to use as gifts, then we headed for San Francisco.

Marta Bueno and  
Dianne Seaborg,  
Lafayette,  
July, 1973.



Dianne Seaborg holding  
Moses, Lafayette, 7/73.

We stopped at the Fort Baker Military Reservation at the north end of the Golden Gate Bridge to take some movies and Retina pictures of Dianne and Marta. We then drove to the home of Gloria Rodriguez, Marta's "aunt" (actually cousin, I believe), on Green Street. She lives with two companions. We visited in her apartment briefly, then left Marta to stay there and drove back to Lafayette.

Shortly after we arrived home, we received a phone call from Adelaide Gittins in Arlington, telling us that Esther Arnott, my mother's cousin, had died yesterday, during a visit with Elsie Sundlie in Ishpeming.

Jeanette and Ray arrived shortly after dinner, having eaten in their camper atop Mount Diablo. We spent the evening talking with them about our China and Mexico trips. Steve was still away, probably in Davis to check up on his rented house there.

Sunday, July 8, 1973 - Lafayette

We spent a good part of the morning talking with Jeanette and Ray. Around noon, we drove to Orinda to pay a visit to our land on Lomas Cantadas Road; this is the first time they have seen this land.

Steve came home for a few hours and had lunch with us. Before lunch and all afternoon, I cut weeds in our front yard. Jeanette and Ray left about mid-afternoon on their way to Lake Tahoe in their camper. After a visit to Lake Tahoe, they are going to visit the gold country a while to try their luck at panning gold, then return to their home in Long Beach by the end of the month, so they can start jobs waiting for them in a home in Escondido.

Helen cleaned the swimming pool, then she and Dianne went swimming. The three of us had dinner in our family room so as to watch the television news. After dinner, I read and corrected some of the typed version of my China trip journal. Dave called from Truckee to give us his phone number and to reiterate his need of a car. We suggested he rent one. His research project is going slowly, way behind schedule.

Howard Vesper called me at 6:00 p.m. to ask whether I would be willing to give a short report on my trip to China after dinner at his home on Thursday night and I agreed.

Monday, July 9, 1973 - Berkeley

Earl Hyde dropped in at 9:00 a.m. He returned from his vacation with Mrs. Hyde and their son in British Columbia on Wednesday, July 4, in time to attend the meeting of the Joint Regents-Faculty Committee to recommend a Director for LBL. He said that the choice seems to have narrowed down to Shirley, Sessler, and Foster. They will meet again this Thursday, possibly to make the final choice.

I phoned Congressman Chet Holifield in Washington at 9:00 a.m. to explore the possibility of our meeting when I am there next week, on Tuesday the 17th. He indicated that he anticipates being free as of 3:00 p.m., depending on activity on the House floor. We agreed that I

Monday, July 9, 1973 (con't)

will call his office that day to confirm the time. He described his analysis of the pending bill for the reorganization and establishment of DENR about which he will speak on the floor this Thursday. He indicated that he is bothered about the idea of the Nuclear Energy Commission and said that he has insisted that the uranium enrichment plants be left in the R & D section. He read to me some sections from a House document (in draft form) on the proposed legislation which accompanies the President's energy message in discussing some of its implications. The bill has been referred to the Government Operations Committee, of which he happens to be Chairman, so he sees that he is "in the driver's seat as far as the consideration of the legislation is concerned." He noted that the bill doesn't say anything about the General Manager; I conjectured that he would stay with ERDA. Holi-field generally thought the reorganization has not been thoroughly thought out. He said he thinks that the Atomic Energy Commission has deteriorated badly, mainly because those on the Commission don't have adequate background and experience in engineering and administration (Dr. Ray being the only one with scientific background). He told me his opinions about Dr. Ray, mentioning the demises of Ramey and Shaw. He indicated that he doesn't know what Milt Shaw will do, though he has apparently received a number of good offers.

Len Nugent called me from Oak Ridge at 9:35 a.m. to describe to me his plans for arrival in Berkeley. Driving his car, he will leave Oak Ridge around the first of September and stop at Los Alamos on the way to confer with Bob Penneman and to pick up or arrange for the transfer of his files (in connection with the revision of Chemistry of the Actinide Elements). He estimates that his moving expenses will be a couple of thousand dollars, which LBL will have to cover. He said that ORNL will be able to furnish some typing help, but we agreed this will be inconvenient and we will have to try to arrange for some typing help here. He asked whether we might in advance locate a furnished apartment for two people (his wife and himself). His children will stay in Oak Ridge and his wife will divide time between Oak Ridge and Berkeley. He would like to be in an apartment building within some ten miles of the campus.

I called Kinsey Anderson, Director of the Space Sciences Laboratory, at 10:35 a.m. in connection with the request I had received from Lloyd Ferguson (California State University, Los Angeles) for advice on areas of advancement growing out of the space program, for use in their inaugural program of their new science building. Anderson said he would be glad to suggest whatever names or themes he could, and I then wrote Ferguson referring him to Anderson.

Stan Thompson dropped by at 11:00 a.m. He told me he was feeling quite "uptight" a couple of weeks ago, but after some vacation he is feeling better now. I had lunch at the outside table at the lower level of the cafeteria with Liljenzin, Kratz, Norris, and Nitschke.

At 1:35 p.m., I received a call from Sue Cullen in Mr. Lewis's office at the Bulletin of the Atomic Scientists. She asked if the Bulletin could publish my Mexico City speech, if it was not already published elsewhere. I indicated that Science had published the talk

in their July 6 issue; however, I like to have material appear in the Bulletin, if this can be arranged.

I called Bob Silva at Oak Ridge at 2:30 p.m. He will send me some slides and a preprint covering his work on element 104 for my use in my speech at Hamburg. I wrote Kenneth Thimann, accepting his invitation for me to appear at the open meeting of the Committee on the Public Understanding of Science at the 1974 AAAS Meeting on February 26 (copy attached). I wrote Gene Huffman, who is Alta Bates Hospital, extending our wishes for his recovery (copy attached).

At 3:30 p.m., I dropped by to see Tom Parsons in his lab, then Liljenzin and Kratz in their lab to discuss some articles that I have found concerning their respective work.

At 4:00 p.m., I went to the Nuclear Chemistry Seminar in Room 3377, Building 70A (the Conference Room), where Dr. Jens Kratz spoke on "Chemical Search for Superheavy Elements." He described our chemical experiments to determine the distribution of products from the bombardment of uranium with argon ions and our present interpretation of the results. The two counts of energy greater than 13 Mev are now known to not be due to a superheavy element because similar counts have been observed in the absence of any sample. He also described the preliminary results from uranium plus krypton ions.

I worked in the back yard cutting weeds before dinner. Helen and I had dinner alone. Dianne was baby-sitting at the Shermans. Steve returned from his stay in San Francisco today. Esther Washington called Helen from Washington, D.C. at 10:00 p.m. our time--a long call, as is her wont.

Tuesday, July 10, 1973 - Berkeley - Oakland - Lafayette

I called John Ryan at AEC in Washington at 8:40 a.m. to arrange a visit there on Tuesday morning the 17th. He indicated that Hollingsworth is on vacation for three weeks and that Chairman Ray will be in Amchitka at that time but that a session can probably be set up with John Erlewine and him. He said that, in the week following, the House will hold hearings on the reorganization bill. He surmised that it will be a long time before legislation is enacted, in part because the coal people and others are fighting it. He conjectured that Holifield may propose a 3-man Board instead of a single administrator. John indicated that he doesn't know what Jim Ramey plans to do but that he wouldn't be surprised if Ramey ended up on the hill somewhere--such as Special Counsel for the JCAE or the House Government Operations Committee (of which Holifield is Chairman).

At 9:30 a.m., I went up to the HILAC Building to attend a meeting of the Planning Group. Ghiorso, Jose Alonso, and Nitschke were present. Ghiorso brought us up-to-date on the status of the Super-HILAC. Upon turning on after the long shutdown, the RF behaved beautifully, but a problem developed in Tank No. 5 similar to that last year which was diagnosed as due to bombardment by misdirected electrons. A problem of holding voltage in Adam has also developed. We discussed means of detecting fission fragments (from superheavy elements) instantaneously at the target.

July 9, 1973

Professor Kenneth V. Thimann  
Division of Natural Sciences  
University of California  
Santa Cruz, California 95060

Dear Ken:

Thank you for your letter of June 22, 1973, which was waiting for me upon my return from the Mexico City meeting. Incidentally, I believe that this meeting was very successful and went a great distance in opening the doors toward further international involvement of AAAS.

I would be pleased to put in an appearance at the open meeting of the Committee on the Public Understanding of Science on Tuesday, February 26.

It seems to me that the appearance of Professor Theodore Roszak at one of the symposia that you identify would be very interesting and appropriate. By way of sending him copies of our correspondence, I am suggesting to Howard Greyber that he make whatever arrangements that are necessary.

With warm regards,

Cordially,

Glenn T. Seaborg

GTS/sms

cc: Howard Greyber  
Jane Kingston

P.S. I am enclosing a reprint of my retiring President's address as it appeared in Science Magazine.

bcc route EKH  
E.Eiland

July 9, 1973

Dr. Eugene H. Huffman  
Room 352  
Alta Bates Hospital  
Webster and Regent Streets  
Berkeley, California 94705

Dear Gene:

I was very sorry to learn from Bob Giaugue of your illness. I, together with your many friends at the Lawrence Berkeley Laboratory, am pulling very hard for your recovery.

We appreciate very much your tremendous contribution to our research program, and hope to see you back to help us with your consultation work.

With warm regards,

Cordially,

Glenn T. Seaborg

GTS/sms

Tuesday, July 10, 1973 (con't)

At 11:30 a.m., I went over to the meeting of the AEC General Advisory Committee in room 4205, Building 50B. This is a meeting at which Laboratory Division Directors were to report on their research programs to the GAC. Present were the following members of the Committee: Lombard Squires (chairman), Evans V. Hayward, Hubert Heffner, Michael M. May, James H. Sterner, Howard G. Vesper, and Walter H. Zinn; and Anthony A. Tomei (secretary), Melvin A. Harrison (scientific officer), William L. Woodard (assistant secretary), Thomas J. Rainey (security officer), Kenneth F. Bowers (reporter)--all with the GAC organization. Also present were Dr. David Bruner (Special Assistant to Chairman Dixy Lee Ray), Tom Murley (Technical Assistant to Commissioner Doub), and Commissioner Clarence Larson, who left to return to Washington after about 15 minutes. Those present from the Lab included McMillan, Birge, Zackay, Calvin, Hollander, Pappas, Fidler, and Hyde. I came in as Zackay was finishing his presentation, after which I made a few remarks and introduced Earl Hyde, who presented the program of the Nuclear Chemistry Division. This was followed by the presentation of Jack Hollander on the Energy and Environment Program, which was interrupted at 1:00 p.m. for lunch.

I joined the group for a buffet luncheon in the room at the lower level of the cafeteria, sitting next to Howard Vesper and Evans Hayward.

Frank Kidner, Vice President-Educational Relations, called me at 3:40 p.m. to bring me up-to-date on the procedures with regard to the selection of the new LBL Director. He reviewed the committee's work, which has brought them down to considering three candidates--Shirley, Sessler, and Foster. He indicated that, in its meeting on July 5, the committee decided that it wanted to make an early choice and to seek a resolution between the three. He also indicated that the committee members were all impressed with each of the candidates but that the Regent members were more impressed with Foster than the faculty members were. He mentioned that Carter had asked Foster about his lack of a scientific reputation and that Foster responded optimistically, making quite an impression. The committee had suggested that Foster visit the Lab this week, but previously scheduled visits to Boeing and Hewlett-Packard prevent his doing so. In response to Frank's inquiries, I gave him my views about the three candidates. He suggested that it would be helpful if I discussed this with Melvin Calvin, which I said I would do. At his request, I indicated that President Hitch was empowered to cite my opinion that, if Foster were appointed, we could not recover from our relations to the campus and that, in my judgment, it would be a mistake. I added that I would not want to make a choice between Shirley and Sessler and that neither would be a mistake (he indicated that he and President Hitch both remember our earliest conversations on this subject).

I asked Frank about the athletic situation at UCLA, as it appeared in the Sunday paper. He indicated a sense that something appeared to be phony in the press accounts. I expressed my hope that Chancellor Young would not try to gloss over it (a mistake which Ray Allen had made years before) and deal with the matter promptly and firmly.

I called Melvin Calvin a little before 4:00 p.m. to discuss with him the three candidates who are now the finalists for the position of Director of LBL. He agreed with me that Shirley and Sessler would be the most suitable.

At 4:00 p.m., I went up to the HILAC Building and, together with Ghiorso, showed the members of the General Advisory Committee who are present today--with Harrison, Bruner, Murley, Budinger, and Fidler--the SuperHILAC. We showed them the model of the SuperHILAC, then toured the HILAC from the injector end to the target end and ended by showing them FAKE and SASSY. We also saw the start of construction of the BEVALAC.

I sent a letter to the Department of Electrical Engineering and Computer Sciences (copy attached), supporting Valeriu Hulubei's application for admission to graduate studies there. I accepted August Schou's invitation to lead the morning session on Monday, September 17, at the Nobel Symposium in Oslo; I also suggested that he try to schedule my speech for either the 17th or 18th. I mailed out to the Trails Subcommittee of the Citizens Task Force a ballot for their opinions on whether we should meet to discuss the Overview report (copy attached).

Suki and I took a hike to the water tank. Helen and I attended a dinner for the AEC General Advisory Committee at the home of Mr. and Mrs. Howard Vesper in Oakland. Present besides the Vespers were Mr. and Mrs. Michael May, Lombard Squires, Mr. and Mrs. James Sterner, Evans Hayward and her husband, Mr. and Mrs. Walter Zinn, Mr. and Mrs. Hubert Heffner, Mr. and Mrs. Tony Tomei, David Bruner, Tom Murley, Tom Rainey, William Woodard, Mr. and Mrs. Melvin Harrison--all connected with the GAC--and Mr. and Mrs. Edwin McMillan and Mr. and Mrs. Don Reardon. Helen and I sat at a table with the Vespers, Sterners, Lom Squires, and Mrs. May. After dinner, Howard introduced me and I gave about an hour's talk describing our trip to China; this was illustrated with slides, and Helen helped with the narrative as I went along.

Wednesday, July 11, 1973 - Berkeley

Majorie Hollander came in at 9:00 a.m. to start the work of recreating my chronological file for the period 1946-61, with priority on the Chancellorship period: August 15, 1958-January/February, 1961.

Phil Dauber dropped in at 9:30 a.m. to discuss his high school and college-level "A Physics Course Using Television." I indicated that I thought he has a good plan but that it will require a tremendous amount of work. He seems to realize this. We discussed a possible film about accomplishments in China which might serve as an example to help other developing countries. He is thinking of having the producer of the film "Spaceship Earth" collaborate on this. We agreed that he will arrange to have a copy of this film sent up so that Dave Ridgway and I can see it.

Jens Kratz dropped in at 10:00 a.m. to discuss the aspect of our research program that Ted Norris might work on. He might start on some further aspect of the distribution of mass numbers at a given

July 10, 1973

Professor Eugene Wong, Vice Chairman  
Office of Graduate Student Matters  
Department of Electrical Engineering  
and Computer Sciences  
University of California  
Berkeley Campus

Dear Professor Wong:

I am writing in support of the application of Mr. Valeriu Hulubei for admission to graduate studies in the Department of Electrical Engineering and Computer Sciences.

I have met Valeriu Hulubei during several of my trips to Europe--in Bucharest, Romania in 1969; in Dubna, U.S.S.R. in 1971; and at Frankfurt, Germany in 1972. He is the nephew of the well-known Romanian nuclear physicist, Horia Hulubei, whom I had the privilege of knowing over a period of many years until his death last November.

I have a very good impression of Valeriu Hulubei on the basis of my meetings and conversations with him. He speaks English fluently and strikes me as a very intelligent person with a pleasant personality. He is obviously very dedicated to his objective of obtaining a Ph.D. in Electrical Engineering and Computer Sciences, and I believe that his education, experience, and general background has given him the preparation to be successful in this endeavor.

Sincerely yours,

Glenn T. Seaborg  
University Professor

GTS/sms

LAWRENCE BERKELEY LABORATORY  
UNIVERSITY OF CALIFORNIA  
BERKELEY, CALIFORNIA 94720 □ TEL. (415) 843-2740

July 10, 1973

TO THE TRAILS SUBCOMMITTEE,  
CITIZENS TASK FORCE,  
EAST BAY REGIONAL PARK DISTRICT

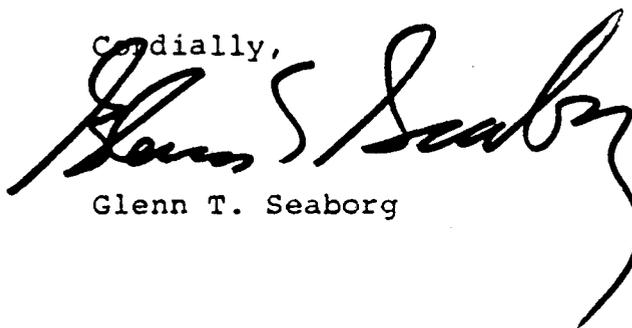
I would like to raise the question of whether we should have a meeting of the Trails Subcommittee to discuss possible comments on the recommended Master Plan Summary prepared for the East Bay Regional Park District by Overview.

I am enclosing a ballot consisting of two parts--one, your reaction to the need for a meeting, and a second part to be used if there is a consensus on the need for a meeting, suggesting some alternative times and places.

Would you return the ballot to me, if possible, no later than Thursday, July 19?

With best regards,

Cordially,

A handwritten signature in black ink, appearing to read "Glenn T. Seaborg". The signature is fluid and cursive, with a long, sweeping tail that extends downwards and to the right.

Glenn T. Seaborg

GTS/sms

Enclosure

PLEASE RETURN BY JULY 19 TO:

Glenn T. Seaborg  
Lawrence Berkeley Laboratory  
University of California  
Berkeley, California 94720

I think that the Trails Subcommittee

should meet again to discuss the Overview report.

does not need to meet again.

If the Trails Subcommittee meets again, these are my choices in order of priority (1-2-3-4) for such a meeting:

\_\_\_\_\_ 4:00 p.m., Thursday, July 26, in Seaborg's office  
at the Lawrence Berkeley Laboratory.

\_\_\_\_\_ 7:30 p.m., Thursday, July 27, at the EBRPD  
Headquarters, Skyline Drive, Oakland.

\_\_\_\_\_ 4:00 p.m., Friday, July 27, in Seaborg's office,  
at the Lawrence Berkeley Laboratory.

\_\_\_\_\_ 7:30 p.m., Friday, July 27, at the EBRPD headquarters,  
Skyline Drive, Oakland.

\_\_\_\_\_ Other: \_\_\_\_\_

Signed \_\_\_\_\_

Wednesday, July 11, 1973 (con't)

atomic number, as has been done with iodine, but will later join Kratz as a partnership like Liljenzin and Kratz have been doing.

At 10:30 a.m., I receive a phone call from Richard Gibbons, a stockbroker with Shearson Hamill and Company in San Francisco. He indicated that he had talked last week with Ed David about KMS Industries and asked my opinion of them. I said that I thought it was a good project, but an enormously complex one which would require a timetable towards the year 2000 or 2010. I indicated that I am optimistic in the long term, but that billions of dollars will have to be put into it before it makes any energy. Gibbons discussed the patent problems of KMS vis-a-vis the Atomic Energy Commission, mentioning some allegation about Brueckner. I indicated that I thought Bruckner has been legitimate in his negotiations; otherwise, I didn't know how I could help Gibbons.

I called George Kolstad at 11:45 a.m. at his office in Washington in response to his note to me of June 28 in which he asks for my advice in connection with a memorandum he had received from John Teem. I indicated that I thought he ought to keep his options open and accept Teem's offer, thus giving himself more leeway and time for subsequent possibilities. He told me that the research program is being reorganized away from the disciplinary structure that we had had to a more goal-oriented structure. He said that Elliot Pierce will head up the section on atomic molecular and applied sciences. Don Stephens will head up material sciences and it has not been decided who will head up nuclear sciences. He said that Dan Miller will stay in the same position. Spof English is coming down into the Research Division (having decided to stay); he will be an Associate Director interfacing with other divisions of the AEC. Since the chemistry program is wiped out, Alex Van Dyken will be split between materials and nuclear sciences, with emphasis on the latter.

I had lunch at the table outside the cafeteria overlooking the campus with Earl Hyde. We discussed the general status of the directorship of LBL. I also joined Liljenzin, Kratz and Norris for a while at their table to discuss their program. We will investigate the possibility of Norris working on the products formed in the bombardment of gold with argon ions.

Len Nugent called to tell me that he has been invited to spend his sabbatical year 1973-74 as a Visiting Professor of Chemical Physics at the University of Geneva, working with Jorgenson. We agreed that he couldn't otherwise get the book done by our target of 1974, and I suggested that he undertake the Geneva position in two or three years from now.

At 1:40 p.m., I telephoned William Baker at Bell Laboratories in New Jersey, calling in my capacity as Chairman of the AAAS Board of Directors. I indicated that, in its meeting at Mexico City, the Board conducted a discussion on science and technology in the United States and agreed that, in its opinion, these are not being used at maximum effectiveness. I indicated that the Board wanted me to explore with him what the AAAS might do to improve this situation. I said that the

Wednesday, July 11, 1973 (con't)

emphasis is on "what can science and technology do for the country?"--not vice versa--and reviewed the Board constituency for him.

He responded that he found this to be a splendid, refreshing thought and that there are two or three things shaping up which might be of interest to AAAS. For example, he cited the need for leadership in a situation at HEW, where no more than 16% of the total HEW health research and health services budget is going into development; he indicated that we do not seem to have "any traditions" for developing applications out of the work in life sciences (e.g., educational programs, agricultural applications, etc.). I told him that the Board is worried, too, about the apparatus in government. He indicated that this would depend on what is proposed. He suggested that the professional societies in the country should play a new and central part in selecting priorities as well as allocating resources because the nature of our present problems (e.g., health care, energy, roads, ecology) all require very massive numbers of people, calling for large citizen commitment--whereas such agencies as NASA and DOD can organize their programs in hierarchical form and not require this individual commitment. Baker therefore believes that we must invent ways for the large professional societies to get opinions and commitments from their membership in these matters.

I cited the recent NSF press release on the new Science and Technology Office, with Russell Drew as its head. He suggested that that council ought to have members who represent those large constituencies. I asked whom one would talk to in the White House about these things now. He named George Shultz and Shultz's Deputy, Kenneth W. Dam (who concentrates on science and technology policy questions, and who strikes Baker as being thoughtful and conscientious). He thinks that Shultz and Dam would be interested in talking about this; while they do not yet fully understand the problems, Baker thought they would do what we felt was urgent. He indicated that neither Stever nor Drew would probably be responsive to such a discussion now.

Baker described the activities presently under way to deal with the problems of health care, with Kenneth Cole (helping Laird run the Domestic Council) and his associate, Kavanagh, primarily involved. Baker indicated that they have not yet found ways to use the larger constituencies, but expects them to find those ways. He suggested that it would be a further advantage if AAAS had been involved in the protest about the reorganization of HEW; I indicated that we wanted to look at it more broadly than that.

We discussed the possibility of a meeting which he would set up when I am in Washington on Wednesday, July 18, and he will get back in touch with me about this. I suggested that such a discussion might serve as a step in the learning process for those involved. He asked if AAAS had specific proposals on what it could do--noting that he didn't think Shultz and Dam would be in a position to think of things to do but could respond to proposals. He reiterated that he thought the AAAS Board could be exceedingly useful in this regard. He amplified this with illustrations of the need for ways to get new technology applied quickly. I indicated that I would want to have

more of a preliminary groundwork session before I decided how to proceed on these lines. I suggested that perhaps Dam would share in such an opening dialogue as a way of opening the door and pass on the concern.

I called Art Campbell at Harvey Mudd College at 2:30 p.m. to get more information about the UNESCO International Congress on the Improvement of Chemical Education, which we discussed in his earlier phone call. He suggested I contact Robert Parry at the University of Utah. I then called Bob Parry and he strongly urged me to make an appearance at the Congress in Warsaw in September because of the lift it would give to the conference. After some discussion, he said that he would talk to Harold Foecke about my scheduling problem and then call me back.

I received a call from Michael Marx, who wants to use the driveway on the Segre-Seaborg land across from the Grizzly Stables to park his van to practice loading and unloading his horse for perhaps a total of six times. I told him this would be all right provided it didn't set a precedent. He said that Val Geissler, the present owner of the Stables, is very anxious to talk to me about possible arrangements, but I indicated that a conversation at this time would not be productive.

I wrote Bob Barieau in response to his letter asking me to adjudicate in the matter of his being separated from the Bureau of Mines in Denver, by a Bureau reduction in force. I indicated that I didn't feel that I should try to become involved in this problem.

I spent about an hour hoeing weeds in the back yard. Steve went to Berkeley to spend the night in Ron's apartment.

Thursday, July 12, 1973 - Berkeley

I spent about twenty minutes with Ken Ericson.

At 9:30 a.m., I met in the HILAC Conference Room with our chemistry group to discuss the status of the chemical work. Present were Ghiorso, Liljenzin, Kratz, Nitschke, and Jose Alonso. We discussed the proposal for work by Ted Norris on the bombardment of  $^{197}\text{Au}$  with  $^{40}\text{Ar}$  ions to measure the yield of products such as  $^{201}\text{Tl}$  formed by helium transfer reactions. This should give us information on the role of  $^{242}\text{Pu}$ , formed by helium transfer in  $^{238}\text{U}$  plus  $^{40}\text{Ar}$  and  $^{84}\text{Kr}$ , as a possible fissioning nucleus that leads to the large yields of nuclides like  $^{99}\text{Mo}$  and  $^{105}\text{Ru}$ , formed by asymmetric fission. The yield of such nuclides from  $^{197}\text{Au}$  should be much less and more comparable with the yields of nuclides in adjacent mass regions. We discussed the important question of whether we should set up a chemical laboratory and complete counting equipment in the HILAC Building to make it possible to work on short-lived products. We must make a decision on this soon. Ghiorso also brought up the question of my chemistry group joining in on the use of FAKE to study the chemical properties of elements 104 and 105, etc. We might get a long bombardment of uranium with krypton ions tomorrow.

Thursday, July 12, 1973 (con't)

At 10:30 a.m., we started the meeting of the SuperHILAC Research Group. Ghiorso made a status report of the SuperHILAC. He described some problems with Adam which have been fixed. The problem in tank 5 has also been solved. There will be a two- or three-week shutdown in September to make a number of required changes. There should be a BEVALAC beam by Christmas and a shutdown in January to make some changes related to the BEVALAC.

Jens Kratz then gave a report on our chemical program. He again emphasized the absence, in the case of krypton, of products that might have been produced from a compound nucleus such as are produced in the case of our argon bombardments of uranium. This is disturbing from the standpoint of producing superheavy elements which, of course, can only be produced if heavy nuclei, like compound nuclei, are formed in the process.

Nitschke described his considerations on the design of a heat measuring device (using the Peltier Effect) to measure the intensity of the heavy ion beam. Richard Eggers, John Rasmussen's graduate student from Yale, described some of his work on the observation of  $^{41}\text{Ar}$  from  $^{40}\text{Ar}$  ions on Au and Ta.

Following the meeting, Binder, Norris, Liljenzin, Kratz, and I went down to FAKE, where Nitschke described its operation preparatory to our possible use of its apparatus in some of our future experiments. All of us then went to the cafeteria where we had lunch at the outside table at the lower level.

At 1:45 p.m., I received a call from Harcourt Amory of Boyden Associates in New York (the largest consulting firm in the country engaged in executive search work). They have been hired to find a Vice President for Engineering for a nuclear reactor firm, which asked that he consult with me. Without naming the firm, he described the position: they want someone of national stature, an outstanding technical background, and proven administrative ability. His principal mission will be to sell the nuclear concept; he would be a candidate for company president in about five years. They are thinking of the age bracket 35-55; the starting income (including bonuses) would be in excess of \$100,000. I indicated that I would not be a candidate. I told him about Milton Shaw (whose name hadn't come to his attention) and gave him some background to the story of Shaw's leaving the AEC. I indicated that I would want to check more about Shaw before recommending him for this particular position, but thought Amory could find him in Washington if he were interested. Amory told me that Boyden Associates located Carl Walske for the Atomic Industrial Forum as its new President and Chief Operating Officer; I indicated that Walske would know Shaw. I also gave him the name, address and phone numbers of Chauncey Starr, though I doubted he would want to make any move at this time. In response to his query, I indicated that Larry Grossman in the Nuclear Engineering Department at Berkeley might be another source of names.

At 2:00 p.m., I received a call from Richard Reinauer, Don Myer Productions in Chicago--the producers of Mutual of Omaha's television

program, "Wild Kingdom." They are interested in getting into China; I suggested he contact Anne Keatley's office.

Earl returned at about 3:00 p.m. from his meeting with the Joint Regents-Faculty Committee to recommend the new Director for LBL. Present at the meeting today were all the members and, by invitation, also Regents Hearst, Smith, and one other (Bob Reynolds?). There was much discussion in which Foster, Shirley and Sessler were discussed, followed by a vote taken in alphabetical order. Regents Campbell, Watkins, Wilson, and Lawrence voted for Foster; Regents Carter and Roth, as well as Hyde, Calvin and Ticho voted for Sessler; while Jackson and Searcy voted for Shirley. Earl told me that he has already gone to see Shirley to tell him the outcome, how he voted and the reasons therefore.

I forwarded to Lai Wei-chien, Liang Dai-hua and Tu Kwan-tien at the Institute of Nuclear Physics in Shanghai the information on SNAP-27, as I had promised during our visit to their Institute in Shanghai. I sent to Justin Bloom some comments about his article on rutherfordium which he is preparing for the Gmelin Handbook.

I worked in the backyard hoeing weeds. Steve returned home during the day, cut the lawn, and returned to Berkeley after dinner to spend the night at Ron's.

Friday, July 13, 1973 - Berkeley

On the morning news, I heard that President Nixon entered Bethesda Naval Hospital last night with viral pneumonia.

Melvin Calvin called me at 8:45 a.m. in connection with a letter he has received from Michael Kasha about his article for the Copernican volume. I said that I would send him a copy of Neyman's letter to Kasha, turning down the final manuscript, together with a copy of Kasha's original paper which might be published in the American Scientist, or possibly the Proceedings of the American Philosophical Society. In response to Calvin's inquiry about what had happened, I explained that, basically, Kasha had been about six months late on all of his deadlines. The original arrangement was that Kasha was to write on the periodic table, I on the transuranium elements, and Weisskopf on nuclear structure, etc. Then Neyman (who is not blameless) changed signals and told Kasha to include all kinds of other material in his essay; I had disagreed with Neyman about this. I then helped Neyman to get Maurice Goldhaber to write a paper on the nuclear history and elementary particles, and I put into my article whatever was needed to make it self-sufficient (e.g., definitions of such terms as "atomic number"). When Kasha's essay came in, it received a terrible review by the committee. In the meantime, Kasha was re-writing his essay--but all of this at a late date. This left the void of the first history of the periodic table. I then added about two pages at the beginning of my essay to cover that and sent both versions of my essay to Neyman, still hoping that Kasha's would be acceptable. I indicated that I had done all the things that Neyman asked, but felt that it detracted from my essay.

I met briefly with Ken Ericson.

Friday, July 13, 1973 (con't)

I called Betsy McFadden in Washington at 10:00 a.m. to discuss our progress to date on Travels in the New World. She indicated that she has not been able to do anything on it for the past several months. She is now working at the AEC all day on Monday, Wednesday and Thursday. She will try this summer to go in occasionally on a Saturday or a Sunday to go through the manuscript, this time to pick up the major corrections without worrying so much about stylistic questions. We could then review our status again in September. She said that she will send me updated lists which she has on the countries participating in NPT, and I suggested the perhaps the material yet to be covered won't be as difficult as that which she's completed.

Paul Lochak called me from Paris at 10:20 a.m. to discuss a time for us to meet in the United States this summer. In response to his inquiry, I said that I would find out for him the status of possible technical cooperation and assistance between the United States and Europe on the construction of gaseous diffusion plants.

I received from Bill Bevan a copy of his letter (attached) to Gerardo Bueno, as a first follow-up to the Normandie Summit.

The Nuclear Chemistry Division Program Committee held a bag-lunch meeting in my office from 12:00-1:35 p.m. Present were Joe Cerny, Albert Ghiorso, William Myers (for Norman Glendenning), Bernard Harvey, Earl Hyde, Arthur Poskanzer, John Rasmussen, David Shirley, Kenneth Street, and Stanley Thompson. Street reported that the Nuclear Chemistry Division came through only \$25,000 low in the FY73 budget. This figure is much lower than we anticipated--helped by the fact that overhead was especially low in June, and we had an unusual number of staff on vacation.

Earl announced that LBL will send an 8-9-man group to Washington for the hearings of the NAS Feshbach Committee. He called the committee's attention to the document, "Heavy Ion Facilities and Heavy Ion Research at the Lawrence Berkeley Laboratory." Bob Main, Earl Hyde, Dick Diamond, and Bernard Harvey will be there. (Earl observed that the Committee probably can't do us any good, but could do the Nuclear Chemistry Division harm.) Myers provided some historical review on how this committee seems to have evolved. He opined that the matter started at the American Physical Society meeting in Washington in April 1972. At that time, Allan Bromley spoke, his Physics in Perspective report having just been completed. His proposal--that the future will take a turn toward increased heavy ion work and that small programs would be phased out--was vigorously attacked. Fay Abzenberg-Selove (Chairman of the APS Nuclear Physics Division) stated that this report was by no means supported by the Nuclear Physics Division of the APS. In a subsequent discussion of heavy ion facilities, Myers reported that ORNL came out looking good, better than Argonne. Myers went on to describe the November Division meeting in Seattle at which the Bromley report was discussed; a part of the presentation was to attest that movements towards large centers was inevitable--again building the idea that there was agreement on this, whereas such discussions were breeding some resentment. (Harvey and Cerny observed that the meeting was very poorly handled.) There

*American Association  
for the Advancement of Science*

1515 MASSACHUSETTS AVENUE, NW, WASHINGTON, D. C., 20005

Phone: 467-4400 (Area Code 202)

Cable Address: Advancesci, Washington, D. C.

July 10, 1973

Lic. Gerardo M. Bueno Zirion  
Director General  
Consejo Nacional de Ciencia y  
Tecnologia  
Insurgentes Sur 1677  
Mexico 20, D.F., Mexico

Dear Lic. Bueno:

I hasten to write on behalf of my colleagues in AAAS to express the pride and pleasure we feel on the great success of "Science and Man in the Americas." Please be assured of our great appreciation for the special contribution which you personally made to this success.

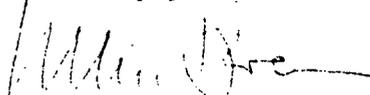
Dr. Trumbull and Mr. Bolin have arranged to meet with Dr. Martin del Campo and his colleagues to complete work on financial and other operational matters.

Meanwhile, I should like to suggest that we plan a review of the content of the meeting sometime this fall, after we have had an opportunity to obtain information on the reaction of participants and attendees.

I shall be conferring later this month with Drs. Seaborg and Rieser concerning our representatives on the editorial and planning committees discussed over lunch at the Normandie, and shall communicate with you shortly thereafter.

I wish also to express my very great personal appreciation for the handsome gift I received at lunch on Wednesday. It is something that I shall cherish as a happy reminder of our collegueship.

Cordially yours,



William Bevan  
Executive Officer

WB:hh

bcc: Dr. Glenn T. Seaborg  
Dr. Leonard M. Rieser

Friday, July 13, 1973 (con't)

is now a sense on the part of many people that the Feshbach Committee cannot be expected to take a fresh look at the whole subject and that its recommendations are predictable at this point in time.

I asked for a simplified statement about the attitudinal lineups of the principals involved. Out of the committee discussion, it was suggested that Selove is opposed to the establishment of another facility, though this is not finally clear. Herman Feshbach is not a new force because of his earlier participation on the Weneser Panel. Harvey had the impression that Feshbach would favor ORNL, though no one could be pinned down. Cerny suggested that Argonne will reverse the tide and make an impressive presentation. Harvey advised (and Ghiorso agreed) that we should wait a couple of years to see how the HILAC functions before deciding which kind of new machine should be built.

Poskanzer described the Summer Study in Relativistic Heavy Ions program which is meeting for two weeks, with outside visitors brought in. Geoffrey Chew is the chairman.

Earl presented a June 25 letter he has received from Robert Epple, requesting review of the research programs of various outside nuclear chemists, i.e., Sheline, Miller, Porile, Thomas, Blann, and Huizenga. He asked Art Poskanzer to take charge of these reviews; I suggested he ask Harvey, Hyde, Rasmussen, and Cerny to help do the reviewing. Earl also reported on the meeting of the General Advisory Committee at LBL this week and announced the visit on July 18 of Keith Frye of OMB. I described some of the personnel changes under way at the Atomic Energy Commission.

Harvey reported on his work with the Laboratory-wide committee to recommend personnel policies that would be acceptable to the SAN office. Topics being discussed include annual performance review policy and hiring practices. Harvey asked this committee its advice on whether an across-the-board annual performance review should include GSRAs; Shirley advised that it is a potentially dangerous precedent to treat graduate students as employees. Cerny would extend this to include all temporary personnel, such as postdoctorates. Harvey also asked for advice on techniques for both ensuring equal opportunity in hiring techniques and ensuring continued excellence in our staff in the Laboratory.

Earl announced that the Professional Salary Committee has met and approved increases for the Nuclear Chemistry Division as follows: 6.7% for BS/MS people and 6.3% for Ph.D.'s below \$25,000. There are a few individual cases of more increases. This generally approximates the Lab average, though there are some major differences. We briefly discussed the format for the Nuclear Chemistry Seminar we will organize this fall. Cerny proposed an alternative to our earlier notion: that the graduate students be included in our regular Monday Nuclear Chemistry Seminar. The students would register for this as Chemistry 298. Cerny, after the meeting, said he will draft a memorandum on this to be sent to the graduate students, faculty, and senior staff.

UCLA Chancellor Charles Young returned my call of last Monday at 4:00 p.m. I indicated that I had called him on an impulse upon reading the story about Lutz in our Sunday papers and asked if this is serious. Young said that the situation has proven not to be serious; they interviewed Lutz, who privately admits that he had lied to the unemployment board. Lutz had been in a difficult financial situation, was trying to get unemployment payments and was turned down because (as a student) he could not be available for any job that was offered to him. I encouraged Young to handle the matter with great care and thoroughness, remembering the Pandora's box opened up by Ray Allen's poor handling of a possibly similar situation 15-20 years ago; he assured me that they are doing this.

George Link (President of the California Alumni Association and Regent-Designate) called me at 4:30 p.m. in regard to the Regents' deliberations on the selection of the new LBL Director. He asked if I had an opinion about Foster and Sessler; I indicated that I had a strong opinion, which I then discussed with him. He explained that President Hitch presented to the Regents at their meeting in San Francisco today his recommendation of Sessler (in accordance with the final vote of the Joint Regent-Faculty Selection Committee) as the new Director. The matter was taken up in the full Board-only session today; to my surprise, he said that no one seemed to know my position. The Board overturned President Hitch's recommendation, and the matter will now be discussed again in a special Board meeting next week in San Francisco. George indicated his impression that the selection committee's lines were drawn between the Regents on one side and the faculty on the other, perhaps with the interests of the Lab not paramount in their actions. He indicated that the Board was not informed well as to the reasons that Sessler was supported by the academic community. We discussed quite fully the respective attributes of Foster, Sessler and Shirley. George indicated that he would like to be able to quote me as (1) supporting Sessler or Shirley, emphasizing their scholarship and record in the fields of work of the Laboratory, the tremendous rapport which they have with the campus, their proven administrative ability, and, that if necessary, that (2) I would not find Foster acceptable. He indicated that there were claims that Foster could deal well with the Atomic Energy Commission, which I countered on the basis of Bob Hollingsworth's definite and John Teem's probable opinions about him. George indicated that as a Regent-Designate, he does not have voting power this year, but is in a position to discuss issues with those who do. I indicated that he could use my name, emphasizing the positive aspects. Bill Keene (UCLA) is his predecessor on the Board this year, and George indicated that Keene had voted "in a way I would appreciate."

I hoed weeds in the back yard before dinner. At about 7:00 p.m., Jane Kingston and Dave Richards came by to deliver the Kodak Carousel Slide Projector and Eumig Movie Projector that they had picked up for us at Brooks Camera in San Francisco this afternoon.

Saturday, July 14, 1973 - Lafayette

The news on President Nixon today is that he is getting along fairly well, but the viral pneumonia has spread to his other lung.

I spent a good part of the day hoeing weeds along the ditch in front of our field. Helen bought a tape recorder for me to bring to Pete and Jane next week. During the evening we used our new Eumig movie projector to view the movies we took of Cha Cha and Dianne last Saturday and our Mexican trip movies. Both turned out well, as did the slides from our Mexican trip. Steve is still in Berkeley.

Sunday, July 15, 1973 - Lafayette

Earl Hyde came to our Lafayette home in the morning to discuss the unfortunate turn of events at the University of California Regents meeting last Friday at which President Hitch's nomination of Andy Sessler as Director of LBL was turned down by a close vote. I may call President Hitch tomorrow to see if I can find a way to help.

I spent most of the day and evening working on the typed version of my China Journal, with Helen's help. Lynne called at 7:00 p.m. to bring us up-to-date on her and Bill's activities. Steve came home for dinner, somewhat morose because things haven't been going so well in his relationship with Joan. He called Lynne and had a lengthy discussion with her about the situation. He then returned to Berkeley to spend the night with Ron at his apartment.

Monday, July 16, 1973 - Berkeley - Washington, D.C.

The 28th anniversary of Alamogordo. The news reports this morning have President Nixon improving but, if so, the improvement seems to be slow.

Jose Alonso dropped in at 9:30 a.m. to say that he will be able to bear the major burden of writing the article on the production of heavy nuclides by charged particle reactions for the Gmelin volume--the writing assignment that Nurmia has fallen down on so badly.

Jack Hollander then dropped in to tell me about the meeting of the task force headed by Gerald Johnson that he attended at the AEC in Germantown at the end of last week. They are working on the plan for the \$10 billion to be spent on energy development in the next five years, mentioned in President Nixon's energy message to Congress. Jack indicated that people like Paul Donovan are interested in coming to work at LBL on our energy program.

At 10:00 a.m., I dropped in to see Sven Gosta Nilsson, who has returned from Los Alamos to spend three weeks here before he returns to the University of Lund in Sweden. Ingrid and Bengt have driven to New York and are returning now directly to Lund. I then dropped by to see Liljenzin, Norris and Lujan in their office, off Room 203, Building 70. I learned that, unfortunately, they didn't receive a krypton bombardment over the weekend due to troubles with Adam.

I phoned President Charles Hitch at 10:25 a.m. to inquire about the Regents' meeting last Friday. He indicated that they had reached an impasse which he hopes is temporary. He took the committee's recommendation of Sessler to the Regents, but they voted it down 10-8 because there was strong Regents' support for Foster. A decision has been put off to a special meeting on Friday, July 20. In the mean-

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time, President Hitch will meet with the faculty component of the committee tomorrow morning. He indicated that John Lawrence has lined up much support among the Regents for Foster and even had Ed Reinecke come down for last Friday's meeting. Hitch said that the faculty component had not come out strongly against Foster and that it was important for them to communicate that they do not regard him as "one of three good candidates" but as unacceptable. I reinforced that position. He will ask the faculty component to designate a spokesman who will meet with the Regents and tell them how they feel. I offered further help if he needed it; he indicated that he will get in touch with me after tomorrow's meeting if I should contact Reinecke or other Regents.

He told me that he has been talking with Scoop Jackson and asked if he could send him a copy of my report "A Journey to China" (which I had sent him in lieu of a Spring Quarter University Professor's report). He indicated the Jackson may want to talk with me before he goes in the near future to China; I said that I will be in Washington this week and may look him up.

I then phoned Elmer Staats and Senator Scoop Jackson in Washington to arrange meetings with them tomorrow.

I had lunch in the cafeteria at the lower level (it's cool outside). I sat with Mike Nitschke, Luciano Moretto and others. I discussed with Moretto the Monday afternoon Nuclear Chemistry Seminars. He has discussed this with Cerny and agrees very much with the suggestion that the graduate students take over at every third meeting. He also suggested that there should be informal discussions, perhaps with several discussion leaders, of new ideas as they are evolving at the seminars, and I agreed.

At 1:30 p.m., Val Geissler, the new manager of the Grizzly Peak Stables, called to ask if he could talk with me about leasing our property in Orinda. He indicated his knowledge of our past bad experiences but said that he has a lot of good references to attest that he is a good tenant. He told me that Sam Troll still owns Grizzly Peak Stables, but lease of my land would be to him (Geissler) personally. I indicated that it was our experience that what happens to the land is not worth what a tenant such as he can pay and that there is no value in such leasing for us. I explained that, from our previous experience, we had not realized what damage was being done to the land even under the best circumstances--and that for a paltry sum of money. When I asked him why he thought I should rent it, he suggested that this would help defray some expenses and give us the assurance that the land was being properly cared for. However, he did acknowledge that he is interested in having more than right-of-way across the land; he would like grazing rights on the entire property. He pointed out that the area is presently something of a fire hazard to the adjacent park. I indicated that Sam Troll still owes us a couple of thousand dollars and Geissler suggested that he might be able to get this money for us. I told him that, if he could do this, we could talk about his request. He will see what he can do and be back in touch with me.

We received word that Gene Huffman died this morning at Alta Bates Hospital.

I received in the mail from Ezra Vogel a copy of his China journal; this will be very useful in correcting my own account, particularly on names that Chou En-lai referred to in his recounting of their history. I mailed to Anne Keatley the list of the Chinese whom we met on our trip (cover letter attached). I wrote Monti Reynolds at Davis (copy attached) in response to his request for information on setting up correspondence between students in the People's Republic of China and students at Davis.

Helen drove by my office at about 2:00 p.m., with Dianne along. She drove us to the San Francisco International Airport where I boarded TWA Flight No. 68. This left at 3:45 p.m. and arrived at Dulles Airport in Washington at 11:10 p.m. Sid Fernbach, of the Lawrence Livermore Laboratory, was on the plane; he was scheduled to visit AEC at Germantown tomorrow. I took a taxi to Harrison Street, arriving at midnight. Jane was in bed, Pete at work on the swing shift.

Tuesday, July 17, 1973 - Washington, D.C.

I had breakfast "at home." Then Bill Baker called me to say he had set up an appointment for me with John Sawhill tomorrow to discuss with him and others the AAAS interest in Nixon Administration science policy. I called Sawhill and set up the appointment for me and Bill Bevan at 4:30 p.m. tomorrow in Sawhill's office (Room 246, Executive Office Building). I called Bevan to tell him about the appointment and to suggest that he call Len Rieser to suggest that he might like to come down for the appointment.

I then rode to the Germantown headquarters of AEC in an AEC car with Oswald Utterbak as driver. We arrived at Germantown at 10:00 a.m. and I went to the office of Deputy General Manager John Erlewine. I met with Erlewine and John Ryan in Hollingsworth's office for a general briefing on the status of affairs at the AEC.

They said that the General Manager's office has been occupied in discussing the structure of the new Energy Research and Development Administration (ERDA). There are those in the White House who would like to see it structured along the lines of deputy administrators for such fields as coal and so forth, similar to the present Department of Interior, which the General Manager feels would be a mistake because of the political implications. They would also like to have the concept of a lead laboratory, that is, each of the main development programs, such as coal gasification and so forth, be placed in one of the national laboratories, which would act as a lead laboratory.

I asked the status of the sharing of technical information with foreign countries on the gaseous diffusion process for the enrichment of uranium, and they gave me a packet of press releases and supporting information on this.

Then I took up the matter of Norman Milleron and explained the political considerations that had led us to defer his termination,

July 16, 1973

Mrs. Anne Keatley  
Committee on Scholarly Communication  
with the People's Republic of China  
National Academy of Sciences  
2101 Constitution Avenue  
Washington, D.C. 20418

Dear Anne:

As you requested I am enclosing the lists of names of people that Helen and I met on our recent visit to The People's Republic of China. These are in chronological order and identified with the arrival place, dinner, institute, university, etc., where the encounter first took place. The names are in general not repeated to identify subsequent encounters and no attempt has been made to include our various interpreters and guides of the Peking contingent. In a number of places the lists are incomplete, sometimes very incomplete, and here I have added the designation "others" to the lists. I look forward to receiving your lists of names which should help me fill in some of these "others".

It was a great trip and Helen and I appreciated very much being included.

Cordially,

Glenn T. Seaborg

GTS:mn

Enclosure

July 16, 1973

Professor D. M. Reynolds  
Hammarskjold House  
University of California  
Davis, California 95616

Dear Monte:

When Helen and I were in the People's Republic of China, as you requested we discussed with various people the possibility of Chinese students' carrying on correspondence with students at Hammarskjold House. One such possibility is for you to have someone write:

Mr. Chu Chin-ning  
Bureau of Foreign Affairs  
Scientific and Technical Association  
Peking, China.

He is a graduate of the Institute of Foreign Languages in Peking and is 26 years old, and we found him knowledgeable, gracious, and cooperative. He served as our interpreter during various of our visits.

We also gave your name to Professor Chao Pei-yuan, President of Peking University, and to Professor Chang Wei, the Administrative Head of Tsinghua University (his actual title is Vice Chairman of the Revolutionary Committee) in Peking. Actually, we asked one of our friends--Tsien San-tsiang, the Director of the Institute of Atomic Energy in Peking--to convey these messages to have students at Peking University and Tsinghua University write to students at Hammarskjold House in care of you.

Cordially,

Glenn T. Seaborg

GTS/sms

Tuesday, July 17, 1973 (con't)

that is, his relationship to Ralph Nader. Erlewine and Ryan said that they would discuss this at a Commission meeting on Friday morning and if they have no objections to our present plan of terminating Milleron we can then go ahead, that is, we can go ahead if we don't hear from them in a negative sense.

Doub is serving as chairman of a committee that is looking into the possible amalgamation of the Federal Power Commission and the new regulatory Nuclear Energy Commission, and perhaps even the Environmental Protection Agency, into one large agency.

We discussed the status of the LMFBR prototype. Tom Nemzek is taking Milt Shaw's place. He will have a different philosophy of operating in which a good deal of the authority will be placed in the field offices and there won't be so much central control from the Washington AEC. The decision of Judge Skelly Wright in the Appeals Court requiring the AEC to make an environmental impact statement is holding up the signing of the contracts for the LMFBR because the signing is deemed to be a significant action and no significant actions can take place until the environmental impact statement has been made. Erlewine left the meeting at this time.

We discussed the Teem reorganization of the Division of Research, and I learned that this will be announced very soon. I then called Teem for a luncheon appointment, and I am to meet him at the National Academy of Sciences for lunch at 1:00 p.m. He is meeting there with the National Academy of Sciences committee that is reviewing the heavy ion research program (the committee that Hyde, Main and the LBL contingent met with yesterday to present our program).

I learned that Commissioner Ray was very instrumental in getting the setup of ERDA, that as late as last December there still were plans to dismember the AEC and make it part of the new Department of Energy and Natural Resources, that as a result of this Dr. Ray went to Ehrlichman and in a very forceful manner demanded that the AEC be kept intact and the result of this was creation of ERDA. Dr. Ray is maintaining close control over the planning for the budget for the spending of the \$100 million for research and development in the energy and environment program. The plans for the budget must be ready by September 1. She is also becoming involved in the \$10 billion program for research and development, spread over five years, for which the plan is due on December 1 of this year. Dr. Ray is maintaining close control over both of these budget planning programs.

We discussed the problem concerning the Director of the Lawrence Berkeley Laboratory and apparently this will be discussed at the next "show and tell" Commission meeting next Friday morning, preparatory to a phone call from President Hitch, who will want to get the reaction of the Commission before he meets again with the Regents next Friday morning. These "show and tell" meetings are similar to the information meetings that I used to hold but are even less formal, and staff members are not included; just a few at the highest level, like the General Manager, and John Ryan, and so forth, are present by invitation.

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Ryan than brought me up-to-date on the Oak Ridge National Laboratory situation. It is still not entirely clear that Weinberg will want to resign, and there is some question that Floyd Culler will have the capabilities to qualify him to take over as a permanent Director.

Ryan feels that Ramey will take some position as a special counsel with a Congressional committee, perhaps Holifield's Committee of Government Operations.

Ryan told me that Dr. Dixy Ray has been talking to key members in Congress regarding the reorganization, that is, the legislation to produce ERDA, and has enlisted the support of Senator Jackson as well as Senator Warren Magnuson and Senator Howard Baker. The support of Senator Jackson, of course, is very important, because he at first opposed this with the feeling that his own plan was better. Jackson has convinced Senator Abraham Ribicoff to allow him to act as co-chairman--that is, Jackson and Ribicoff will be co-chairmen on the Senate's subcommittee of the Committee on Government Operations that will conduct hearings on this energy reorganization plan.

At this point John Vinciguerra dropped in to say hello. We couldn't help but reminisce a little on the clearance matter in which we were both so intimately involved, with John Mitchell and Robert Mardian, and we both reiterated our belief that we did the right thing in resisting the demands of those two here. Had we not done so we could easily have been involved now in the Watergate hearings. (Vinciguerra is probably going to take a position as president of the Electronics Division of the Eagle Pitcher Company in Joplin, Missouri.) Vinciguerra left after this.

Ryan then went on to discuss prospects for the building of new capacity for the enrichment of uranium. He said that he thought that this would probably be done by private industry, but whether by private industry or by government it would probably lead to a plant in which the price for enrichment would be \$50-60 per SWU (Separative Work Unit) if the plant were a gaseous diffusion plant, or maybe even ten or fifteen percent higher than this if it were a gas centrifuge. However, the advantages of a gas centrifuge operation due to the smaller amounts of electricity involved are such that he thinks this will be the method of choice. He said that Peter Flanigan is still interested in this. He feels that ENI, the company that Howard Brown is associated with, and a combination of General Electric and Exxon involving Karl Cohen and Ray Dickman, now with Exxon but formerly with G.E., might also enter the picture. He told me that Herb Kouts is getting under way in the organization of the reactor safety research over in the regulatory part of the Commission.

Following my meeting with John Ryan, I went upstairs to the office of Commissioner William Kriegsman at 11:45 a.m. and met with him until 12:15 p.m. Our meeting consisted largely of reminiscing about the problems that we worked on together when he was in the White House working for Peter Flanigan. He recalled vividly the Mitchell-Mardian affair and indicated that John Dean was also involved in

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handling this from the White House end. I, of course, was not aware of this at the time. We also discussed the philosophy of where the weapons development work should continue in the reorganized Commission, that is, the ERDA set-up, and he seemed to agree with me that it should stay with ERDA and not go over to the Department of Defense. He is not sure what Dr. Ray's views on this will be; she may think otherwise. Kriegsman is also continuing the effort started by me to straighten out the restricted data matter, that is, the old question that certain information is born classified, which I tried to change. He is also working on some of the other attempts started by me to declassify the gas centrifuge information for use by industry, all except the most technical details, including certainly the economic aspects.

At 12:20 p.m., I left the AEC headquarters and rode with Utterbak to the National Academy of Sciences building (21st and Constitution Avenue) to meet John Teem. We drove to the Metropolitan Club and had lunch there. We discussed the reorganization of the Division of Research, and he gave me a copy of his letter to Chairman Melvin Price of the Joint Committee on Atomic Energy with the enclosure describing the reorganization. He asked me for recommendations for the director of the Nuclear Science branch, and I said that I would send him some names. He also asked me for recommendations for the position of Director of the new Division of Coordination of National Laboratories, and I said I would send him some names for this as well. He is considering Duane Sewell for this post. One of the primary aims of the reorganization is to have a home for heavy ion research, which will now be found in the new Nuclear Science branch. There will be a line item here for heavy ion research and he hopes to include in the accelerator improvement funding line items for heavy ion research, including such items as the new head for Adam of the SuperHILAC. We discussed the matter of funding for the latter possibly being available in FY74. He thinks this will be difficult but it might be possible to do some planning during FY74 so that construction could take place very early in FY75. He thinks definitely that it will be possible to have funding in FY75 for this item. He doesn't think that it will be feasible to use some of the so-called \$10 million worth of equipment funds at the National Accelerator Laboratory for this purpose, that is, Ghiorso's idea of borrowing from this fund--he thinks this is totally unfeasible.

He thinks that perhaps five to ten percent of the \$100 million that is to be allocated to energy research and environment research in the first go-around should be allocated to the new branch of Molecular Atomic and Applied Sciences under Elliot Pierce in the reorganized Division of Research. He is still trying to decide what Berkeley's role should be here; he is not certain that Berkeley should have much of a role in this. I gave him all the arguments for Berkeley having a role here, including the unique aspect that LBL is the only place that has such a relationship with a powerful and knowledgeable faculty on a nearby campus. I also told him that I believe LBL needs this extra funding in order to have a healthy laboratory. It needs it in view of the uncertainty and the cutback in other sources of funding.

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He also showed me the directives that had been issued to the Ad Hoc Committee on Heavy Ion Research of the National Academy of Sciences. Formed to advise him and the AEC, this committee is meeting at the National Academy of Sciences here in Washington, beginning last Sunday. They met on Monday and are finishing today. These directives gave me the impression that this could be a fairly useful undertaking. The directives suggest that they want the advice of the Ad Hoc Committee on the type of heavy ion research facilities that should be built to augment those that are already in existence and not advice on where these might be sited. We discussed the problem of whether a facility designed in one lab could be built at another and Teem thinks that in principle it should be possible although it would, of course, be very difficult. The Committee has also been asked to give its advice on the Berkeley SuperHILAC and Teem again reiterated that he thought this was a very important facility, the only one that we have operating at the present time and very worthy of support.

Following our meeting, we drove back to the National Academy of Sciences building, where I said goodbye to Teem and then proceeded with Utterbak to the Rayburn Office Building for my appointment with Holifield. From Holifield's office, I called Julie Rubin, who was spending his last day in his AEC office, preparatory to leaving this evening at 6:00 p.m. (with Em and Scottie) for his new post as Senior AEC Representative in the AEC's Brussels office. He will have about six people working for him. (The U.S. Ambassador to the European Community is Greenfield.) I told Julie I'll probably see him in Brussels around September 13 or 14. I again called Bevan's office and learned that William Golden, Dick Bolt and perhaps Leonard Rieser will attend the meeting in EOB tomorrow.

I visited with Congressman Chet Holifield in his office in the Rayburn Building from 3:30-4:40 p.m., at which time he went over for a vote in the House. We discussed the energy resolution plan and he seemed to be favorably disposed toward it. As possible administrators he mentioned the names of such people as John Foster, John McCone, and Jim Webb, but indicated that he didn't have any serious candidate of his own. He indicated, as had John Ryan this morning, that William Anders, the former astronaut, will probably be appointed to Jim Ramey's vacancy in the Commission. He didn't give any indication of knowing what Jim Ramey might do in the future. He referred to Dr. Ray as a "man-hater" and was quite bitter about his relations with her and the way she handled the reorganization of the AEC in which Shaw lost his job. He will begin the hearings on the energy reorganization before his House Committee on Government Operations on September 24, with witnesses such as Roy Ash, Fred Malek, Interior Secretary Rogers Morton, AEC Chairman Ray, and so forth. He may follow this with public witnesses.

Holifield indicated to me that he felt that his talks with people in the White House, like Roy Ash, were very instrumental in getting them to change their energy legislation from the old Department of Natural Resources to the new plan which President Nixon announced in his message to Congress on June 29, 1973. Holifield also gave me a copy of the speech, entitled "Organizing to Meet the Energy Crisis,"

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which he gave in the House of Representatives on July 12, 1973, in which he commented on President Nixon's energy plan of June 29, 1973.

Before leaving the Rayburn Building, I dropped by the offices of Congressman Melvin Price, Chairman of the JCAE, and Craig Hosmer to pass on my greetings through their secretaries--they were both on the House floor in response to a quorum call.

I then proceeded with Utterbak to the Dirksen (Old) Senate Office Building for my meeting with Senator Henry F. (Scoop) Jackson in his office, Room 137. I went into his office with him, where we both had a cup of tea, and we proceeded with our discussion. I told him that I was seeing him at the suggestion of President Charles Hitch to give a little background of Helen's and my visit to the People's Republic of China, and I told him something about this visit--the institutes, the universities and other places we visited, our fine reception and so forth. He indicated that he would probably visit China in August or October. He believes that his invitation from the Chinese has come about as a result of his firm stand with respect to the Soviet Union and in particular to his questioning of SALT II.

I then went on to say that one of the reasons I wanted to talk to him was in connection with his being a potential candidate for the Democratic nomination for President in the 1976 Presidential race. I told him that I had talked to Sol Linowitz about this and Sol suggested that I talk to him. I indicated that I thought that, in view of his fine liberal record in domestic politics, he would be a very good candidate and make a very strong race but that he has a weakness in his strong anti-Soviet stand which would not endear him to the academic community and that, from my contacts with young people, they are also skeptical on the basis of his generally hard international stance. He seemed to take this suggestion very well and suggested that perhaps I could think up a number of names of people whom we could gather together in order to discuss this further and to give him advice in this regard.

We then went on to talk about President Nixon's plan for the reorganization of energy research and development and so forth, and he indicated that he thought that he had played a key role in convincing the White House to change over to the present way from the old Department of Natural Resources. He is going to introduce draft legislation consistent with the White House plans, and he said he will send me a copy of this. He confirmed that he will play a key role with Ribicoff and actually chair the hearings on this energy legislation, the hearings to be held before the Senate Government Operations Committee. He indicated that he is working very closely with AEC Chairman Dixy Lee Ray on this.

We then went on to discuss the Watergate problem. He indicated that he thought this was a very serious problem and stated that he had doubts that President Nixon would be able to stand up under it mentally. He thought that his problem might not be so much physical as mental and that he thought he might not be able to weather it from this point of view.

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In the middle of our discussion, there was a quorum call from the Senate, so I walked over to the Senate chambers with him, riding the underground railroad en route so that we could continue our discussion. We sat in a seat together with Senator Barry Goldwater on the way over and, in the course of our going over and back, we ran into Dan Dreyfus, who is the staff member who wrote the preprint that came out of Jackson's office on his energy plan, the one that I have read. We also ran into, and talked with, Senators Hubert Humphrey, John Pastore, Birch Bayh, Howard Cannon, and Howard Baker, all of whom were glad to see me. Howard Baker recalled the lunch that we had in the hamburger joint across the street from our H Street office and asked me how the superheavy elements were coming along. I said I was impressed that he had remembered this and in the process told him and Senator Jackson a little about our funding problems with the Super-HILAC. The talk got around to Watergate, and Senator Baker indicated that he thought the real fireworks would take place by August because by that time they will have had the appearance of Ehrlichman and Haldeman, La Rue and Colson. Then the hearings would strike less attention, perhaps not even be on TV, and would continue in a lower key, probably in October.

The meeting with Senator Jackson lasted from about 4:30-5:30 p.m. Following this, I continued with Utterbak to the building of the General Accounting Office at 441 G Street, where I went to Room 7000, the office of Comptroller General Elmer B. Staats. After waiting a while, I went in to see Staats around 6:00 p.m. and stayed with him till about 6:30 p.m., discussing the general status of science and science policy in the Nixon Administration. I told him that the AAAS Board of Directors had become quite concerned about this and that some of the members of the Board of Directors were going to meet with some White House people tomorrow. I indicated that, if he wanted to keep in touch with our progress in working on this problem, Bill Golden would be his best contact. Elmer said that he would be glad to have the advice of our group and indicated that he would keep in contact and perhaps arrange to have some Saturday morning meetings among selected people, including representatives of the AAAS. He also indicated that he valued the opinions of people like Jim Webb.

I rode home to Harrison Street with Utterbak, arriving at 7:00 p.m. Here Jane gave me a message that Earl Hyde and Sheila Saxby would like me to call my office, which I proceeded to do and had a rather long phone conversation--about 45 minutes--with Sheila and Earl, and toward the end with Melvin Calvin, concerning the general problem of the Regents' current actions in the choosing of a new Director for LBL. I agreed to call some of the key Regents, should I hear from Hitch that this was his desire.

I then had dinner with Jane. Pete was working the graveyard shift, so he wasn't with us.

After dinner, I called Jerry Tape at his home to bring him up-to-date on the impending actions of the AAAS with respect to consultations with people in the White House concerning the Nixon Administration's science policy. In the course of this conversation,

he told me a little about how he had been confirmed at the last minute as the Ambassador to the International Atomic Energy Agency and that, at the suggestion of the Director General of the IAEA, Sigvard Eklund, he was also serving temporarily in the dual capacity as the U.S. member of the IAEA Scientific Advisory Committee. He indicated he would just do this through the December meeting and then it would be better if there were another person for this job. I indicated that I was still interested in serving in this capacity, and he said that he would take this up with Chairman Dixy Lee Ray at the first good opportunity.

Wednesday, July 18, 1973 - Washington, D.C.

I had breakfast at home, then took a taxi to the headquarters of DATRAN (8130 Boone Boulevard, Vienna, Virginia) to attend a meeting of the Board of Directors. (It is on Route 7 near Tyson's Corner.) The meeting began at 10:10 a.m. Present were: Sam Wyly, Chairman of the Board; Glenn E. Penisten, President of DATRAN; Erwin D. Canham; Sol M. Linowitz; Harry G. Bowles; Charles J. Wyly, Jr.; Dean D. Thornton; Robert S. Strauss; John M. Scorce, Secretary of DATRAN; and Ray Hannon, Sam Wyly's assistant (agenda attached).

Sam Wyly presided and first called on Penisten for a status report. Construction and electronic hardware programs are basically on schedule; installation and testing is behind schedule due to a hiring freeze. A critical stage has been reached in July and additional financing is now needed immediately.

Bowles then gave a report on the new financing prospects. Bear-Stearns and Loeb-Rhoades haven't come up with any investors. DATRAN came close to making an arrangement with Telunicom for a \$30 million investment, but it seems to be falling through. They are negotiating with Nippon Electric Company, have enlisted the aid of Pete Peterson and Mr. Petty of Lehman Brothers with other Japanese investors, and are cautiously optimistic about this. Walter Haefner, a Swiss national and a member of the Wyly Corporation Board of Directors, has pledged to invest \$30 million provided an arrangement can be made for investment in DATRAN by Bechtel Corporation.

Following a coffee break, Penisten described their plan to try to convince Bechtel to make a \$30 million investment in DATRAN; this would be used to finance a new related corporation (perhaps to be called DATRAN Long Lines) so that Bechtel and DATRAN wouldn't have to reopen with the F.C.C. the question of licensing permits. Under this plan DATRAN would be profitable in 1976.

At the end of the morning, we passed resolutions authorizing DATRAN and Wyly Corporation officials to negotiate the financing plans and to modify the 1972 employee qualified stock option plan.

Here I was interrupted by a phone call from U.C. President Charles Hitch, who asked me to call Regents Smith, Canaday and Reinecke regarding the LBL directorship problem.

We then passed a resolution re-electing the DATRAN officers and another modifying bank account procedures. A number of the staff

7/18/73

DATRAM BOARD OF DIRECTORS MEETING

JULY 18, 1973

APPROVAL OF MINUTES OF PRIOR MEETING

THE PRESIDENT'S OPERATIONAL SUMMARY

REVIEW OF FINANCING EFFORT STATUS

APPROVAL OF ACTION ITEMS

- LUNCH -

LONG RANGE PLANNING REVIEW

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joined us and the briefing on long range planning then began. First we heard Ralph R. Johnson, DATRAN Vice President for Marketing. After this preliminary briefing, we had a buffet lunch in a nearby room; all the Directors and Ralph Johnson and some of his marketing people were present. The conversation ranged around the history of the choice of the name "Xerox," which led to a description by me of how the name "plutonium" was chosen for element 94.

After lunch, the Directors went downstairs to see a demonstration of the software switching and computer system. After this Linowitz, Sam Wyly and I talked with Bob Strauss about the Watergate affair. He said that President Nixon is increasing his troubles by his unwillingness to take advice and his increasing tendency to isolate himself. Strauss thinks he is in very serious trouble.

The meeting continued then after lunch with a briefing by Ralph Johnson and his people on long range planning. Canham left before this briefing, and Strauss left in the middle of it. Following the briefing, the Board approved a resolution on long range planning as presented by Ralph A. Johnson, Robert K. Bennett, Loren A. Benson, Kevin H. Cassidy, and Edward V. Farinholt this afternoon.

I suggested that perhaps DATRAN shouldn't advertise too much at this stage because this could stimulate competition. Penisten suggested that the next Board meeting be in Oklahoma City on the afternoon and evening of October 9. The scheduled meeting for November 14 is cancelled and the meeting in December will be all day and evening in Washington.

I called Regent William French Smith in Los Angeles and gave him my strong reasons why I think Andrew Sessler would be the best possible person for Director of LBL. I said I thought John Foster, though a good man, is totally unsuitable for this job. Smith seemed impressed. He hadn't intended to attend the meeting Friday but may do so now.

After the meeting, I rode in with a DATRAN driver, together with John A. Curtis, a consultant to DATRAN, to the AAAS headquarters at 1515 Massachusetts Avenue. He wants me to serve as chairman of a committee that would try to arrange to put together a nation-wide computer network for educational purposes. He thinks that through Ray Hannan he would be able to get such people as George Bush, the Chairman of the Republican National Committee, and Robert Strauss, the Chairman of the Democratic National Committee, to serve on this committee. I indicated that I felt that I was probably too busy to take on the responsibility of chairman of such a committee but I would be willing to talk to him about it and he may call me next week. (I have his phone numbers and some other connections so that these are available in case we need to reach him.)

At the AAAS headquarters I met in the conference room with Bill Bevan, Dick Bolt and Bill Golden, preparatory to our forthcoming meeting in the Executive Office Building (EOB). We discussed various topics that we might take up at that meeting. We then took a taxi to

Wednesday, July 18, 1973 (con't)

the EOB, arriving there a little bit before 4:30 p.m. We went to the office of John Sawhill, which is Room 246 (Jim Schlesinger's old office), and there the four of us met with John Sawhill (who is an assistant director of the OMB in charge of science, etc. matters), Hugh Loweth (a long-time friend of mine in the OMB), Russell Drew (the new Head of the Science and Technology Policy Office in the National Science Foundation), and Ed Creutz (who is an Assistant Director of the National Science Foundation (memo of meeting attached)).

I made the introductory statement saying that we were there to offer the services of the AAAS with respect to national science policy. I described the nature of the AAAS. I said that there would be no conflict between the AAAS role in advising the White House on science and the role of the National Science Foundation and of the National Academy of Sciences. Sawhill explained the new emphasis of the Nixon Administration on applied research and research that would be of benefit to the economy, and we described the new role of the AAAS in applying science for the benefit of mankind. This led to a discussion of the role of basic research, and it seemed that there was agreement that the White House still recognized this. Hugh Loweth suggested that two of the areas where the AAAS might help would be, first, in the general study of the role of basic research and, second, in a study of the ways of integrating science and technology into national problems, taking into account the difficulty of meshing technology with society and the role of social science in this.

Sawhill then, at our request, explained the new set-up for science advice, following the abolition of PSAC, OST, and the President's Science Adviser. He said that this has all been moved to the NSF, that Stever has just received a letter from the President officially appointing him as the President's Science Adviser, and he said that Stever has even talked to the President on certain issues, which we thought was a very significant statement since it seemed to be necessary to say that he had been able to talk to the President at all. He said that there would be no continuation of the PSAC function, that such matters as PSAC used to take up would now be taken care of by ad hoc committees. He said, and Russell Drew confirmed, that the new Office of Science and Technology Policy in the NSF would have a total of some 20 people, as compared with about 50 in the Office of Science and Technology, which is being replaced by the NSF Science and Technology Policy Office. He also said that the Federal Council of Science and Technology will be much the same as it used to be, with Stever serving as Chairman, and that Stever will also be Chairman of the Outside Energy Advisory Committee in connection with the new White House energy policy announced in the President's message of June 29, 1973. When we indicated that the new set-up might lead to conflicts of interest with the NSF wearing two hats, Sawhill and Drew indicated that this shouldn't be any problem, that this is the case with many government officials. They also said there shouldn't be any problem with respect to the new science apparatus advising the OMB in the budgetary process for science. Sawhill was very cordial and seemed genuinely pleased that the AAAS was willing to assume this role of advising the government.

*American Association  
for the Advancement of Science*

FOR YOUR INFORMATION

1515 MASSACHUSETTS AVENUE, NW, WASHINGTON, D. C., 20005

Phone: 467-4400 (Area Code 202)

Cable Address: Advancesci, Washington, D. C.

*attach to journal  
July 18*

July 24, 1973

To: The File  
From: William Bevan *WB*  
Re: Discussion with Mr. John C. Sawhill, Executive Office of the President

Dr. Seaborg arranged a meeting with Mr. Sawhill at 4:30 P.M. on July 18 to discuss the Association's interest in serving as a vehicle for fruitful dialogue between the White House and the science and engineering communities. Present, in addition to Mr. Sawhill, were Mr. Hugh Loweth of the Executive Office of the President, Dr. Edward Creutz, Assistant Director for Research, NSF; Dr. Russell C. Drew, Director of the Science and Technology Policy Office, NSF; and, for AAAS, Dr. Seaborg, Dr. Bolt, Mr. Golden, and Dr. Bevan.

Mr. Sawhill opened the meeting with the comment that it was an especially appropriate time to be having talks. He observed the major increase in government funds for R and D in civilian (i.e., non-military) programs. He stressed the importance of looking at U.S. efforts in relation to those of other countries as a check on the wisdom of our R and D planning. He emphasized the seriousness of the Administration's intention to place initiative in the individual agencies and stated that they viewed NSF as the government's link to the scientific and engineering community.

Dr. Seaborg responded by expressing the Association's concern about the uneasy quality of the relationship between the Executive Branch and the scientific community. He then reviewed in outline the nature of the Association, its structure, its membership, and the range of its programs and activities.

Mr. Sawhill reported that Dr. Stever was named the President's Science Adviser on July 15. He described plans to restructure the Federal Council on Science and Technology to include ad hoc problem-oriented advisory groups and reported that Dr. Stever will chair such a group on energy R and D to be set up soon.

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Mr. Loweth spoke of the problem of getting the emotions out of the question of the place of basic research in federal science funding policy and expressed the view that scientists have to learn to be less directly self-serving in their approaches to government. He also spoke of the need to integrate more effectively the contribution of the hard and the soft sciences and their corresponding technologies in the approach to societal problems.

It was agreed that Dr. Bevan would meet with Mr. Sawhill in the near future to explore further ways in which fruitful dialogue between the Association and the White House might be continued.

WB:hh

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As we were leaving, I suggested that a liaison should be set up, that we should regard this as just opening a dialogue between the AAAS and the White House on science problems, and Sawhill agreed. It was agreed that Bill Bevan and Sawhill himself will act as liaison.

Sawhill said he would also like my advice on the new energy policy and the role of ERDA, and I said that I thought this was an excellent move and that in particular, in response to his questions, I thought that the uranium enrichment should stay with ERDA as should the entire nuclear weapons development and production complex. Sawhill seemed to be happy to have my views on this. He then indicated that he would be glad to see me on any of my trips to Washington and that perhaps we could get together for breakfast, and I indicated that I would probably do this. Sawhill told me that he had talked to Roy Ash and succeeded in convincing him to change to the new plan for energy, in particular to propose the creation of ERDA. This is the fourth version I have heard of how this change in the plan for organization of energy research and development evolved.

Following the meeting in OMB, I walked with Bevan to the Gramercy Inn where we were scheduled to have dinner. Dick Bolt walked with us. I took this occasion to take up a number of things with Bill Bevan. I told him about Phil Dauber's interest in the AAAS TV policy and program and asked him to send Dauber information on this, which he said he would do. I also told him about the letter to Bevan, with a copy to Howard Greyber, from David Richards, suggesting computerizing the registration at the San Francisco meeting, and I gave him a copy of this letter. Bevan seemed quite interested in this possibility and will surely get in touch with Dave Richards on this. He told me that he had hired Harve Carlson as a consultant to help on the San Francisco meeting. Carlson will probably take over as head man on this if it works out all right and perhaps after that will become Director of Meetings for the AAAS. Carlson has had a lot of experience in such matters. He used to work for the National Science Foundation.

I had dinner at the Devil's Fork Restaurant in The Gramercy Inn Hotel on Rhode Island Avenue. Present were Arthur K. Solomon, Howard Foncannon, Charles Weiss, Jr., and William Bevan. We discussed the agenda for the meeting of the AAAS Study Group on International Science which was scheduled for this evening. Solomon made the suggestion that the Study Group recommend that the AAAS support a study project in some developing country, subject to obtaining funding from some source such as AID or the World Bank.

After dinner, we walked down the street to AAAS headquarters to attend the meeting of the AAAS Study Group on International Science (agenda attached). Present were Arthur Solomon, Chairman, Claire Nader, Murray Todd, Charles Weiss, Herman Pollack, Bill Bevan, Glenn Schweitzer, Howard Foncannon, Bob Bartoche (for Thomas Owen), Michael Moravcsik, and, as guests, James Butler, Arthur Livermore, and Philip Abelson. Solomon called on me to give a report on the Mexico City meeting, which I did, emphasizing our three lunches with their international theme (with Chinese, Fishevsky, the Latin Americans) and the start of organizing a continental AAAS.

AAAS Study Group on International Science*July 18, 1973*

## Tentative Agenda for Third Meeting

1. Introduction of guests (Abelson, Butler, Livermore)
2. Dr. Seaborg - comments on Mexico City Meeting
3. Minutes of Second Meeting
4. Type of final report
5. Method of preparation
6. Additional information needed
7. Discussion and consensus on initial recommendations

Wednesday, July 18, 1973 (con't)

At this point, I was called out for a phone call from Bob Connick during which we discussed the crisis that is developing with respect to the choice of the new Director of LBL; Connick has written President Hitch and will make his views known to Calvin.

When I returned to the meeting, we discussed a number of areas that the AAAS might become involved with in international science, then went on to discuss the timing and content of the Study Group's report to the Board of Directors. I suggested that the Study Group recommend the creation of an Office of International Science in the AAAS which could serve as a clearing house for scientists interested in visiting foreign countries and as a base from which a continuing Advisory Committee on International Science could operate.

It was agreed that Howard Foncannon would consult all the members of the Study Group and then prepare a draft report which can be discussed by conference phone calls or individual visits and finally at a half-day to one-and-a-half-day meeting in October, set for dinner Wednesday, October 10, and all day Thursday, October 11. An intermediate meeting early in September may also be necessary.

After the meeting, I met with Bill Bevan and Phil Abelson. We decided that, with respect to the publication of Proceedings of the Mexico City meeting, we would not proceed with a publication of an English version and that Bevan will write Bueno to urge him to proceed with the publication of a Spanish version. He will list in the letter all of the plans for individual publication of symposia papers and so forth in the United States, indicating that this eliminates the need for the separate publication of a Proceedings in English.

With respect to the creation of a coordinating committee for the creation of additional Associations for the Advancement of Science in Latin America and a federation of these associations along the lines of the letter of July 10, 1973 that Bevan wrote to Bueno, Bevan will write Bueno again and say that there should be three men from each country on this committee--Bevan, Rieser and Abelson from the United States, three from Mexico, three from Brazil, and three from Colombia. He will suggest that the committee might meet, perhaps in Colombia, at the time that Bevan goes to Colombia in October to attend a meeting in connection with the Colombia Association for the Advancement of Science.

I also took up with Bevan a number of other things. I informed him of Howard Greyber's hope to invite a lady to give a three-hour seminar to women at the San Francisco meeting, and he agreed with me that this wasn't appropriate. I showed him the letter from John E. Butcher of Utah having to do with agriculture and his hope to have been a Congressional Fellow. Bevan took this letter and will answer it and then send a copy back to us for our files. I also gave him the letter from Leo Schubert of the George Washington University on the photosynthesis of proteins. He took this letter and will answer it and send the original or a copy back to us. He indicated that reprints of my article in AAAS will be sent to us, that those that went to Mexico City were extra and didn't subtract from the total of

our reprints. I took up with him the Gordon Teal proposal to prepare encyclopedias on the impact of science and technology on society. He said he would refer this to the AAAS Committee on Publications and write Teal accordingly and I should also write Teal to indicate the disposition of this matter.

Following this, I rode home with Phil Abelson to Harrison Street. Here I had a little session with Pete and Jane, seeing Pete for the first time on this visit. We played with the tape recorder that I had brought with me as a gift and also discussed some of the gifts that I had brought along that Helen had purchased for them in China. We talked about his apparent impending admission to Georgetown University Law School. They both seemed to be in good spirits and looking forward to their adventure. Jane will continue working at the Psychiatric Institute for at least another six months so as to complete a two-year stay with them before she begins to think about starting school. Following the discussion, I said good night and retired.

Back at my office in Berkeley, ex-Governor Edmund G. Brown phoned shortly after 5:00 p.m. In my absence, he talked with Sheila, indicating that he would plan to see me at the Bohemian Grove this weekend.

Thursday, July 19, 1973 - Washington, D.C. - Berkeley

I had breakfast at home, after which Pete drove me to Dulles Airport in his Mazda. We talked a little further about his law school plans. He will fly out to San Francisco to enter Golden Gate Law School at the last moment if the expected admittance to Georgetown University Law School doesn't come through.

I boarded TWA Flight No. 67, which left at 9:15 a.m. and arrived in San Francisco at 11:10 a.m. Helen met me and drove me to my office at LBL where I arrived at noon. She told me that Peter and Jody Biermann had spent Tuesday night with us. She showed me a letter from Eric written during his stay at Flapjack Lakes (mailing address, Hoodspoint, Washington) and mailed from Olympia, Washington--he is doing fine and seems to like it. She also showed me a postcard from Dave, written at Sage Hen Creek Field Station (mailing address, Truckee, California)--he has started on a garter snake project and seems to be reasonably happy.

Mrs. Philip (Kay) Schutz phoned from Ashland, Oregon shortly after I returned to the office. She said that she has found some of her husband's papers and wanted to know whether his work is no longer Secret, so that she could quit worrying about it. I assured her that this work is no longer sensitive and that she could certainly not worry about it. (She told me that Phil's mother is still living.)

I talked with Hyde about the status of the LBL Director matter. He told me that the meeting of the full Board of Regents scheduled for tomorrow at 10:00 a.m. has been postponed because a nose count seems to indicate that, of those who can attend, there would not be a majority for Sessler--President Hitch's recommendation. We continued our discussion in the cafeteria at lunch.

Thursday, July 19, 1973 (con't)

Stan Thompson dropped in, as did Ken Street later, both urging that I express a willingness to be a candidate for the LBL Directorship as a means of blocking the appointment of Foster. I indicated that I still didn't feel inclined to do this nor did I think that it was necessarily a viable alternative at this stage. John Rasmussen and Jack Hollander also came in for the same purpose.

I returned a phone call from Bill Bevan at 1:55 p.m. He reported that the Nominations Committee has had another meeting via a conference call. Dick Bolt has withdrawn his name as a candidate for President to run against Margaret Mead. The committee reviewed some 50 additional names and selected a list of nine more, rank ordering the first five, as follows: Joshua Lederberg, Melvin Calvin, Jean Meyer, Kenneth Boulding, John Bardeen, Loren Eiseley, Rene Dubos, Thomas Malone, and Sol Linowitz. He indicated that they used the overall criterion of someone who would be widely enough known to compete with Margaret Mead. The committee asked him to ask me if I would talk with Lederberg and, if unsuccessful in persuading him to accept the candidacy, talk to Melvin Calvin, which I said I would do.

I then phoned Joshua Lederberg to ask if he could be persuaded to run for AAAS President. He replied that he had given this rather careful thought, but feels that he needs another five years before he would undertake this, partly to diminish his fixed obligations. He said, however, that he would be disappointed if he couldn't try this in another five or six years.

I returned a call to Emilio Segre shortly after 2:00 p.m. He told me that he had written a very strong letter to President Hitch in connection with the search for the Laboratory Director. He indicated that, in his letter, he cited Foster's lack of scientific stature and leadership. (He reported that I have not paid my share of the bill from Steinhardt and Goldberg for the property trust agreement which we had drawn up on our Orinda land; I indicated that we have not seen the bill to my knowledge, but will check this.)

I phoned Melvin Calvin at 2:25 p.m. to try to persuade him to run for President of AAAS against Margaret Mead. He indicated that he will give this some thought and call me in the morning; it sounds hopeful. I described our meeting at the White House yesterday; Melvin thought our approach (of offering AAAS help in the development of national science policy) was highly reasonable. He indicated that he had looked for me at the Grove last weekend; he added that he is not a member of a camp yet, and I encouraged him to join Wayside Log. He was shortly to leave for a meeting with Frank Kidner; I indicated that he could report to Kidner that I had reached William French Smith and that this could be passed on to President Hitch, with the observation that Smith seemed friendly.

Shortly before 3:00 p.m., I phoned Regent John Canaday in Burbank regarding the candidates for Director of LBL. I told him that I believe Andrew Sessler would be a wonderful and tremendously good Director. I noted that he has a sound record of scholarly accomplishment has taken off a couple of years to get LBL started in the energy

Thursday, July 19, 1973 (con't)

and environment program. I thought the new ERDA sounds very promising; our work in energy and environment here will be very important in the immediate future, and Sessler would be a natural in this regard. I stated that Sessler's relations with the campus would be very good and that, because this is a very sensitive area, we would be putting our best foot forward to have Sessler. Canaday then asked me how I felt about John Foster. I responded that John is a good man but not the one for this job. I think his strengths are in different lines; he has spent almost his whole life in the weapons field and doesn't have any knowledge of any of the fields that the Lab is involved in (which I enumerated). Canaday responded that he has had a predisposition towards Foster, but indicated that he respects my judgment on this very highly. He said he thought that the Lab needs some kind of major turn-around, and it seems therefore to him that there may be some advantage in bringing a man in who had familiarity with the campus and the work of the Lab--I responded that I agreed with him but therefore would all the more support Sessler. He expressed his appreciation for my taking the time to call him.

I phoned Bill Chilcote at 4:30 p.m. to discuss our progress in preparation for our presentation at the Lafayette City Council next Wednesday night. He will have material for my remarks at the house on Sunday. He will let me know exactly when we are to appear before the Council. Bill indicated that the petitions probably will have up to 650 signatures (better than our minimum target of 500) and that the opposition is so far lying low. He indicated that they have learned of some significant negative feelings from Councilman Black and Norman Tuttle of the Planning Commission. They talked our group into not being definitive in details about the properties to be acquired. Our presentation, therefore, will be along very general lines. The amount of money involved will be \$6 million. Based on 12¢ per \$100 assessed valuation, the property owner's cost (for a home of \$10,000 assessed, \$40,000 actual value) will be about \$6 per month or \$72 per year. We hope to get two-thirds of the voters who will be willing to do that. I reinforced that I thought it was wise to get the figure down to \$6 million. He indicated that they would also like me to make some closing remarks and will make some suggestions for me. Wally Costa is preparing the slides. Bill reported that he and Lloyd Townley have finally got through to Leshar of the Sun Papers. He reported that Leshar said, "I don't know how I stand on open space" and had denied setting editorial policy on his two papers. Generally, Bill feels that the press is so far favorable.

I mailed to Eleanor Sheldon copies of the slides that Helen took during their visit to the Institute of Nationalities in Peking. I wrote Gordon Teal as a follow-up to our previous correspondence, indicating that Bill Bevan will be in touch with him about his projected writing and publication project for the AAAS.

Suki and I took a hike to the water tank. I saw Steve for a few minutes. He had broken off with Joan but it is now back on again. He is leaving for Lafayette, Indiana tomorrow to spend a few weeks with Lynne and Bill.

Friday, July 20, 1973 - Berkeley - Bohemian Grove

Joan drove Steve to the San Francisco Airport this morning where he boarded a plane to Chicago, en route to Lafayette, Indiana.

I called Jim Cobble at 8:50 a.m. to touch base on arrangements for Roland Otto's coming to Berkeley this year. He told me that, with the changes in the AEC Division of Research, he does not yet know what that means for his project; he expects to get word from Robert Epple on this soon. He indicated that Roland Otto is planning to come out as planned; Cobble questioned whether he can start a new project in California before he has terminated the one at Purdue. He mentioned that he may go after some energy and environment-type money also. He invited us to visit him at their home at Lake Tahoe. They will be there until August 15, when they will move to La Jolla. He expects to move his laboratory from Purdue to La Jolla in October.

President Charles Hitch called me at 9:00 a.m. to report that he had cancelled the special Regents meeting originally scheduled for today because it appeared to him that they would run into the same impasse. I reported to him about my conversations with William French Smith and John Canaday. He indicated that Dean Watkins has been superb in his support of President Hitch's recommendations, in spite of his own proclivities. He said that the decision will be postponed until September. The joint committee is meeting on Wednesday, the 25th, to interview Mike May. I indicated that I did not particularly favor this nomination, and he noted that Mike is a reluctant candidate. He indicated that we could hold off on my calling anyone else in this regard, apart from casual conversations at the Grove this weekend. I told him of my conversations in Washington this week, though Hollingsworth was out of town. Hitch indicated that Hollingsworth was definitely for Sessler, but was also well disposed towards May. He indicated that John Foster will be here on July 30, and I said I would be glad to see him at any time. Hitch told me that he will see Foster beforehand and plans to talk pretty frankly with him (Foster has not given any commitment that he would take the job if offered). We discussed the nature of the position of the senior staff in regard to Foster.

John Erlewine phoned me from AEC at 9:30 a.m. in regard to the personnel matter which we had discussed on Tuesday. He reported that he had gone over this with the Commission. Their position is that they will leave this purely in the hands of the Lab.

Paul Lochak phoned from Paris to confirm the time of our meeting when he is in the United States. We will meet on Friday morning, August 3, in my office.

I mailed to Dr. Lu Ho-fu and Dr. Yang Fu-chia at Fu Tan University in Shanghai each a print and a slide of the picture of us on the waterfront in Shanghai.

Jose Alonso called to say that he has talked to Matti Nurmia, who is delighted that Jose is proceeding with the chapter for Gmelin. He estimates that it will take him a month. He will write Koch informing him of this.

Friday, July 20, 1973 (con't)

Phil Dauber came in at 10:15 a.m. I told him that I had talked with Bill Bevan about his interest in doing a television film and that Bevan will be in touch with him. He indicated that he has recruited Bob Zagoni to direct his antiproton film. We conferred about our schedules so that he can arrange for Dave Ridgway and me to view the film "Survival of Spaceship Earth."

Orville Freeman phoned me at 11:35 a.m. to invite me to address a Chief Executive Officer's Roundtable, organized by his company Business International, in Puerto Rico on January 9. Full details are forthcoming in a letter, and I indicated that I would think on it.

We finally got a bombardment of uranium with krypton ions this morning as a result of the success of getting the SuperHILAC ion to operate with the Adam source last night. The bombardment was a small one, about the same as the last one. I went up to watch Liljenzin, Kratz and Norris get started with the chemical separation of the products.

I had lunch at the outside table of the lower level of the cafeteria with Hyde, Bucher and others.

At 1:35 p.m., I received a phone call from Peter Goldschmidt of the University of California Office in Washington, D.C. He asked if I would write an immediate letter to Senator John Tunney, urging that a \$500,000 addition to the Public Works appropriation (\$300,000 for the BEVALAC, \$200,000 for the 184" cyclotron) be taken onto the Senate floor in the middle of the week. Tunney would ask Senator Alan Bible (acting subcommittee chairman) to take it on the floor. The appropriation has been turned down previously by the House and Senate Appropriations Committees, so this is something of a last-ditch effort. Goldschmidt asked me to write a joint letter with Ed Teller, but I indicated that I would want to talk with Teller about this first. Pete asked that I have it telecopied from University Hall.

After Goldschmidt and I finished our conversation, George Link came on the phone. He brought me up-to-date on some of his conversations in regard to the LBL Director. He indicated that he has talked at some length with Glenn Campbell and has briefly mentioned it to Charles Hitch and Dean Watkins. (He told me that Glenn Campbell had thought of consulting me about this, but told Link that "Seaborg probably wouldn't know who I was!")

At 1:50 p.m., I called Ed Teller in his office at Livermore to tell him about my call from Goldschmidt. Ed said that he would be willing to write a letter to Tunney on the BEVALAC portion of the bill, but does not feel that he knows enough about the 184" to write about that. He outlined what he might write. I indicated that the matter was to come up on the Senate floor later next week, so we should try to have our letters in Tunney's hands (via teletype) by Monday.

Pete Goldschmidt then called me back at 2:05 p.m. to say that the Public Works appropriations matter will come up on the Senate floor on

Friday, July 20, 1973 (con't)

Monday instead of later in the week. This necessitates my getting my letter out immediately, today, instead of on Monday. I indicated that I would follow this up.

I called Ed McMillan at 2:10 p.m. about Goldschmidt's request, and he indicated that he has now been debating whether or not this is worth doing. I suggested that now that the matter is rolling so far, perhaps we should go along with the people in Washington. It has been rejected by the House and the Senate Public Works Subcommittee. Ed then reviewed the history of this relatively small amount of money. An amendment on the floor (which Tunney would try to persuade Alan Bible to carry on) would result in a major debate on the floor of the Senate. From there it would have to go on to OMB for further debate. Ed and I agreed that it should be called off. He said he would talk further with Goldschmidt. We agreed that we were not lacking in enthusiasm, but simply questioned the procedure here.

McMillan called me back ten minutes later; he hadn't been able to reach Goldschmidt. I agreed that I would sign a joint letter with McMillan after seeing it. He called me again at 2:55 p.m. to tell me that Congressman Craig Hosmer thinks it's worth sending out the letter. He read to me the text of the letter to Senator Tunney on the cutbacks in funding, which he and I will sign. I gave him Tunney's and Goldschmidt's addresses. He said that they have the facilities to telecopy the letter to Tunney's office there in Building 50. We agreed that Teller should send a letter on his own. I indicated that I would go over to his office in about 15 minutes to sign the letter.

I then called Ed Teller to tell him that he should send his letter to Tunney and that it should go out by 4:00 p.m., which he said he would do.

I left my office at 3:45 p.m. and drove to the Bohemian Grove, arriving there just before 6:00 p.m. I walked, with my suitcase, up to my cabin in Wayside Log Camp, changed clothes, then walked with Ed Strong down to the camp of Sons of Toil to attend as usual their cocktail party. Here I met and talked to many friends. Dave Packard, Lee DuBridge and I compared notes on our previous associates who are caught up in the Watergate mess and agreed that such behavior is in general consistent with their characters as we came to know them.

I talked to Bill Hewlett about our plans for the 1974 San Francisco AAAS meeting. He has the impression that AAAS people in Washington think our Co-Chairman's Symposium is a little thin; he is thinking of some possible additions, such as a talk on the Bay Area as a model for the West for the 1990's. I told him about the opportunity to add a distinguished speaker for the 4:30 p.m. spot on our Symposium's opening day.

Gunnar Johansen introduced me to Tony du Pont of Los Angeles (a member of the Wilmington, Delaware, du Pont family), who is building a hypersonic, pollution-free airplane that operates on hydrogen as fuel.

I talked to Art Linkletter, who thanked me for saving him \$800,000. My advice to him three years ago not to unload his coal company stock caused him to wait three years, at which time he sold it for a price higher by \$800,000.

I walked to the Dining Circle with Ed Carter and his partner Stan Marcus, of Niemann-Marcus Department Store in Dallas. I told Ed that I appreciated his support of Andy Sessler as Director of LBL. He said he supported him over Foster on the basis of Foster's much less impressive record as a scholar, but he is not favorably impressed by faculty who fault Foster for his work on nuclear weapons. He asked my opinion of Mike May, and I said I think Sessler is much better suited for this position.

I had dinner at the Circle with Carter, Marcus, Roger Revelle, Stan Barnes, and others. This gave me the opportunity to tell Roger about the meeting on Wednesday at EOB and about Melvin Calvin's consent to run for President of AAAS. I also talked with Carter about the his visit and that his wife Hannah to Ishpeming in February, when she was inducted into the National Ski Hall of Fame. He told me about seeing my father's ski binding apparatus on display.

After dinner, we went to see the Friday Night Little Show in the Campfire Circle. It consisted of a chorus, decked out in red robes, and an orchestra, interspersed with some country music (Grand Old Opry). After this, I walked back up kitchen hill to Wayside Log, talked a while to Harry Goff and others, then went to bed.

#### Saturday, July 21, 1973 - Bohemian Grove

I had breakfast at the Dining Circle with Al Beeson, Norman Strouse, Fred Henderson, Jr., Ralph Moody, and others. Fred asked me to speak to his night class at Golden Gate Law School on the energy problem. I told him my schedule wouldn't permit it, but if he would write me I will try to get Jack Hollander to do so.

On the way back up kitchen hill, I met Peter Flanigan and his brother John (staying at Mandalay Camp, where John is a member). I congratulated Pete on his staying clear of involvement in Watergate, and he responded by saying "so far" and knocking on wood. He told me of the tremendous pressures from the Hill that they had to withstand in order to not reappoint James Ramey as AEC Commissioner and Dixy Lee Ray's adamant stand opposing such a reappointment. We also discussed the progress being made in getting the next gaseous diffusion uranium enrichment plant to be built into the private domain, although there is a strong possibility that this might be built by a consortium arrangement involving industry and government.

At 10:30 a.m., I hiked by myself up Trail No. 10 up South Ridge Road, where I ran into Guy Stever, Bert Davis (an M.D. from San Francisco, Berkeley graduate, former member of the Board of the American Medical Association), Charles West (in the lumber business in North Carolina, a guest of John Reading), and Tony du Pont (son of Edmund du Pont, grandson of Francis I. du Pont, who founded the du Pont Experiment Station in Wilmington in about 1902). Tony is president of du Pont Aerospace in the Los Angeles area.

Saturday, July 21, 1973 (con't)

This gave me the opportunity to talk with Guy Stever about the general science advisory picture in Washington. He confirmed that he has, as of July 1, been designated by President Nixon as his Science Advisor and that he wears the numerous other hats as well. I told him about the planned AAAS Office for International Science, and he indicated that it might be possible for this to receive financial support from NSF.

We hiked along the South Ridge Road past High Point (elevation 1,090 feet), on along Lermer Road all the way around to North Ridge Road and down to the Club House and Swimming Pool area, arriving at about 2:30 p.m. (We hiked some 10 miles in all.)

I then went to Camp Puma for their regular wild game luncheon. Here I talked briefly to David Smith, one of the hosts, and a number of other friends. I then returned to Wayside Log, talked to Jim Hart about his History of Science Project in the Bancroft Library. He will call me Monday to suggest getting together with his men, Arthur Norberg and John Heilbron, who are on this project.

I then went across the road to Owl's Nest camp to talk to Ed Pauley. I also talked to Roger Lewis, Rand Dixon, and others. Pauley reminded us of the 1967 breakfast at Owl's Nest at which I gave the talk to solve the problem of choosing between Dick Nixon and Ronald Reagan, both of whom were present. Lewis and I discussed the present hopeful status of the HTGR; he recalled that he sold General Atomic to Gulf for \$35 million. Dixon is still with the Federal Trade Commission; he started in March 1961 and his present term expires next year--we used to meet regularly in the "Tightrope" group.

I found a note to me at Wayside Log from Melvin Calvin, who dropped by this morning while I was taking my hike, saying he has changed his mind and decided not to run for President of AAAS.

Just before 4:30 p.m., I walked down with Harry Goff (our Wayside Log Captain) and his guest, Admiral Herb Ainsworth (whose responsibility includes Moffett Field), to hear the Lakeside Talk by George Shultz. He said that Phase IV will be the end; there will be no further price controls after Phase IV has run its course. This announcement was very popular with his overflow audience. He said the present export controls will not be expanded but eliminated as soon as possible, that the free market and competition is the only way to contain inflation in the long run. After his talk, I spoke with him; told him about the offer of AAAS to offer science advice to the White House, and he expressed delight at this, said this topic is ready for discussion and he would be glad to see me about it. He had heard about the AAAS offer from his assistant Kenneth Dam.

I introduced Jim Hart to Guy Stever so that he could explore with him the possibility of NSF support for his Science History project.

After the Lakeside Talk, I made the rounds of some of the camps with Goff and Admiral Ainsworth. We first visited Cave Man's, where I talked to U.C. Regent Glenn Campbell about the LBL Directorship,

giving him the arguments why Sessler would be better than Foster and also saying that Sessler would be better than May when Campbell brought up his name. I described the laboratory opposition to Foster. I also talked to U.C. Regent Bob Reynolds. Since he was a famous member of the Stanford football team of 1933-34-35 (the famous Vow Boys), I recalled their singular loss (7 to 6) to UCLA at Stanford in 1935, a game that I saw, a game in which the "ringer" Ted Key (he had played out his full eligibility at a Texas College before coming to UCLA) played a crucial role; he was impressed at my memory on this. Campbell took part in this discussion and we also reviewed the remarkable success that Berkeley athletic teams had during my chancellorship. Here I also talked to George Mardikian (long-time owner of Omar Khayyam's and author of a best-seller on his experiences as an immigrant American), Lowell Thomas, and others.

We next visited the Pink Onion. Goff said we will invite Sol Linowitz to the Bohemian Grove next summer, then push for his election to membership in the talent group, soon thereafter. We then went to Thalia. Here, I talked to Ed Littlefield, Chairman of the Board of the Utah Company, and Ray Jones, the new Chairman of the Board of General Electric. We also visited Tie Binders.

We then went back to Wayside Log for a little while. Then I went down to the Dining Circle with a number of Wayside Loggers. I sat next to Chancellor Frank Sooy of the University of California, San Francisco. I told him that I was sending him a letter recommending David Perlman as a Regents' Professor and this pleased him. I told him that I was available to visit his campus in my capacity as a University Professor, and he said he will have someone get in touch with me to arrange this, probably someone connected with their Betatron. I also told him about Bill Cobb's difficulty in getting admitted to Medical School and described his scholastic history. He said that UC San Francisco, uses three criteria--(1) grades, (2) interview, and (3) score on the medical school test (which is given in November and March, approximately). He said that, if Bill applies to UCSF, I should let him know and he will see to it that Bill gets an interview. If he scores lower than he likes on the medical school test, he should take it again.

I attended the Low Jinks in the Field Circle with Sooy and two of his associates, the Blois Brothers. The show, "The Rubber Duck," (also called Amalgamated Consolidated Incorporated) was the best Low Jinks that I have seen. The lead part, played by a young man named George Carter, was especially good. I then returned to Wayside Log camp and retired.

Sunday, July 22, 1973 - Bohemian Grove - Lafayette

I had breakfast at the Dining Circle with a number of fellow Wayside Loggers. At about 10:30 a.m., I set out on a hike with Robley Williams, Ian Mackinlay (Ed Strong's son-in-law), Carl Helmholtz, and his brother Lindsay Helmholtz (of the Chemistry Department, Washington University, St. Louis). I brought Carl up-to-date on the controversy over the Directorship of LBL; he is very sympathetic to my point of view. I promised to send Ian a map of hiking trails in the Contra Costa-Berkeley Hills area.

We hiked up McLaren Road and Middle Ridge Road to High Point, then back down on Trail No. 3 and the Smith Creek Trail to the Club House-Swimming Pool area, and then back to the Lakeside, arriving at about 12:40 p.m.

I heard part of Harold Brown's Lakeside Talk, then went back to Wayside Log, packed my bag, walked (with suitcase) down to the Gate, checked out, and started back home.

I stopped at Occidental for a bite to eat at the Koffee Kup. I arrived home at 4:30 p.m. I found Helen, Dianne and Marta (Cha Cha) Bueno (whom Helen had picked up in San Francisco today) up at the swimming pool.

Monday, July 23, 1973 - Berkeley

I called Bill Bevan at 9:00 a.m., reaching him in Len Rieser's office at Dartmouth, to report about the note I had from Melvin Calvin over the weekend, indicating that he has changed his mind and decided not to run for the AAAS Presidency. Bill indicated that he thought Mrs. Calvin may have had some influence on this. After some discussion, I decided that I would call Melvin again and would be back in touch with Bill, who reiterated that no heavy demands would be put on Calvin until his third year in office.

At 9:30 a.m., I went by Room 203, Building 70 to talk to Jol Liljenzin and Ted Norris. Jol had worked all night on the counting of the chemical fractions from last Friday's bombardment of uranium with krypton. The total bombardment was more than twice as great as the previous one. They ran into two difficulties: (1) the superheavy element fraction was too thick to measure alpha particles due to the inclusion of ammonium salts, and (2) the recording apparatus of the pulse analyzer developed problems. However, they were able to get a lot of useful data. Kratz came in later in the morning and Jol went home to sleep, and Ted and Jens are trying to get the recording apparatus fixed.

Shortly after 11:00 a.m., I went to the Building 50 auditorium to see, along with Phil Dauber and Dave Ridgway, a screening of the film, "Survival of Spaceship Earth." This was produced and directed by Dirk Summers for showing at the Stockholm U.N. Conference on the Environment last fall. It is an impressive film technically, but in my opinion it is consistently negative in its approach, without sufficient emphasis on the positive aspects of what science and technology can do to avoid starvation and the continued deterioration of the environment.

I had lunch at the lower level of the cafeteria with Hyde, Swiatecki, Norris, Diamond, Stephens, Cerny, Bucher, and others.

Douglas Sherman dropped in at 2:00 p.m. He has been accepted for graduate work in the Department of Chemistry starting this fall and is interested in working in Nuclear Chemistry, probably in the area of heavy ions and heavy elements. He is a graduate of Rensselaer Polytechnic Institute in Troy, New York, and was accompanied by his friend Paul Di Corleto who is a classmate from RPI and who is going on

to graduate school at Cornell in Biochemistry. Douglas had a grade-point average of about 3.5 out of 4.0 and had also been accepted for graduate work at a number of places like the University of Maryland and the University of Washington. He took courses in Nuclear Chemistry and Radiochemistry from people like Dr. Herbert Clark and Dr. Ivor Priess. They used Harvey's book on Nuclear Chemistry and Overman and Clark's book on Radiochemistry. I took them over to meet Ted Norris in Room 203, Building 70 and then took them up for a general tour of the SuperHILAC. Ghiorso was not there so I could not introduce Sherman to him. Sherman is in California in connection with a visit to his parents' home in Los Angeles. He will get in touch with us when he comes up to start his graduate program in September.

I mailed to Chancellor Francis Sooy at the University of California, San Francisco, a letter (copy attached) supporting the recommended appointment of David Perlman as a Regents' Professor. I wrote Gunter Koch, informing him that Jose Alonso will prepare the article which Matti Nurmi originally was to do and that Alonso has set a target completion date of a month from now.

At 4:00 p.m., I attended the Nuclear Chemistry Seminar in the conference room of Building 70A. Here Richard Jared spoke on "Measurement of Prompt Gamma Ray Lifetimes of the Fission Fragments of  $^{252}\text{Cf}$ ."

I took a hike to the water tank with Cha Cha and Suki. Cha Cha took some pictures with her new Instamatic camera given to her by her Aunt Gloria. At dinner tonight were Cha Cha, Dianne, Helen, and me.

After dinner, I called Melvin Calvin at his weekend place near Healdsburg to try to convince him to change his mind and run for the Presidency of AAAS. We will discuss this further at dinner at the Calvins' Berkeley home tomorrow night.

The big news today is that Senator Sam Ervin's Select Committee to investigate the election (Watergate) and Special Prosecutor Archibald Cox both have subpoenaed the President to acquire the White House correspondence and tapes pertaining to this situation.

Tuesday, July 24, 1973 - Berkeley

During breakfast, I watched on TV the appearance of John Ehrlichman as a witness before the Senate Select Committee. He denied any unlawful or unethical implication in this case.

I called Bill Bevan as soon as I arrived at my office to tell him that I reached Calvin last night and discussed the AAAS Presidency matter with him and that Helen and I are having dinner with him and Gen tonight. I indicated that I wanted to give him another 24 hours; perhaps there is a 50-50 chance. Bevan told me that when he talked to Mrs. Calvin on Friday night, although he didn't tell her why he was calling, he sensed an uneasiness in her conversation with him and feels that she may be a major factor in his consideration. I indicated that this was probably true.

July 23, 1973

Chancellor Francis A. Sooy  
126 Medical Sciences Building  
University of California  
San Francisco, California 94122

Dear Chancellor Sooy:

This is in support of your consideration of David Perlman for appointment as Regents' Professor on the San Francisco campus.

I have known David Perlman for about twenty years in his role as science writer and Science Editor for the San Francisco Chronicle. I rate him as one of the outstanding newspaper science writers in the United States.

He is highly regarded in his profession, having served as President of the National Association of Science Writers in 1970-71 and serving currently as Vice President of the Council for the Advancement of Science Writing. As an indication of my high regard for him, as Chairman of the Board of the American Association for the Advancement of Science, I recommended his appointment to the AAAS Committee on the Public Understanding of Science and he is presently serving in this capacity. I also recommended his appointment on the Planning Committee for the 1974 AAAS Annual Meeting to be held in San Francisco, and he is also presently serving in this capacity. I have found him to be one of the most effective members of both of these committees.

In addition to being a first-class writer, David Perlman is an effective and articulate speaker. He organizes his thoughts very well and has very impressive ideas on the public understanding of science and on ways of improving the communication between scientists and the public.

Francis A. Sooy

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July 23, 1973

He has a very pleasant and engaging personality, and gets along well with his colleagues and those who come in contact with him in connection with his work.

I feel that I can recommend David Perlman very highly for appointment as Regents' Professor on the San Francisco campus.

Sincerely yours,

Glenn T. Seaborg  
University Professor

GTS/sms

Tuesday, July 24, 1973 (con't)

At 8:45 a.m., I went up to the HILAC Building to attend a meeting of the SuperHILAC Planning Group in the small conference room off of Ghiorso's office. Present were Ghiorso, Jose Alonso, Carol Alonso, Matti Nurmia, and Mike Nitschke. Ghiorso gave a status report on the SuperHILAC. He has corrected some errors induced by the forced multiple use of pumps and apparently krypton ions will be available this week. Perhaps our chemists will get a bombardment Thursday night.

I described my luncheon with John Teem in Washington last week, indicating that I think the reorganization of the Division of Research is meant to be beneficial to the heavy ion research program. I also told them about the prospective new graduate student, Douglas Sherman, who had visited the SuperHILAC with me yesterday.

After the meeting I talked to Ghiorso, who told me that he has received a call from Lee Grodzins, following Grodzins's talk to the Feshbach Heavy Ion Committee in executive session last week. Grodzins wanted Ghiorso to know what he said--namely, that he thought Ghiorso shouldn't be Director of the SuperHILAC because of a conflict of interest posture in view of his own experiments on the SuperHILAC. We discussed the ramifications of this.

I then went in to see Matti Nurmia to express my disappointment in him for the way he fell down in the matter of his article for Gmelin. He acknowledged failure on this, said it was the first time it had happened to him in his life, and that he didn't understand why it happened. He did say that when Koch wrote him in reply to his letter, that a shortened article would be unsatisfactory, this had contributed to his stopping work on the article. I indicated to him that he should try to overcome this apparent block in his future activities.

I then dropped by to see Kratz and Norris in their laboratory. Kratz has run into a problem with the purchasing people in the Lab who are refusing to let us buy the 4000 channel pulse analyzer from Hewlett-Packard, billing it to GSI with nominal ownership by GSI. He and Earl Hyde are still working on this, but apparently it represents another example of the type of bureaucratic roadblocks that have been plaguing us.

Wolfgang Schneider from GSI is arriving this afternoon to start work, and Hans Gutbrod is finishing his tour of duty with us on September 1.

I had lunch at the table outside the lower level of the cafeteria with Norris, Stephens, Diamond, Nitschke, and others.

Shortly before 2:00 p.m., with Marjorie Hollander also on the phone, I called Zelma Gelling to introduce them to each other and arrange for Marjorie to go down to the Chancellor's office and extract the pink memos, minutes, and other correspondence which I need to reconstruct a journal account of my period in the Chancellorship.

Bill Bevan and Len Rieser called me at 2:15 p.m. I indicated that I had not yet been able to reach Melvin Calvin; Bill said that they are working towards an August 1 deadline to finalize the list of candidates. Bill reported that Catherine Borrás has asked for my vote on a technical matter. They have signed the major contract with AID for the International Population Year. AID requires that AAAS set up a separate account for the use of those funds. Catherine polled me, and I voted that (1) I will accept a motion to set up a separate account, and (2) I would authorize the usual four check-signers in AAAS to sign on this account. I told Bill that I was receiving many requests for reprints of my Mexico City speech, and he said that he will arrange to have 300 copies sent to me.

Walter Costa returned my call at 2:25 p.m. I asked how he anticipates the City Council will line up on the question of an open space bond election at the meeting tomorrow night when Lafayette Save Open Space will make its presentation. He told me that he will have breakfast tomorrow morning with Ned Robinson and Jim Davy. Donn Black is concerned about the timing vis-a-vis the election in November (when the question of town zoning will apparently be raised). We discussed the prospective positions of the Councilmen and agreed that I probably should not be at the breakfast tomorrow morning.

Frank Asaro dropped in at 2:45 p.m. to say that he has learned that LBL may get another \$20,000 this year and perhaps \$40,000 next year for the affirmative action program. This would be divided between Chemistry, Physics, and IMRD and would come from Elliot Pierce's new Division of Molecular, Atomic and Applied Sciences. Asaro will come in with some suggestions on how this money might be spent.

I spent a good part of the day working on the China Journal.

Helen, Dianne, Cha Cha, and I had dinner with the Calvins at their home on Buena Vista Way in Berkeley. We had an outdoor dinner on their patio with Melvin serving as chef. Besides Melvin and Gen, their son Noel was there, and we were joined later by their daughter Elin and her husband and 1-year-old daughter Meadow, and a lady who may have been Elin's mother-in-law.

After dinner, Helen and I retired to the study with Melvin and Gen to discuss further the possibility of his accepting the nomination for the Presidency of the AAAS to run against Margaret Mead. After I had gone through all the arguments as to why he should do so, with Helen's help, Melvin and Gen finally agreed that Melvin would accept the nomination and assume the responsibility if he should be elected.

Wednesday, July 25, 1973 - Berkeley - Lafayette

As soon as I arrived in the office, I phoned Bill Bevan to report that Melvin Calvin will run for President of the AAAS, based on Helen's and my persuading him and Gen yesterday evening. I suggested that it would be strategically good for someone to move immediately to help Melvin with his campaign statement for the AAAS Bulletin. Bill said he will follow up on these matters immediately.

Wednesday, July 25, 1973 (con't)

I wrote William Baker at Bell Laboratories, reporting on our meeting with John Sawhill at EOB on July 18. I wrote I. I. Artobolevskii (Chairman, Board of Administration of the Znanie Society in the U.S.S.R.) in response to a letter from him describing a World Congress of Peace Forces and to follow up my visits with Yuorij Fishevsky in Mexico City. In response to his request, I wrote Alfred Garrett to give him the dates of the discovery of the transuranium elements (copy attached).

I received a nice letter from Ed Brunenkant in connection with my receipt of the American Institute of Chemists' Gold Medal. I wrote Libbi Huffman to extend our condolences upon Gene's death (copy attached). I also wrote William Anders in connection with President Nixon's nomination of him to the U.S. Atomic Energy Commission to replace Jim Ramey (copy attached). I sent a letter to the University of New Mexico, supporting their consideration of Robert Penneman for the position of Vice President of Research there (copy attached).

Fran Quinn Freeman called me from AAAS in Washington at noon. The Building Fund Raising Committee had just met and she was asked to call me on their behalf. (Those in the meeting included Linder, Golden, Haskins, Bolt, O'Brien [lawyer], Chapman [controller], Nussbaum, Bevan, and her.) She read to me a draft letter which I will write to 10 or 15 foundation heads, to arrange appointments to see them. After some discussion, we agreed that Golden might suggest five people in New York City whom I might see, and five outside New York, since I might be able to make some of these visits on my way to Europe at the end of August or on the way back in September. I suggested that we cut the first mailing to ten people, making only the blue chip selections.

I had lunch at the lower level of the cafeteria.

Luis Alvarez dropped by--having just returned yesterday, after a stopover in Honolulu, from the People's Republic of China. He and the group with which he was associated--as we had done--visited Peking, Nanking, Shanghai, and Canton. But he also visited Darien (the old Port Arthur) in Manchuria, where he saw an Institute of Chemical Physics that no Americans had visited before. He was in China for 22 days and visited many of the cultural spots that we visited, such as the Great Wall, Ming Tombs, and so forth. He also visited the Institute of Atomic Energy at Peking and the Institute of Nuclear Physics at Shanghai. He took about 40 rolls of movie film and some 800 color photographs.

Ernst Haas, Robson Professor of Political Science at Berkeley, came in and I met with him from 1:30-2:30 p.m. He talked to me about the character and political importance of the scientific advice which is given to international organizations, with emphasis on the Science Advisory Committee of the IAEA. He had a number of sample questions that he is trying out on his colleagues on the Berkeley faculty before venturing further. In this context, I also told him about my AAAS Retiring President's Address and what I am trying to accomplish in the way of expanding the AAAS into an international organization. I also

July 25, 1973

Professor Alfred B. Garrett  
Department of Chemistry  
Ohio State University  
140 West 18th Avenue  
Columbus, Ohio 43210

Dear Al:

In response to your letter of July 11, 1973, I have come up with the following dates of the discovery of the transuranium elements (including the year, month and day when possible; otherwise the year and month):

93, neptunium . . . .	May 1940
94, plutonium . . . .	Night of February 23-24, 1941
95, americium . . . .	January 1945
96, curium . . . . .	July 14, 1944
97, berkelium . . . .	December 19, 1949
98, californium . . . .	February 9, 1950
99, einsteinium . . . .	December 19, 1952
100, fermium . . . . .	March 1, 1953
101, mendeleevium . . .	Night of February 18-19, 1955
102, nobelium . . . . .	May 1959
103, lawrencium . . . .	April 1961
104, rutherfordium . . .	April 1969
105, hahnium . . . . .	April 1970

With best regards,

Cordially,

Glenn T. Seaborg

GTS/sms

July 25, 1973

Mrs. Eugene Huffman  
70 Panoramic Way  
Berkeley, California 94704

Dear Libbi:

We were all greatly saddened to learn of Eugene's passing. It is difficult to find words to express my feeling on an occasion like this, but I hope that your realization of the high regard in which he was held by his many friends in the Lawrence Berkeley Laboratory and elsewhere will in some small measure help to assuage your sorrow at this time.

Cordially yours,

Glenn T. Seaborg

GTS/sms

July 25, 1973

Mr. William A. Anders  
Executive Secretary  
National Aeronautics and Space Council  
Washington, D.C. 20502

Dear Bill:

I was delighted to learn that the President has decided to nominate you for the position of Commissioner on the Atomic Energy Commission.

I believe that your background and experience make you admirably suited for this new responsibility. I think that you will find it to be a very challenging and satisfying assignment, especially in view of the new responsibilities that the Commission will undertake in the energy field if the Commission expands to assume the new ERDA role.

With best regards,

Cordially,

Glenn T. Seaborg

GTS/sms

July 25, 1973

Professor Wolfgang E. Elston  
University of New Mexico  
Albuquerque, New Mexico 87106

Dear Professor Elston:

I am writing in support of your consideration of Dr. Robert A. Penneman for the position of Vice President of Research at the University of New Mexico.

I have known Bob Penneman since the days of the Manhattan Project, when we both worked at the Metallurgical Laboratory of the University of Chicago. He is one of our country's outstanding inorganic chemists and has been responsible for a large amount of the best work on the chemistry of the transuranium elements. He is recognized as one of the world's leading investigators in this area.

Bob has a broad understanding of the importance of research in basic science, and I believe that he would be well suited for a position in which the overall supervision of research at a university would be his responsibility. He has a pleasant personality, gets along well with his colleagues and would, I believe, fit very well into a university atmosphere.

I believe that I can recommend Robert Penneman highly for the position of Vice President of Research at the University of New Mexico.

Sincerely yours,

Glenn T. Seaborg

GTS/sms

Wednesday, July 25, 1973 (con't)

told him about the International Foundation for Science and the International Federation of Institutes for Advanced Study (IFIAS), giving him the names of Roger Revelle and Sam Nilsson as contacts. I suggested that he might also want to interview Gerald Tape, present U.S. Representative on the Science Advisory Committee of the IAEA.

Edwin McMillan called me at 3:45 p.m. to tell me of Pete Goldschmidt's report to him about our effort to get the \$500,000 increment reinstated in the Public Works appropriations. It didn't work. Tunney took the message to Bible, who doesn't like floor amendments. Now, Goldschmidt indicated, Tunney will try to persuade Chairman Dixy Lee Ray to scrape up some money from within the Commission's budget for this. We agreed that this was not a good procedure.

McMillan said that John Foster will visit the Lab on Monday, July 30, and I said that I would be available to see him. (Ed expressed the view that it would be a serious mistake for Foster to become Director of LBL; he thinks Mike May might suffer from some of the same problems.)

President Charles Hitch called me at 3:55 p.m. to tell me about his meeting this morning with the joint committee. They interviewed Michael May and found him to be an appealing person, although Hitch indicated that May appears to suffer from some of the same drawbacks as Foster. Hitch told me that Calvin threw out as a dark horse candidate the name of Dick Garwin; in response to Hitch's inquiry, I responded that he should forget the suggestion. Charlie indicated that the committee's discussion was mainly about the suitability of Foster and May. He said that the faculty spoke out quite strongly, and he thinks this made some impression on the Regents who were present. I told him about my conversation at the Grove with Glenn Campbell and Bob Reynolds; Hitch indicated that, to his surprise, Reynolds had voted against him. He thinks Reynolds may be a key vote and that it might be appropriate for me to contact Reynolds again sometime before the September meeting. I reported on my conversation in Washington last week; Hitch and I agreed that we should not encourage the Commission to be otherwise than neutral in local laboratory matters.

At 4:10 p.m., Earl dropped in to report on the meeting of the Joint Committee to recommend on the LBL Directorship--a couple of minutes after Hitch's phone call was completed. He indicated that they had interviewed Mike May, but there were no decisions taken, pending Foster's visit to the Lab next Monday. The faculty members expressed themselves strongly regarding Foster and less so regarding May, but reiterated their preference for Sessler.

Suki and I took a hike to the water tank. I attended the meeting of the Lafayette City Council in the Veterans Memorial Building in Lafayette from 8:00-11:00 p.m. My purpose was to lead the presentation of the Lafayette Save Open Space Citizens Group, requesting a special bond election on November 6 to vote funds to acquire open space. Present were the five members of the Lafayette City Council--Mayor Walter H. Costa, Robert M. Fisher, Donn L. Black, James Davy,

and Ned Robinson--and Ernie Marriner, City Manager. In the audience from Lafayette SOS besides me were Bill and Ann Chilcote, Lee Pfautch, Claire Masters, George Ponomareff, Joanne Johnson, Lloyd Townley, and others.

Our agenda came up about 10:15 p.m., after a two-hour hearing and discussion of the question of a building permit for the World Savings Company for a building at the corner of Mount Diablo Boulevard and Moraga Road--the permit was granted by a 3-2 vote. I made the introductory remarks for our group and then introduced Bill Chilcote who made the detailed presentation. We are suggesting a bond issue to raise \$6 million to be repaid at 5-1/2% interest over a 25-year period. This will cost the owner of a home with \$10,000 assessed valuation (approximate cash value \$40,000) about \$6 per month. At an average cost of \$3,500 per acre, it would be possible to acquire 1,700 acres. Bill illustrated his talk with statistics on the alternative cost to the city of having housing on the 1,700 acres, on city income, and the cost to Lafayette taxpayers of the bond issue. His slide presentation included views of the Lafayette hills and other open space.

Following Bill's presentation, I made some concluding remarks and handed over to Mayor Costa petitions which contained about 900 signatures supporting the concept of such a bond issue. After our presentation, Robinson, Davy and Fisher spoke in favor of approval of our request. Black indicated that he had some problems with a letter by Lafayette City Attorney Charlie Williams, which identified some potential conflict with Lafayette's General Plan. Finally, Wally Costa spoke strongly in favor of the bond issue. It was pointed out that it would be necessary to move fast in order to meet the time schedule, requiring a three months' interval between the City Council approval and the election date (November 6). The Council therefore voted despite the uncertainty introduced by Williams's letter (which was available to the Council members) to have the firm of Orrick, Herrington, Rowley and Sutcliffe draw up the necessary bond election papers. After this, two more meetings are required with a vote of 4 Council members, and the Council spent the remainder of the time trying to set dates when at least four Council members would be present within the restricted time frame made necessary by the approximately three months' required lead time. They succeeded in setting such meeting dates and set a date for a preceding executive session with Lafayette City Attorney Charlie Williams to get a clarification from him of his problems. All in all, it looks like the Council will give the necessary approval on time for the proposed election to be held on November 6.

Thursday, July 26, 1973 - Berkeley

I attended the regular SuperHILAC research conference in the conference room of the HILAC building. Giorso reported that Adam is working quite well, leading to better operation of the SuperHILAC. Bob Anholt, postdoctorate working with John Rasmussen, reported on the x-rays produced when Th or Au is bombarded with Kr. They saw the L x-rays of Au, etc. (10-20 Kev), the K x-ray of Kr, etc. They are looking for the L x-rays (20-40 Kev) of "united" atoms, Kr + Th (126), and Kr + Au (115).

Thursday, July 26, 1973 (con't)

Ghiorso then went on to describe the SuperHILAC program for the next few days. On the program are (1)  $O^{18}$  to produce 104 for chemistry experiments, (2)  $Kr^{+5}$  to give large beams for the SHEIKS, (3) experiments for the SUNY group, etc. Don Le Beck has been added to the SuperHILAC operating and trouble-shooting group.

Sven Gosta Nilsson then talked about his recent predictions of the spontaneous fission half-lives of element 106. He gets values of about 0.1 milliseconds for the even-even isotopes and a hindrance factor of  $10^2$  to  $10^3$  for odd-neutron isotopes, especially  $106^{263}$  (157 neutrons). This suggests a half-life of 10 to 100 milliseconds for the decay of  $106^{263}$  by spontaneous fission. As a result of this discussion, Al suggested to me that we should consider making attempts to produce element 106.

Art Poskanzer then summarized the recent summer conference here on the theoretical aspects of high energy (relativistic) heavy ion physics. This was thus related to the potential research uses of the BEVALAC. They discussed macroscopic, microscopic and democratic theories. At the summer conference, Swiatecki described his macroscopic theory, i.e., consideration of the overlap area, as a whole, in the collision process. The microscopic theory considers individual nucleon collisions and nucleon cascade processes. Chew advanced the democratic theory, by which the methods and nomenclature of particle physics are used.

After the seminar, Ghiorso and I met in his office. Hyde had heard from George Pappas--via a phone call from Washington where George is visiting AEC headquarters--that Teem has decided to make additional money available to the HILAC in FY75 in the range of \$1.2 to \$2 million. This would be for completion of construction of vital parts and attendant equipment and to enable operation to hopefully go up to 24 shifts per week. Apparently, the appearance of the LBL group before the Feshbach panel last week went very well. This is especially true as far as the SuperHILAC is concerned, but also true to a lesser extent with respect to the BEVALAC. We are to come up with a priority list in time to discuss it with George Pappas on Monday so that he can phone it to Washington AEC on Tuesday. Hyde and I will meet with Ghiorso and Main about this tomorrow afternoon at 2:00 p.m.

I then went down and had lunch at the table outside the lower level of the cafeteria with Hyde, Norris, Kratz, Diamond, Stephens, Bucher, and others. The talk involved mainly the Watergate hearings. On the way to our table, I met Luis Alvarez who gave me a copy of an interesting periodic table that he had purchased at a bookstore in the People's Republic of China.

Robert Parry phoned me at 2:00 p.m. from the University of Utah to discuss further the possibility of my speaking at the UNESCO Conference in Warsaw on the Improvement of Chemical Education. They clearly would want me to speak in the opening ceremony although they would be happy to have an address on the alternative date of September 19 as I had suggested. After some discussion, we agreed that it probably would not be worth my doing this under these circumstances.

He told me that the UNESCO Conference is held once every four years, and he described a little of the problems that they have had in working with UNESCO in getting decisions made about the program.

At 4:00 p.m., I went to the Conference Room for what was meant to be a meeting of the Trails Subcommittee of the EBRPD Citizens Task force. However, only Helen Hann and Charles Boyd were present. We decided that I might write a letter reiterating our Subcommittee's recommendations of March 14, 1973, where they differ from Overview's-- as suggested by George Cardinet in a phone call to my office. With that, we decided not to try to have more of a meeting, and the others left.

I took a hike to the water tank. Helen, Dianne, Cha Cha, and I had dinner in front of the TV in the family room.

Friday, July 27, 1973 - Berkeley

I spent a good part of the morning working on the correction of the final copy of my China Journal. I mailed off to Edgardo Macorini (Managing Editor, Edizioni Scientifiche e Tecniche) some material for his use in preparing an entry about me in their Biographic Encyclopedia of Scientists and Technologists.

At 11:30 a.m., I called Joyce Kallgren, Acting Chairman of the Center for Chinese Studies on the Berkeley campus, to discuss the chronology of contemporary China which I am preparing for my China trip report. After some discussion, she offered to review this for me, and Sheila got a copy into her hands in the early afternoon.

I had lunch at the lower level of the cafeteria outside table with Hyde, Poskanzer, Nitschke, Diamond, Bucher, and Stephens.

At 3:00 p.m., Earl and I went up to the HILAC Building to meet with Ghiorso and Main to discuss the backup of the SuperHILAC items, totaling somewhere between \$1.2 and \$2 million, that we will discuss with George Pappas on Monday, for his presentation to Washington AEC for consideration and inclusion as a "line item" in FY75 budget. The hoped-for krypton bombardment did not materialize today.

Suki and I took a hike to the water tank.

Saturday, July 28, 1973 - Lafayette

I spent a good part of the day removing the weeds from the juniper around our tennis court. In the afternoon, Helen, with Dianne, drove Cha Cha Bueno back to her Aunt Gloria's apartment.

Sunday, July 29, 1973 - Lafayette

Earl Hyde came by in the morning to discuss his meeting yesterday with George Pappas concerning our request for \$1.2 to \$2 million in FY75 for debugging and completion of the SuperHILAC. We also discussed his meeting with Bob Main in which his differences with Ghiorso on management philosophy for the SuperHILAC debugging and construction completion were again aired. We will have to come to grips with

this. I agreed to meet with Bob Main this week to discuss this and also to try to see Bernie Harvey to get his point of view. We also discussed Earl's talk yesterday with Pappas about the forthcoming disagreement over the division of the AIP money (\$125,000)--we should try to avoid a repetition of last year's open argument--and the division between the SuperHILAC and BEVALAC of \$300,000 allocated to the BEVALAC.

Eric called from a pay phone booth in the area of his camp in Washington State at 9:30 p.m. He told us he has been selected to start on a paying job (\$3.89 an hour), clearing and building trails, starting next week and lasting until September 10.

Monday, July 30, 1973 - Berkeley

Director McMillan's secretary Gloria Clifford called Sheila to report that my appointment with John Foster is cancelled. Foster has withdrawn his name as a candidate for the Directorship of the Lab.

Hyde and Kratz came by to say the problem of GSI purchasing a Hewlett-Packard 4000 channel pulse analyzer for us has been resolved. GSI will make out a check or money order to Hewlett-Packard for the \$20,000 which will be sent here and then we will forward it to them.

Bill Chilcote called me at 10:15 a.m. to discuss the agenda for next Wednesday's meeting of the Lafayette City Council. The proposed open space bond election is the first action item on the agenda; after some discussion, we agreed that I should be at this meeting. Bill described a conversation he had had with Charlie Williams to discuss the contents of Williams's letter. Williams wants a feeling from our group as to how willing we would be to avoid identifying the properties in detail. Bill told him that our position is that we will certainly avoid it if we can--but, if the opposition becomes especially vigorous, we may be forced to do some things like that which we would not want to do. He told Williams that we are anxious to avoid escalation of the land value and would hope to be able to select those that are least expensive and will still do the job. Charlie will be at Wednesday morning's breakfast meeting with Costa, Black and Davy. Bill indicated to Charlie that anyone from our group would be more than happy to meet with them, and I said I could make it if called upon. Bill reviewed the two resolutions and the introduction of the ordinance to be adopted at the meeting. I suggested to Bill that he be sure that the bonds are tax free. He told me that City Manager Ernie Marriner is out of town this week, and Dave Granados will sit in for him. He will try to get copies of the three papers for our preliminary study.

I conferred with Liljenzin and Kratz about the content of my talk to IUPAC at Hamburg in September; I will cover the results of our bombardments of uranium with argon and krypton. I had lunch at the lower level table outside the cafeteria with Kratz, Norris, Stephens, Hyde, and others.

I phoned Anne Keatley in Washington at 1:45 p.m. After discussing the AAAS symposium, we discussed our name lists of those we met in China. Anne expressed appreciation for my list, indicating that I

had provided some names she didn't have. Her office is sending a report with our itineraries and list of persons met in various cities--it is a general outline of the trip. She will try to get this to me by the end of the week. She noted that we had missed the delegation's meeting in Peking at which time each member of the delegation was asked to write a short report on his observations in his own field. She indicated that it is not necessary for me to send her my full report; I will excerpt from that the sections that deal with the institutes that I visited. She reported that everyone else in the delegation seems to be fine, though she was worried about Viki Weisskopf who went directly through Washington to CERN and appeared very tired.

I forwarded to Emil Smith a copy of the letter I received from Bruce Bolt (Director of the Seismographic Station at Berkeley), briefly describing his visit to China. I wrote Jean Knapp at UNESCO in Paris, formally declining the invitation to present the opening address at the inaugural session of the International Congress on the Improvement of Chemical Education, to be held at Warsaw, Poland in September. I received from F. M. Esfandiary (New School for Social Research in New York) a copy of his latest book, Up-Wingers, into which he wrote a nice inscription. I wrote to Michela Di Casa, as she requested, certifying to her period and content of work at LBL.

At 4:00 p.m., I attended the regular Nuclear Chemistry Seminar in the conference room of Building 70A, where Walter Meyerhof (of Stanford) talked on "Observations of Molecular Orbital K x-rays in 30 and 60 Mev Br + Br collisions." (Meyerhof is going to spend a sabbatical at LBL in the Nuclear Chemistry Division working at the SuperHILAC this fall.) He hopes to work on the Greiner idea of "Molecular nuclei" and look for the positron effect at  $Z = 170$ ; however, this will require the use of ions as heavy as uranium and thus may not be possible as soon as this fall. He and his co-workers have seen very slight indications of  $Z = 170$   $K_{\alpha}$  and  $K_{\beta}$  x-rays produced in the Br + Br reaction. He does not yet claim this is a positive effect. With iodine on iodine they do not see the combined  $K_{\alpha}$  x-ray of element 106 because there is a nuclear gamma-ray at just that point, but they see indications of the molecular effect in the energy region below this, possibly due to K x-rays of molecular double nuclei ( $Z = 53 + 53$ ) at varying intermediate distances.

Before dinner, I spent an hour removing crab grass from the interstices of our brick walk leading to the street.

Tuesday, July 31, 1973 - Berkeley

Paul Lochak and Sol Linowitz called me from Sol's office in Washington shortly after 9:00 a.m. Paul is going to be meeting with Governor John Love (the new head of the energy office in the White House) in about an hour. He asked if he could mention my affiliation with SIT, and I indicated that he could use my name but thought that he should not play it up too much. He will talk with Love about the fact that in Europe there is an enormous concern about the energy problem and fretful concern that there isn't cooperation between Europe and the United States in this area. He plans to ask Love what his personal position is in regard to this; I indicated that Love may

Tuesday, July 31, 1973 (con't)

not know a great deal about uranium enrichment yet and that Pete Flanigan is the man in the White House who has been handling this entire matter. I indicated that Love is very new in the office, and the only route that seems to be open is for the European companies to cooperate with U.S. industry in this, not directly with the government. I noted that this is the direction which the Administration has been trying to take. Sol indicated that Charlie De Bono will probably be in on this session. Paul and I will discuss this in deeper detail when we meet on Friday.

Joyce Kallgren phoned me at 9:20 a.m. about my chronology of contemporary China for my trip report. After some discussion, we agreed that she will do some re-writing of it, with an eye to consolidating major events within each period, rather than getting too specific with certain actually ambiguous dates. She will also review for me the section on our meeting with Chou En-lai, double-checking the names that he mentioned. She will also check out the identification of T. C. Chang [who turns out to be P. C. Chang].

Dorothy Schriver called me from Science Service at 9:30 a.m. In response to her inquiry, I said that I would be glad to write a letter to Dixy Lee Ray, inviting her to be the principal speaker at the STS Awards Banquet in Washington on March 25, 1974. Dorothy will phone a draft of such a letter to Sheila by tomorrow.

I met with the SuperHILAC planning group in the conference room of the HILAC Building from 9:30-10:45 a.m. Present were Ghiorso, Jose Alonso, Nurmia, and Nitschke. We decided to inaugurate a research program to try to synthesize and identify, by chemical means, isotopes of element 106. Nurmia will work on this, beginning immediately to design apparatus for volatility methods to identify elements 104 and 105 as well as 106. I may ask Roland Otto to join this project when he arrives. I also learned that Bob Silva, possibly with Norbert Trautman, will make visits to LBL from the University of Mainz, to work on the chemistry of element 105 with the FAKE apparatus in collaboration with Nitschke.

I dropped by to tell Kratz and Norris about our plans to look for element 106 and the planned Silva-Trautman experiment on the chemistry of 105. They would like to help on both of these programs.

I had lunch at the table outside the lower level of the cafeteria with Hyde, Poskanzer, and others. Hyde told me that he learned from Hollander (when Jack was here the other day for a day or so between his trips to Washington to work on the AEC energy plans) that George Rogosa had talked to Hollander, indicating that the AEC intends to give more support to the Berkeley Table of Isotopes project because the Oak Ridge project doesn't seem to be giving promise of doing the job as well.

From 1:30-2:30 p.m., I met in my office with James Hart, John Heilbron and Arthur Norberg. Jim brought me up-to-date on the funding of the History of Science Project. They have received a grant of \$155,000 from Hewlett-Packard spread over a five-year interval; the

Tuesday, July 31, 1973 (con't)

first payment is \$40,000 for FY74. This is all subject to matching grants. For FY74, they have received as matching grants \$10,000 from Fred Ehrman and have been promised \$8-10,000 from Ed Pauley and \$1,000 from Marian (Mrs. Wendell) Stanley. They also regard some \$30,000 in Berkeley faculty salaries as in the category of matching funds. We agreed that Hart might write a letter to Guy Stever, asking for some \$30-40,000 from NSF, and also to Dixy Lee Ray, asking for a similar amount--both to be related to matching grants for a year.

We also talked about the role that Ed McMillan will play in the History Project after his retirement. I urged that he be given some title such as Senior Advisor (along with Frederick E. Terman) and that an arrangement with definitive responsibilities be discussed with McMillan when he begins his duties with the Project. Jim agreed to this. In closing, I described my project to assemble my Chancellor's files for the period 1958-61 and again mentioned my Metallurgical Laboratory Section C-1 writing project, both of which were of interest to the group. Hart gave me a description of the History Project for my files.

I met in my office from 2:30-3:15 p.m. with Michael May. We began by my describing my concept of the future program of LBL. I did this emphasizing the importance of heavy ion research and the several other fields besides high energy physics. I indicated that, in my opinion, the new Director of LBL should be very knowledgeable in several of these new areas that the Lab will emphasis more and that I felt that Sessler and Shirley fulfilled this requirement very well. I indicated to Mike that he was well liked in the Lab but that the scope of the LBL Directorship is such that it would better be filled by Sessler or Shirley and that he is presently in a position ideally suited to his own talents. Mike seemed generally to agree and said that he tends to view his present visit to LBL, and one that he hopes to make in a week or two, as being for the purpose of making an assessment for President Hitch of the future and of who would be the best Director. He plans to talk to Sessler when he returns next week and would like to meet and talk to Shirley at the same time, which I agreed to arrange. All in all, it was an amicable meeting and I believe that Mike understands the situation very well.

At 3:15 p.m., I met with James Butler, Director of Communications for the AAAS in Washington. He wanted me to give him information about Melvin Calvin that would be useful in connection with his scheduled interview with Calvin tomorrow, where he will develop material that he will write up for publication in the fall issue of the AAAS Bulletin--this will be accompanied by a similar statement for Margaret Mead which Butler will also compose on the basis of an interview with her. I indicated that I thought Calvin's platform might very well have three components: (1) the endorsement of the new role of AAAS in promoting science for the benefit of mankind and promoting the public understanding of science, (2) a statement that he thinks AAAS should pursue the recently initiated steps toward advising the White House on science policy, and (3) an endorsement of the moves of AAAS into the international arena. I also gave Butler a good deal of information on Calvin's background and personality.

Butler also wanted to get a statement from me concerning my views of the directions that AAAS has been and is taking for publication in a 125th Anniversary Booklet which is under preparation for publication in the immediate future. In outlining such a statement, I again emphasized the three points mentioned earlier.

In my capacity as President of Science Service, I wrote Dixy Lee Ray, inviting her to address the Awards Banquet of the 33rd Annual Science Talent Search on March 25, 1974 (copy attached). In my capacity as Chairman of the AAAS Board of Directors, I addressed letters to several foundation heads, indicating that I would like an appointment to discuss the AAAS building project. Those I wrote to were: MacLean Gander (copy attached), President of the Dana Foundation, Greenwich, Connecticut; Philip R. Jonsson, Jonsson Foundation, Dallas, Texas; Russell G. Mawby, W. K. Kellogg Foundation, Battle Creek, Michigan; William H. Baldwin, Kresge Foundation, Troy, Michigan; Landrum Bolling, Lilly Endowment, Indianapolis, Indiana; Robert D. Fisher, Seeley G. Mudd Fund, Los Angeles; Charles Horn, Olin Foundation, New York City; James S. Coles, Research Corporation, New York City; and Dana S. Creel, Rockefeller Brothers Fund, New York City.

In the afternoon, we received a two-hour bombardment of uranium with about 7 particle-nanoamperes of krypton (Kr-84), and the fellows put it through the chemical procedure. Binder is helping at the counting end.

I spent an hour pulling crab grass out of our front brick walk. Steve called at 7:00 p.m. from Lynne and Bill's apartment in Lafayette, Indiana. He is enjoying himself, will visit Pete and Jane in Washington beginning this weekend, and return home to Lafayette here next week.

Wednesday, August 1, 1973 - Berkeley

From 9:00-11:00 a.m., I was interviewed on tape by David Ridgway for use in the "Impact" section of the Journal of Chemical Education and similar use in a British journal. This is a follow-up to my letter from Robert C. Brasted in December 1972. Dave asked me about: my early life; parental and other influences in early childhood on my choice of career; the influence of high school and college in my choice of a career in science; the origin of my decision to enter chemistry as my field; my undergraduate schooling at UCLA; my decision to go to graduate school at Berkeley; my early work on my graduate thesis, that in the Radiation Laboratory, and with Gilbert Newton Lewis at Berkeley; my participation in the discovery of transuranium elements; the future prospects in these elements; the early state of the art and the present state of the art in this field; my outside interests, such as athletics, the environment, IPA, AAAS, and international relations; the turn in my career toward the Berkeley Chancellorship and Chairmanship of the AEC; how my discoveries have made the biggest impact on humanity; my thoughts about present-day chemical education; the relationship between research and teaching; the career directions of my children; the problems of funding my research throughout my career; other problems that had to be overcome; the importance of interdisciplinary research; the special responsi-

# SCIENCE SERVICE INC.

THE INSTITUTION FOR THE POPULARIZATION OF SCIENCE organized 1921 as a non-profit corporation, with trustees nominated by the National Academy of Sciences, the National Research Council, the American Association for the Advancement of Science, the E. W. Scripps Estate and the Journalistic Profession. E. G. SHERBURNE, JR. DIRECTOR

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Telephone 667-2255 (Area Code 702) Cable Address Sciencerc

Reply to  
Lawrence Berkeley Laboratory  
University of California  
Berkeley, California 94720

July 31, 1973

The Honorable Dixy Lee Ray  
Chairman  
U.S. Atomic Energy Commission  
Washington, D.C. 20545

Dear Dixy:

As President of the Board of Trustees of Science Service, I am writing to invite you to address the Awards Banquet of the 33rd Annual Science Talent Search on Monday evening, March 25, 1974, at the Statler-Hilton Hotel in Washington.

Science Service, a non-profit organization located in Washington, has been concerned for a half century with improving the public understanding of science and encouraging young people in science. One of its most important activities is the Science Talent Search, which is aimed at the discovery and development of scientific ability among high school seniors in the United States. The program has been supported from its beginning by a grant-in-aid from the Westinghouse Educational Foundation. Each year, forty finalists spend almost a week in Washington being interviewed by judges and participating in other activities such as visits to scientists' laboratories.

The Awards Banquet is the week's climax and the scholarship winners are announced at that time. This is probably the largest annual gathering of the Washington scientific community, with approximately 1,000 guests in attendance. Some of the recent speakers have been H. Guyford Stever (Director, National Science Foundation), Lewis Branscomb (at that time Director, National Bureau of Standards), William McElroy (when he was Director of NSF), Lee DuBridge (at that time Science Advisor to President Nixon), Philip Handler (President, National

Dixy Lee Ray

- 2 -

July 31, 1973

Academy of Sciences), and Vice President Hubert Humphrey.

I hope you will find it possible to accept this invitation and to join us in honoring the winners of the 1974 Science Talent Search. This is always a fine, dedicated group of young people who have worked long and hard to achieve their often amazing results and who show considerable promise for the future.

With warm regards,

Cordially,

Glenn T. Seaborg

GTS/sms

cc: E.G. Sherburne, Jr., Director

*American Association  
for the Advancement of Science*

GLENN T. SEABORG  
Chairman, Board of Directors

LAWRENCE BERKELEY LABORATORY  
UNIVERSITY OF CALIFORNIA  
BERKELEY, CALIFORNIA 94720

July 31, 1973

Mr. MacLean Gander, President  
Charles A. Dana Foundation, Inc.  
Smith Building  
Greenwich, Connecticut 06830

Dear Mr. Gander:

I would appreciate an appointment with you to discuss a major new project of the American Association for the Advancement of Science, of which I am Chairman.

As you may know, the AAAS is the world's largest federation of scientific organizations. It has some 300 affiliated scientific societies and academies. In addition, it has over 150,000 individual members and institutional subscribers to its weekly journal, Science. It was organized in 1848 and has been increasingly influential in matters affecting science and society.

I will call your office soon to seek an appointment at your early convenience.

Cordially yours,

Glenn T. Seaborg

GTS/sms

bcc: William Golden  
Fran Q. Freeman  
William Bevan

Wednesday, August 1, 1973 (con't)

bilities of the scientist towards society; and my ideas as to the field I would enter today if I were starting as a 21-year-old.

I had lunch at the cafeteria lower-level outside table with Hyde, Norris, Swiatecki, Nitschke, and others.

Jerzy Neyman called me just before 2:00 p.m. to tell me that he had received Goldhaber's essay for the Copernican Volume and that the reviewers agree that it doesn't fit the volume. He asked for my opinions, and I asked him to send me up a copy of it. He indicated that the chapter on physics-chemistry is a stumbling block in his arranging for publication. He is working under some pressure because the Academy wants the volume to be published this year.

I called Ken Raymond in response to his letter to me of July 24 and thanked him for the slides he had enclosed. I indicated that, in my Hamburg speech, I would like to devote about two minutes to the organometallic actinides. In response to my queries he confirmed that the list of compounds that have been synthesized which I have is a complete list.

I received a letter from Kathleen Schwartz of the U.S. Embassy in Bucharest, Romania, indicating she had been trying to mail me the musical instruments that my friends with the Romanian State Committee for Nuclear Energy had said they would forward.

Herman Robinson dropped in to say hello, back from his three weeks in Kenya, stay in Washington, D.C., and two weeks in Colorado.

Helen drove to Sage Hen Creek Field Station (of the University of California) this morning to pick up David, returning home at about 9:30 p.m. Dianne and I had dinner (Colonel Sander's chicken) together at home.

From 7:30-9:30 p.m., I attended the meeting of the Lafayette City Council in the board room of Lafayette Elementary School. Present were Mayor Wally Costa and Councilmen Bob Fisher, Donn Black, and James Davy. From Lafayette SOS, those present included Bill and Ann Chilcote, Lee Pfautch, Richard Singer, and Lloyd Townley.

The first substantive item on the agenda was the open space bond issue proposed by Lafayette Save Open Space. The Council had before it drafts of the two resolutions (#53-73 and #60-73) and Ordinance #113, upon which affirmative votes by four members of the Council would be required. Black indicated that he would not vote affirmatively unless an additional resolution was adopted, including such points as (1) there would be no financial help from the City in promoting the bond election, (2) there would be no disclosure of the particular land parcels to be acquired with the proceeds from the election, and there would be opportunity for Lafayette citizens to comment on the particular plan to be acquired with the proceeds, and (3) the record should be clear that the magnitude of the bond issued is to be justified on general considerations and not on the basis of known cost of particular land to be acquired.

As leaders of Lafayette SOS, Bill Chilcote and I agreed in a general way to the points in Black's added resolution. The Council then went on to discuss the resolutions #53-73 and #60-73. The problem arose as to whether some of the \$6 million might be used for improvements on the acquired land--such as the building and maintenance of trails and their required bridges, the building of fences, cattle guards, toilet facilities, trail staging areas, and so forth. After much discussion, in which members of Lafayette SOS participated, it was agreed that the description of the bond measure that the citizens of Lafayette would vote on would be as follows (I don't have the exact wording): "Shall the City of Lafayette incur a bonded indebtedness in the principal amount of \$6 million for the following municipality improvement, to wit: acquisition and improvement of real property for open space and recreational purposes: provided at least 95% of the bonded indebtedness incurred shall be used for the acquisition of real property for open space?"

The two resolutions, the ordinance, and Councilman Black's added resolution then all passed by a 4-0 vote. Chilcote and I expressed appreciation to the Council on behalf of Lafayette Save Open Space Citizens Group and called on them for continuing help on the mutual task which lies ahead.

After the meeting, Chilcote and I were approached by Jim McMullan (Manager, Field Services, Charles R. Weidner Co., Inc.--administrators and consultants based in Oakland, and who lives in Lafayette) and Rick Ellis of Albert Raeburn and Associates, who offered their services for a price to help in the open space bond campaign. We indicated that we didn't have any funds for this purpose. McMullan also offered his services as a resident of Lafayette on a contributory basis.

Thursday, August 2, 1973 - Berkeley

Helen drove Dave to the Oakland railroad station (Amtrak), where he caught a 9:30 a.m. train to Denver, Colorado en route to Boulder to attend a meeting on biology--he will stay about two weeks.

I met with John Curtis from 10:00-11:00 a.m. as a follow-up to our discussion during the automobile trip from Vienna, Virginia to Washington on July 18. He said that he hopes to persuade Congress to establish a National Educational Telecommunications Authority which would be essentially a national computer network for universities. He envisages a quasi-governmental authority operating somewhat like TVA and AEC. He wanted to know whether I thought this was a good idea and I said that it essentially was. He spoke of an Advisory Committee for the promotion of this idea and I indicated that I would be willing to serve as a member but not as chairman. In response to a request for my recommendations as to who might serve as Chairman, I suggested that he see James Webb with the hope of either convincing him to serve as Chairman or of getting ideas as to Chairman and ways to promote his idea. I also suggested that he see Robert Seamans to get his ideas and also perhaps as an entree to see James Webb. He asked whom he might see in the Nixon Administration in order to familiarize them with his idea and I suggested that he see (1) Guy Stever or, perhaps more readily available, Edward Creutz, (2) John Sawhill, whom Creutz might introduce him to, and (3) possibly Peter Flanigan.

Thursday, August 2, 1973 (con't)

Bill Golden called from New York at 10:10 a.m. to discuss with me our steps in raising funds for the AAAS Headquarters Building Project. I indicated that I thought we would reach our objective better by involving only a few people and getting input by calling others. I indicated that I had signed and sent out the letters to foundation heads but questioned how I would actually be able to call on each of these people--Bill said he will help me in any way possible. He reported that he has spoken with Warren Weaver in case Weaver knows anyone at these foundations intimately and can lay groundwork for us. He is holding Danforth, pending Weaver's advice; he has not had a response from Edwin Land. We discussed my approach to Nathan Pusey at the Andrew Mellon Foundation; Bill reiterated that he thought my going to talk to Pusey might be helpful, and I thereby agreed to write him. Regarding an approach to Mrs. Astor, I indicated that I did not remember meeting her. Bill suggested that John Gardner might intervene for us, and Bill will be back in touch with me on this. He will call Sheila, or me at home, as he has further information. I indicated that I would not personally approach Bill Hewlett because he's co-chairman with me of the AAAS meeting and I thought this might be misinterpreted. I thought that Golden should find another approach here.

I called Howard Foncannon at AAAS at 11:20 a.m. to indicate that I thought his transmittal memorandum of July 26 is fine. I had a few small comments to make, such as that the second representative of Brazil is Mateos, and questioned the number of subscribers to Science in foreign countries. I suggested that his quote of my remarks as taken from the tape recording of the meeting could serve as a kind of motto for the definite action that we ought to take--that is, the creation of a kind of office to carry out these activities. I also suggested that his statements about the resources of AAAS could be expended into the write-up as the sort of thing the office would do. I suggested that he should outline the start of an international office and what it will do in the short and long run--for example, supervise a continuing committee in the AAAS. This would avoid our getting bogged down before we even get started by long-term studies out of which no action occurred. He told me that there has been pressure for a meeting in September, to which Solomon agrees, because there was so little time for a full discussion at the last meeting; he is sending out a notice of a meeting for September 18.

We discussed Moravcsik's proposal (with two representatives from the Asia Foundation) for a Symposium of Science Development at the 1974 Annual Meeting. Moravcsik had addressed this to our study group rather than to Greyber; Foncannon has written to Greyber saying that it has not yet been resolved as to what the status of the study group really is with respect to sponsoring symposia. Foncannon suggested that we would certainly encourage it. Meanwhile, he has received an information copy of a symposium on development being put together by the Academy; he is not clear as to whether there would be a conflict here, but suspects not. Foncannon asked Greyber to hold these things for a while until the study group on international science can sort this out. He indicated that Moravcsik's symposium would involve bringing Jorge Saboto from Argentina and someone else from Beirut--

Thursday August 2, 1973 (con't)

their travel would be paid for by a Rockefeller grant. I suggested that if he had problems involving the Meetings Director, he might try to work directly with Bill Bevan; Foncannon indicated that he only was concerned that these ideas receive proper consideration.

Bradley Moore called me at 11:45 a.m. in connection with Jose Carvalho's application for admission to graduate study in the Department of Chemistry at Berkeley. Moore said that Carvalho's undergraduate academic record is so poor in relation to the normal admittee (the Department requires all undergraduates to have half A's and half B's, while Jose has half B's and half C's) that an exception would have to be made to admit him. In response to his inquiry, I indicated that, while we were both persuaded by the argument of international cooperation, as set forth in my letter supporting Jose admission, I would not be in a position to insist that he be admitted. I indicated that he should make the decision on the basis of his normal requirements and methods. I wouldn't be unhappy if the Department didn't take Jose; if they took him, I would accept him for work with me. Moore suggested that it might be better for Jose to go to another school where the competition would not be as stiff; he could get more personal attention and probably learn a great deal more. At the end of our conversation, I indicated that I would talk with the postdoctoral people (Liljenzin and Kratz) with whom Jose had worked for their advice. Moore will hold off a decision on Jose's application until he hears from me again. (Moore observed that Jose is highly motivated to do work in nuclear chemistry at the present time.)

After reading Maurice Goldhaber's essay, I phoned Jerzy Neyman shortly before noon. I agreed that, while it is an inspirational paper from my point of view, it is probably too complicated for the very lay person. Neyman indicated that he has talked with Goldhaber, who may be able to rework the paper a little before he leaves for Europe on August 22. Otherwise, Goldhaber might be able to start working on a new article after he returns in September or October. However, this is extremely late in Neyman's timetable. Neyman is writing to NAS about this problem.

The Nuclear Chemistry Division Program Committee met in my office from 12:00-1:30 p.m. Present were: Joe Cerny, Dick Diamond, Al Ghiorso, Norman Glendenning, Bernie Harvey, Jack Hollander, Earl Hyde, Art Poskanzer, John Rasmussen, Dave Shirley, Ken Street, Dave Templeton, and Stan Thompson. I opened the meeting by calling to the committee's attention the memorandum we have received on changes in the Division of Biomedical and Environmental Research at AEC. The memorandum will be available in my office for anyone who wants to review it.

I then reported on John Teem's request to me for recommendations of people to head (1) the new Nuclear Sciences branch in the Division of Research, of which George Rogosa now serves as Acting Head and for which Teem has been trying to interest John Huizenga; and (2) the Division of Coordination of National Laboratories, for which Teem has been trying to interest Duane Sewell. The Committee generally agreed that George Rogosa would be fine in this position if he were to

Thursday, August 2, 1973 (con't)

continue there; other names for serious consideration include Bob Vandebosch, John Huizenga, and Walter Gibson of Bell Laboratories. John Rasmussen will review the APS Nuclear Physics Division membership roster for more ideas (such as Harry Gove and Paul Stilson).

Earl reported on the meeting of the LBL group with the Feshbach Panel in Washington last week. He told us that Teem is going to take the Bevatron out of High Energy Physics and put it into the new Nuclear Sciences section. Earl reported that Teem regards the SuperHILAC as the "star machine" at Berkeley; he wants it to be a national facility and for the outside community to get 50% of the beam time when we are up to a 21-shift operation. It is expected that a \$1.5 to \$2 million line item on the FY75 budget will be added for the completion and debugging of the SuperHILAC. In anticipation of this, Earl suggested that a number of engineers be added immediately to the SuperHILAC program and a number of suggestions were made, including the transfer of Phil Fraser from the 88" cyclotron.

We then asked Hollander to make a report on his recent visits to Washington, where he is working on the committee which will come up with recommendations to Chairman Ray, due on October 15, for the allocation of funds in the \$10 billion, 5-year budget. (The recommendations for the \$125 million supplement to the FY74 budget will be recommended by the AEC staff.) Jack described the three task forces of about 10 people each, as follows: (1) Coal Technology, under George Hill, Chairman of the Office of Coal Research, (2) In Situ Technology, including geothermal and so forth, with Ken Mirk of LBL as a member, (3) Advanced Technology, including energy conservation, solar energy, pollution abatement techniques, and so forth, with Hollander as a member.

I reported on my visit to Washington the week before last, during which I had talked to John Erlewine, Congressman Chet Holifield, Senator Scoop Jackson, and John Sawhill of the OMB on the energy organization problem.

George Cardinet returned a phone call to me, and we agreed that I would circulate a memorandum to the members of the Trails Subcommittee, asking them to vote yes or no on whether they want to reiterate those recommendations in our report that were not incorporated in the Overview report. We mentioned such things as the trail from the Orinda BART station to Sibley Park, the trail from Mt. Diablo State Park to Las Trampas, a higher priority for the Lafayette Ridge Trail, and so forth. In connection with Proposition 20, there will be a coastal trails system and attempts are being made to obtain \$250,000 from the Ford Foundation. We agreed that I would suggest to Sue Watson that her report of July 25 might serve as the definitive report on overnight camping and hostels if Sue agrees.

I wrote a letter to Kenneth Raymond, confirming that the Nuclear Chemistry Division will fund his computing needs at LBL in 1973-74 to the extent of \$7,000 (as an upper limit). I wrote Nathan Pusey to initiate the setting of an appointment with him at some time when I am in New York.

At 2:45 p.m., I went up to visit the going-away party for Pamela Taylor, who is retiring in order to have her first baby. After opening her presents and while Ghiorso was cutting the huge cake, I made a few remarks, wishing Pam well and saying that we have recently heard from Washington that a line item of from \$1.5 to \$2 million has a good chance of being included in the AEC budget request for FY75. I also indicated that, on this basis, we will gamble and add a few engineers during the present fiscal year.

Following the party, I talked to Matti Nurmia and we agreed that he will meet with Liljenzin and Kratz and Norris next week to discuss the element 106 chemistry and identification project, after which he will have a regular Thursday morning chemistry meeting on August 16 to develop this further and then report to the regular SuperHILAC Research Progress meeting on August 23. I later went by to see Norris and Liljenzin and told them about this.

I also saw Ghiorso, who said that he had talked to Nitschke who will be delighted to have the help of Kratz and Norris on the chemistry of 105 studies with FAKE, and I then told Kratz and Norris about this, and they will get in touch with Nitschke.

I also talked to Bob Main briefly and we agreed that in view of the reorganization that has taken place to accommodate the engineers that we plan to add, it probably isn't urgent to further explore the problem he discussed with Hyde on Saturday, which Hyde discussed with me on Sunday.

I finished pulling weeds out of our brick walk. Bill Chilcote called me at 7:00 p.m. to tell me that the attorneys Orrick, Herrington, Rowley and Sutcliffe have some problems with the wording of the main part of Resolutions #53-73 and #60-73 that gives the wording as it will go on the ballot for the bond issue. He said that they are rewriting the resolutions to take care of this, and there will be a meeting at 7:45 a.m. tomorrow morning in the Lafayette City headquarters to go over this wording.

Friday, August 3, 1973 - Berkeley

On my way to work, I dropped by the Lafayette city headquarters at 975 Oakland Street in Lafayette to check the new wording of Resolutions #53-73 and #60-73 by Orrick, Herrington, Rowley and Sutcliffe. It seems satisfactory. At the City Council meeting next Wednesday, the old versions of the Resolutions will be rescinded and these two revised resolutions presented for adoption.

I called Lew Keller shortly before 9:00 a.m. to tell him that I am sending him a copy of the first draft of my Hamburg speech. Since this is very rough and without any figures or tables, I explained some sections to him, particularly that on element 106. I told him that we are getting ready to design some experiments for the on-line chemical identification of element 106 at the SuperHILAC. I mentioned that Kratz and Norris have offered their services to work with Silva and Trautman should the latter travel from Mainz to Berkeley to do the chemistry of 105 experiment. Keller suggested that I indicate to Herrmann when I see him in Hamburg that I think it would be a good

Friday, August 3, 1973 (con't)

idea for Silva and Trautman to travel to Berkeley to do the chemistry of element 105 experiment.

I mailed to the World Affairs Council the edited transcript of my talk (on February 15), "New Technologies: Do They Provide An Answer?" I wrote Ed Cornish (President of the World Future Society), accepting his invitation to participate in the Symposium "Major Features of the World of 1994" at the AAAS 1974 Annual Meeting. I wrote John Ryan (copy attached) upon learning that he has been appointed Assistant General Manager for Administration of the AEC in Washington.

I met in my office from 10:00 a.m. through lunch (in the cafeteria) with Paul Lochak, President of Societe Internationale de Technologie. We discussed the arrangements for my visit to Paris during the week of September 9, 1973, including some of the people he will have me meet with. Paul described his meeting with John Love, at which Charles De Bono wasn't present (as anticipated in our conversation with Sol Linowitz). Love told Lochak that he will support a program of U.S. involvement in international cooperation in research and development involving Europe, Japan, and so forth, and in particular will support any beneficial international cooperation in the uranium enrichment field.

Lochak said he has met with Michel Pecqueur, President of EURODIF, which has representatives from France, Belgium, Sweden, Spain, and Italy. Paul will send me a memorandum summarizing that conversation. They explored possible forms of cooperation with the United States in the uranium enrichment field.

Paul said that he is considering the formation of a group of professionals--bankers, businessmen and scientists--who might work to advance the concept of international cooperation in uranium enrichment. This would include Linowitz, and Lochak will talk to Linowitz about this on the way home. I advised Lochak to try to see Peter Flanigan in order to be brought up-to-date on the White House's attitudes.

Lochak told me that he met with George Milly during his last trip to Washington (on July 3). (A Belgian corporation, Electrobél, is a client of SIT, and Electrobél and SIT also have joint ventures. Electrobél owns 50% of the electric power production in Belgium and they have 50% ownership of the SENA nuclear plant, with the other 50% owned by EDF.) Paul told Milly that Electrobél is very interested in the medical services field--hospital engineering and so forth. As a result of this, Milly is interested in an immediate agreement for cooperation between Electrobél and GEOMET. He suggested that I spend one day in Brussels to meet with the Electrobél people. I suggested that we also meet with Julius Rubin, Scientific Representative to the U.S. Mission to EURATOM, on the same day, and Lochak will ascertain the feasibility of this.

I signed a letter from Boris Lochak, accepting the option of purchasing 250 shares of SIT common stock. Paul also brought me a letter (copy attached) from the SIT accountant, Agnes Feray, on

August 3, 1973

Mr. John C. Ryan  
Assistant General Manager  
for Administration  
U.S. Atomic Energy Commission  
Washington, D.C. 20545

Dear John:

I was delighted to learn from a recent AEC press release that you have been appointed Assistant General Manager for Administration. In my opinion, this was an astute move by Bob Hollingsworth, and he and the Commission are to be congratulated. No one is better qualified than you for this position.

With best regards,

Cordially,

Glenn T. Seaborg

GTS/sms

cc: Robert E. Hollingsworth

**SOCIÉTÉ INTERNATIONALE DE TECHNOLOGIE****61, RUE DES BELLES FEUILLES  
75782 PARIS CEDEX 16**

KLÉBER 50-80

Ref. 737028

Dr. Glenn Seaborg,  
1154 Glen Road,  
Lafayette,  
California 94549

12 July, 1973

Dear Sir:

In accordance with your bill for services rendered (dated June 18, 1973), we effected last month a transfer to your account in the amount of \$5000 in accordance with your instructions.

For the accuracy of our books of accounts, we applied your two bills as follows:

- Bill dated March 23, for services rendered in the months of May, June and July, 1973.
- Bill dated June 18, for services rendered in the months of August, September and October, 1973.

We would appreciate your stating in your next bill "for services rendered in November, December, 1973 and January, 1974.

Thanking you for your cooperation.

Very truly yours,

*A. Feray*

Agnès Feray  
Accountant

procedures for my billing to SIT. He told me that Agnes Feray (nee d'Albes) is a descendant of the Haviland family--the family which emigrated to France from the United States and owns the Haviland porcelain factory. He also told me that his "girl Friday," Roxanne Goldsmith, is the daughter of Sam Houston Johnson.

Paul delivered to me a copy of a nicely inscribed book by Fremont Felix entitled World Markets of Tomorrow. We went to the cafeteria for lunch about 12:15 p.m., where we continued our discussion, broadening it to include extraneous matters such as Watergate.

During lunch, Mike May--along with Ken Street, with whom he was having lunch--dropped by to say that he has talked to Dave Shirley and is going to talk to others, such as Leo Brewer. Louis Werner also dropped by to say that he is now working at AEC in Gerald Johnson's Division in charge of the geothermal program.

Ghiorso called me at 1:50 p.m. to say that he had just called George Rogosa, who gave him the good news that he is going to try to come up with \$1-200,000 for support of the SuperHILAC program this fiscal year. Ghiorso and I agreed that he should go ahead to begin to hire technicians and engineers so that we can get on with the program.

Jane Kingston passed along an invitation to the family and me to visit the Exploratorium, perhaps during our vacation next week. I left the office early, which gave me an opportunity to spend a couple of hours cutting weeds in our yard.

#### Saturday, August 4, 1973 - Lafayette - San Francisco

I spent a good part of the day with Helen shopping for clothes in Lafayette and Walnut Creek.

In the evening, Helen and I had dinner at the Mandarin Restaurant at Ghirardelli Square, given in honor of the six scientists, representing the field of insect control in agriculture, visiting the United States from the People's Republic of China. Present were: Chen Te-ming, leader of the delegation, Director of the Institute of Zoology of the Chinese Academy of Sciences in Peking, and whom Helen and I met at the airport upon our arrival in Peking; Hsu Chao-hsiang, Deputy Head of the Chinese Scientific and Technical Association, who we saw throughout much of our visit to China, and who was secretary of the scientific delegation here in December 1972; Chiu Shih-pang, of the Institute of Agricultural and Forestry Sciences of the Chinese Academy of Sciences in Peking; Chou Wei-shan, of the Institute of Organic Chemistry of Shanghai; Shen Lien-fang, of the Kirin Institute of Applied Chemistry in Changchun; and Liu Meng-ying, of the Peking Institute of Zoology, and whom we met upon arrival at the Peking Airport.

I sat next to Chiu, and Helen next to Chou. We had a fine Chinese dinner, reminiscent of our visit to China. The conversation ranged around their specialty, insect control in agriculture, and their visits in the United States. There was a good deal of conversation related to our visit to China.

Our host group consisted of Dr. and Mrs. Emil Smith, Dr. and Mrs. Carl Djerassi, Mrs. Pat Tsuchitani of the Washington office of the Committee for Scholarly Communication with the People's Republic of China, Helen, and me. Pat told me that there will be a Chinese delegation under our Exchange Agreement during the months of September and October, all of which presumably will include the San Francisco Bay Area in their itinerary: (1) linguists and (2) librarians in September, and (3) computer scientists and (4) doctors (specialists in cardiac, vascular and pulmonary disease) in October. She told me she will be in charge of the symposium on Chinese science for the AAAS San Francisco meeting during Anne Keatley's absence in connection with her pregnancy.

I told the group about the visit of the 5-man Chinese delegation to the Mexico City AAAS-CONACYT meeting and my invitation to them to attend and give papers at the AAAS San Francisco meeting next February. I reiterated this invitation to this group.

After the dinner, Helen and I drove Hsu, Shen and Chou, together with a U.S. State Department security man, to the Westbury Hotel, where the delegation is staying. Here Hsu said he hoped we would visit China again and we expressed the hope to do so. He said the delegation may fly back to China via Hong Kong on Northwest Airlines Flight No. 9, as Helen and I did on our trip to China, on the basis of the information I had given him during our visit to China.

Driving on the way to the Bay Bridge, a helpful occupant of a car passing us on Mission Street told us our left rear tire was going flat. We drove to a service station on Fifth Street and had the tire changed, thus averting what could have been an unpleasant incident on the Bridge.

#### Sunday, August 5, 1973 - Lafayette

I spent a good part of the day cutting weeds in the back part of our yard, the ditch and back bank.

#### Monday, August 6, 1973 - Lafayette

Steve called from Pete and Jane's in Washington. He will be returning home to Lafayette on Friday morning. I spent much of the day cutting weeds in the back of our yard.

#### Tuesday, August 7, 1973 - Lafayette - Lake Tahoe

Helen, Dianne, Suki, Moses, and I, with Helen driving, drove to Lake Tahoe, leaving at 9:00 a.m. and arriving at the James Cobble home at 12:30 p.m. Their house is at Moana Private Property near Chambers Landing, between Homewood and Tahoma, and is called Miromar. We met Jim, Margaret Ann, and their children, Catherine (21) and Richard (18), and had lunch with them. After lunch, Helen, Dianne, Margaret Ann, Jim, and I took a hike up a nearby hill. We returned, rested a while, then had dinner with the Cobble family. We spent the night in the Cobble home--Helen, Dianne and I together in one bedroom; Suki and Moses spent the night in the car because Catherine is allergic to dogs.

Wednesday, August 8, 1973 - Lake Tahoe

We had breakfast with the Cobbles (Catherine and Dianne slept in). After breakfast, Jim and I drove to Emerald Bay, parked at El Dorado National Forest and hiked up to Eagle Falls, then on to Eagle Lake and around part of the lake. On the way back, we met Caroline Jackson (Ned Robinson's sister) and her friends Mac and Pat McDonald (Mac works at PG & E's Diablo Nuclear Plant). Caroline told us about the house that her brother Ned and others are building at Meek's Bay. Jim took a picture of me with my Minox with Emerald Bay and Lake Tahoe in the background. We stopped to see the house at Meek's Bay near Glen Ridge. Here we saw Merritt Robinson (Ned and Caroline's brother) and Donald Reichert (who owns the lot in front of the Paiges on Monticello Road in Lafayette and may build there--he heard my talk to the Order of the Golden Bear last year). We saw the house, which has a magnificent panoramic view of nearly all of Lake Tahoe, that the four families are building--Ned and Mardy Robinson, Merritt and Robin Robinson, the Reicherts, and one other Lafayette family. They have four separate bedrooms and two separate dormitories for the boys and girls.

Jim and I then drove back to the Cobbles where we had lunch on the veranda overlooking the lake, as we did yesterday. Helen and Dianne had spent the morning with Margaret Ann at the Cobble home.

After lunch, Helen, Dianne, Margaret Ann, Suki, Moses, and I drove to a point opposite Meek's Bay Theater and parked at the horse stables at Meek's Bay. Then we hiked in on the road about a mile and a half. I then hiked on ahead with Suki along the Tahoe-Yosemite Trail to the Desolation Wilderness Area as far as the sign "Trail Abandoned - No Maintenance," close to three miles from the road and a little short of Lake Genevieve. I took a Minox picture of the sign, then turned back. Suki and I caught up with Helen, Margaret Ann, Dianne, and Moses on the road; they had hiked about a mile up the Trail and then turned back to the road. We then hiked back on the road to the horse stables together and drove back to the Cobble home.

We again all had dinner together at the Cobbles--Jim, Margaret Ann, Catherine, Richard, and Helen, Dianne, and I.

Thursday, August 9, 1973 - Lake Tahoe - Lafayette

We had breakfast with the Cobbles (Catherine slept in, Richard was water-skiing). After, Jim and Margaret Ann rode with Helen, Dianne and me (along with Suki and Moses) about 3-1/2 miles in on Miller Lake Road. At this point, we started to hike in two groups. The women and dogs continued along Miller Lake Road, then across to Buck Island Lake. Jim and I hiked along Buck Lake Road past Buck Island Lake and on up to Ellis Peak (elevation 8,740 feet); we had started at an elevation a little above 6,000 feet. Here we saw a magnificent grove of hemlock trees. Jim took a picture of me in front of a hemlock. We then headed back down the way that we came. We had a view of Loon Lake Reservoir in the distance. Jim took a picture of me with Buck Island Lake and Lake Tahoe in the background. We returned to our parked car at 1:15 p.m. and the others returned at 1:30 p.m. We had a snack to eat from the food that Helen had packed

to bring with us, then drove back to the Cobbles, said our goodbyes and started on the way back home. (I told Jim I would send him a description of Roland Otto's research program, an attempt to synthesize and identify element 106 and the chemical identification of the products of heavy ion bombardment.)

On the way home, we made a side trip on state highway 89 north of Truckee to visit the site where the George and Jacob Donner families stayed during their ill-fated attempt to cross the Sierra Nevada Mountains in 1846-47. We then continued a few miles north to visit the Sage Hen Creek Station where Dave participated in his field study earlier this summer. However, our Bonneville began to lose anti-freeze before we were all the way in to the Station, so we returned to Truckee for help at a service station. We found that our thermostat had ceased to function, so we had this replaced and the radiator flushed out and recharged with new anti-freeze--this took nearly two hours because the young man doing the job was continually interrupted to pump gas for the stream of customers.

This job completed, we drove to the nearby Donner Memorial State Park. Here we saw the monument and the site of the Murphy cabin with the list of the members of the Donner party. We walked the half-mile, self-guided nature trail. Helen took a Minox picture of Dianne and me in front of the monument. I took one of Helen and Dianne in front of the monument, and one of Dianne in front of the steam engine.

We left at a little after 6:00 p.m. to continue on our drive home. We stopped for a bite to eat at the Ground Cow at Penryn, just west of Auburn. We arrived home a little before 10:00 p.m. Almost immediately, we received a phone call from Dave in Boulder, Colorado. He is staying at Hallett Hall on the University of Colorado campus, is enjoying the meeting, will do some visiting in the Rocky Mountain area next week, and return home toward the end of next week.

Friday, August 10, 1973 - Lafayette

Helen, with Dianne, drove to the San Francisco Airport to meet Steve, arriving from Dulles Airport. He arrived at 11:30 a.m. They then drove by to pick up Cha Cha Bueno at her aunt's place.

I cut the grass and weeds on our field with our self-propelled Toro power mower. Sheila dropped by in the late afternoon with a box of accumulated mail and papers. This included a copy from Jerzy Neyman of his letter to Maurice Goldhaber (copy attached), turning down Goldhaber's essay for the Copernican volume.

Our dinner group consisted of Cha Cha, Steve, Helen, Dianne, and me--we ate in the patio. After dinner, we viewed the movies of the Mexico trip, spliced together for me by Phil Dauber. Helen and I saw this, with Cha Cha viewing part of it. We also showed Cha Cha her copy of the movie we took on our July 7 visit to Muir Woods, etc. (Sheila had delivered this for her this afternoon.) Steve drove to Brent's in Kentfield after dinner and returned later.

Hyde called with the news that Ghiorso is suggesting that someone else be placed in charge of debugging and operating the SuperHILAC so

August 7, 1973

Professor Maurice Goldhaber  
Brookhaven National Laboratory

Professor Michael H. Goldhaber  
University of Arizona

Gentlemen:

With great regret this is to inform you that I must abandon the hope of having your essay in the Copernican Volume. If you glance at my letters of April 18 and April 27, I am sure you will agree that the material you sent me, interesting as it is, does not conform with what was contemplated.

In the discussions I had with policy determining people I described the possibilities indicated to me by Professor Maurice Goldhaber that he might find time for a revision of the paper before the trip abroad or for a rewriting of the essay upon his return. Against these possibilities there is the consideration that the Copernican Volume ought to be published this year or, at the most, early in 1974. Thus, there is just no time now for major changes in the material available.

I do thank you for your willingness to contribute to the Copernican Volume and regret that some kind of misunderstanding cropped up to spoil the plans.

With best personal regards,

Yours sincerely,

J. Neyman

JN:kck

P.S. The material you sent me is returned herewith.

JN

Enclosures

cc: Mr. Belknap, NAS

that he can devote more time to his research program. Hyde and I believe that Hermann Grunder might be a good man for this job. Hyde also told me that the AIP funds were divided as follows: Bevatron, \$75,000; SuperHILAC, \$75,000; and 88" cyclotron, \$25,000.

Saturday, August 11, 1973 - Lafayette

I worked in the yard a little, read the correspondence and papers that Sheila brought from the office yesterday, and worked on my China Journal to make it consistent with the material Anne Keatley sent me earlier this week--the latter didn't require much work because it was already quite complete.

Helen drove Cha Cha back to her aunt's place in San Francisco. Eric called in the afternoon from the Seattle home of his co-worker on the trails where he was visiting during his four days off from work. He has worked ten days on his trail-clearing job--it is hard work, but he is enjoying it. He told us that Ruthie is working as a maid in Yosemite. Steve visited his friend Lois Stein in Oakland after dinner.

Sunday, August 12, 1973 - Lafayette

I hoed weeds in the front and back yard in the morning. After lunch, Steve drove the Bonneville to his rented house in Davis where he will spend the night preparatory to his appearance in court tomorrow to press suit against his former house occupants who destroyed much property in a wanton manner. He transported many cans, bottles, newspapers, etc. to the recycling center in Davis.

I worked on my Hamburg speech in the afternoon. After dinner, Helen and I looked at our China slides with our new Kodak Carousel projector and at our China movies with our Eumig projector. (Sheila had organized and catalogued for us the China slides and included them in her mail delivery yesterday.)

Monday, August 13, 1973 - Berkeley

Helen drove me to work in the station wagon (Steve has the Bonneville at Davis), so she can use it to visit her friend Betty New who is in the Bay Area visiting her stepmother. I spent a large part of the morning with Sheila going over my backlog of work and dictating answers to letters.

Orville Freeman phoned me just after 9:00 a.m. as a follow-up to his letter inviting me to make an overall review of the energy picture (15-20 minutes) to the conference of corporate officers in Puerto Rico on Wednesday, January 9, at the new Rockefeller Hotel in San Juan. He invited me to bring Helen along, and I accepted his invitation for both of us. Orville told me that these will be closed meetings. He is interested in "shaking up" these chief executive officers on anything where the international business community should be giving more leadership and imagination. He suggested that a speaker could come on as hard as he wants; Orville is interested in their getting a mind-stretching, jolting experience, with exposure to ideas about responsibility that they don't ordinarily get.

Monday, August 13, 1973 (con't)

Charles Townes called me at 9:40 a.m. to ask for more information about the "Congressional Record 1875" quotation which was used in my speech, "Atom and the Law." I indicated that I had run into this question before, when I was in Washington, but couldn't remember how it was resolved. I said that I would follow this up and be back in touch with him.

Hyde dropped in at noon to say he has heard from George Rogosa, who has received the Construction Project Data Sheet (39 NT Physical Research), which details and justifies a request of \$1,930,000 for the SuperHILAC in FY75 and FY76; Rogosa said Teem is disappointed in this because it doesn't include funds for a building addition to give more space for outside users. We feel the limited money should be spent to insure reliable operation of the SuperHILAC.

I had lunch in the cafeteria with Hyde and Hollander to go over recent progress in their areas of interest.

Roger Reeve called me at 1:30 p.m. to confirm that our next meeting of CUWA would be held on August 26 at his home. He indicated that the CUWA committee to recommend a CUWA posture on the Overview report will have an extensive report to make. Margie Bowman will bring up the matter of three current open-space proposals, and I suggested that the Lafayette open space bond election be added to the agenda. I asked him to review the minutes of past meetings to be sure that something is moving on all of the things that we previously discussed. I also suggested that he get the notice of the meeting out early. He said that Joyce Burr will be in touch with me about her committee's report.

James White of the Save San Francisco Bay Association called me at 1:45 p.m. to ask if he could review with me the Shoreline Committee's recommendations in connection with my Trails Subcommittee report to the Park District on the Overview Master Plan. He outlined the shoreline trail changes they are recommending. After some discussion, it was agreed that he would bring a copy to my office tomorrow morning.

I met with Andrew Sessler at 2:00 p.m.--the first opportunity I have had to have a discussion with him since the recent flurry of activity concerning the LBL Directorship, at which time he was away at CERN. We brought each other generally up-to-date with respect to these recent activities. We reviewed my meeting and his meeting today with Mike May and agreed that Mike's opinion may be important when he passes it back to Hitch after his present round of interviews at LBL. We discussed his forthcoming meeting with Chancellor Bowker at 3:00 p.m. today and agreed that he should emphasize his desire for increased communication with the campus which might be implemented by having Chancellor's representatives attend administrative meetings on the Hill, such as the Associate Directors' meetings, and that LBL representatives might attend such meetings on the campus. The question of whether the LBL Director reports to President Hitch or to Chancellor Bowker is relatively unimportant compared with the style of the Director of LBL and his ability to cooperate with campus faculty.

We agreed that the new Director of LBL must make the required changes immediately upon assuming office and the need for new leadership in the Donner Laboratory was used as an example. Sessler indicated that he might want the help of some senior people as a council of advisors in effecting such changes. I told Sessler about the recent optimistic prospects for funding of the SuperHILAC and he agreed that the recent organizational changes by Teem were advantageous to LBL and to heavy ion research. He said that in his recent talk with Viki Weisskopf, Viki had indicated that the Bevatron had to be placed at the lowest priority level as a tool for high energy physics but that the conception and implementation of the BEVALAC was "an act of genius" which will probably save the Bevatron, and Viki will probably feel that he must support the BEVALAC. Sessler expressed the wish to meet some of the Regents, perhaps at a number of lunches, and I indicated that I would call Hitch and then perhaps some Regents in order to arrange this.

I signed and mailed to George Pappas a request from the Nuclear Chemistry Division for Affirmative Action funds, as prepared by Frank Asaro. I wrote the Cosmos Club in support of the proposed membership of Arthur Goldberg (copy attached).

At 3:30 p.m., I went by to see Liljenzin and Norris (Kratz is on vacation this week) to discuss the plans for fast on-line chemistry for element 106--this was discussed at a meeting of Liljenzin, Kratz, Nurmia, Jose Alonso, Hulet, Nitschke, Ghiorso, etc. last Thursday.

At 4:00 p.m., I attended the regular Nuclear Chemistry Division seminar at which Frank Asaro spoke on "Identification of the Chemical Fingerprinting of Ancient Artifacts."

Sessler, with Hyde, dropped in to tell me about his meeting with Chancellor Bowker this afternoon. It went very well with emphasis on the cooperative programs with faculty on the campus, illustrated with many examples. He indicated that he would need to make a number of changes at the beginning of his Directorship if he is named to the position, and Donner Laboratory was used as an illustration. He described the cooperative program with Stanford in high energy physics. He suggested that the Chancellor's office be represented in meetings at LBL such as those of the Associate Directors and that LBL be represented in similar meetings on the campus. Chancellor Bowker agreed in general with his suggestions.

Helen drove me home, after which I took a hike with Suki to the water tank.

Tuesday, August 14, 1973 - Berkeley

I attended the regular planning session in the little conference room off of Ghiorso's office in the HILAC Building from 9:40-10:40 a.m. Present were Ghiorso, Nurmia, Jose Alonso, Carol Alonso, and Nitschke. We discussed the plans for the on-line detection of element 106, especially the possibility of using a volatile oxide that might be liberated by heating the californium oxide target. We also discussed the possibility of having a xenon bombardment for the chemists to look for superheavy elements later this week. After the

August 13, 1973

Admissions Committee  
The Cosmos Club  
2121 Massachusetts Avenue, N.W.  
Washington, D.C. 20008

Gentlemen:

I am writing to support the proposal by Jerome B. Wiesner and Judge J. Skelly Wright for the membership of Arthur J. Goldberg in the Cosmos Club.

I have known Arthur since January 1961 when he began his services as Attorney General and I as Chairman of the Atomic Energy Commission in the John F. Kennedy Administration. I worked with him closely on numerous matters during his tenure with the Kennedy and Johnson Administrations, and have been in rather close touch with him ever since.

On the basis of my first-hand information, I can say that he is a man of extraordinary intelligence, great personal charm, and great energy. He is very articulate and knowledgeable on a broad range of subjects, such that he would be an interesting conversationalist for the members of the Club. Mrs. Seaborg and I are also well acquainted with Mrs. Goldberg, and believe they both would be very compatible with and fine assets for the Club.

I can support without reservation the proposal for membership of Arthur J. Goldberg in the Cosmos Club.

Sincerely yours,

Glenn T. Seaborg

GTS/sms

Tuesday, August 14, 1973 (con't)

meeting, Ghiorso talked with me about the possibility of having someone like Hermann Grunder in charge of the SuperHILAC, so as to give Ghiorso more time for experiments, and it was agreed that we will explore this possibility further.

Hyde talked with me shortly after 11:00 a.m. He told me that Professor Andrew Streitwieser had called to request \$5,000 worth of computer time in the present fiscal year to support his work on organometallic compounds of the actinides in collaboration with the Nuclear Chemistry Division. Earl indicated that he can start to spend some money on computer time, the exact amount to be determined by discussions with Edelstein when he returns. However, Earl and I agreed that \$5,000 might be a reasonable amount.

I had lunch at the outside table at the lower level of the cafeteria with Hyde, Diamond, Bucher, Nitschke, Poskanzer, and Ralph Korteling (of Simon Frazier University) and Gil Butler (of LASL). Korteling and Butler are here to work with Poskanzer on their research at the Bevatron of finding Be-14.

After lunch, outside the cafeteria, I talked to Alan Searcy (a member of the LBL Directorship Committee) about the LBL Directorship. I said we are lucky to have two such outstanding candidates here in LBL as Sessler and Shirley, and Searcy agreed.

I called George Cardinet at 1:40 p.m. about the Trails Subcommittee report and read to him the draft of my statement. He gave me the amplified information about the trail from Mount Diablo to Contra Loma. He also thought we should reiterate the Morgan Creek Trail.

I called Bradley Moore shortly after 2:00 p.m. about Jose Carvalho's application for admission to graduate work in the Department of Chemistry. I indicated that Sam Markowitz is high on him but that my postdoctorates are more neutral. I indicated that I thought we should give him a chance and that on balance, while we know what we are getting into, I would vote in favor of taking Jose.

Joyce Burr called me at 3:20 p.m. She indicated that Margie Bowman and she were at the East Bay Regional Park District Board of Directors' meeting last week. The Board has bought a half-acre as a staging area for Huckleberry Trail; however, it is different from that which we want (that connecting the trail at the lower level rather than that along Skyline Trail). Mary Jefferds has suggested that it might be wise for me to ask to see the legal documents that had to do with the funding for Skyline Trail, with an eye to finding out what commitments really have been made with the Federal government. I suggested that we discuss this at the Citizens Task Force meeting tomorrow night.

At 3:25 p.m., Russ Abrahams, a photographer from the Public Information Office on the campus, came by and we went to Room 203 in Building 70 for him to take pictures of me working with Irwin Binder and with Ted Norris. The pictures will possibly be used by Chancellor Bowker in his presentation to the Regents at their September meeting.

From 4:00-5:00 p.m., I attended the Cal Summer Orientation Program in the patio in front of Freeborn Hall (2650 Durant Avenue). Here I met Regent Bill Wilson, Lee Altshuler (ASUC President), Janet Brandi (Chairman of the Organizing Committee), Sue Caren (Chairman of the Parents' Committee), Ken Fleming (Freshman Crew Coach), and others. About 200 students attended. At 4:15 p.m., some fifteen faculty members and other officials--including Jim Cason, Hardin Jones and Dick Hafner--were introduced as a group by Sue Caren, and then we individually introduced ourselves, giving our name, connection, and so forth. We then disbursed into individual groups and talked with students. I then drove directly home.

Suki and I took a hike to the water tank. We had a birthday party for Steve who had returned from Davis today--the trial concerning his suit for damages seemed to go pretty well yesterday. Unfortunately, Joan called Steve to wish him a happy birthday, which set him off again. He called Lynne to discuss the situation again, which gave Helen and me a chance to talk to Lynne. Dave called from Boulder, Colorado. He is coming home by train and will arrive on Friday. Steve went to Oakland to visit Lois.

Wednesday, August 15, 1973 - Berkeley - Hayward - Berkeley

At 8:35 a.m., I received a call from Dan Jaffe of Senator John Tunney's office in Washington. He told me that Senator Tunney has recently been named Chairman of the Senate Commerce [Science, Technology and Commerce] Committee. Senator Tunney is holding a kick-off hearing in California on August 30-31 and asked if I could speak at those hearings. I indicated that I must decline because I will be on my way to Europe at that time. He indicated that their essential question is how to transfer science and technology towards commercial applications. We discussed others whom he might invite; those mentioned included Charles Townes, Edward Teller, Carl Djerassi, Todd La Porte, Albert Bowker, Angus Taylor, John Perkins, Howard Vesper, and Hans Mark.

At 11:00 a.m., I drove to California State University at Hayward and went to the Chemistry Department office on the fourth floor of the Chemistry Building. Here I met Charles T. Perrino, who is the Acting Chairman of the Department this academic year. I also met my old friend Al Carroll (long-time laboratory administrator of the freshman chemistry laboratory at Berkeley), Jessie Laston (secretary of the Department and formerly a secretary at Boalt Hall), Stanley Chin (who is teaching one of the freshman chemistry sections at Cal State Hayward this summer and who invited me to talk to his section), and Tom Groody (whom I knew as the host on the "Science and Action" television series, and who is in one of the life sciences departments at Hayward).

Perrino, Chin and I, joined by others, soon went across campus to the Student Union to have lunch in a private dining room. Those present were Ann Birge (professor of Physics and wife of Bob Birge), Andrew Guthrie (whom I knew as Director of Information Services at the Radiation Laboratory 25 years ago), Marian Whitehead (Chairman, Department of Physics), Richard Monson (regular Chairman of the Department of Chemistry), Leon Fisher (Dean of the Graduate School),

Wednesday, August 15, 1973 (con't)

Leroy Chauffe (former Acting Dean of the Graduate School and member of the Chemistry faculty), Kevin Cadogan (member of the Chemistry Department who occupied my Latimer Hall office last summer), Edward Genser (Chemistry Department), Milton Fuller (Chemistry Department), Richard Bozak (Chemistry Department, who got his degree with Bill Dauben in 1956-59 and who works on ferrocene), Dr. Larry Edwards, Dr. Stanley Chin, Bruce Broline, and Charles Perrino.

At lunch, I sat next to Chin, Perrino, and Bozak, who is very interested in the history of science, especially the Oppenheimer affair. It was a buffet lunch.

After, we walked back to the Science Building to Room 204, where my lecture to Chin's freshman chemistry section was scheduled. Many of the people at lunch attended the lecture, as well as Andrew Kennelly, Vice President for Administration, whom I met after the lecture. I talked on "Energy Sources of the Future," illustrated with slides, which were projected by a student named Nora Harrington. There were about 50 in attendance. I lectured from 1:00-2:00 p.m. and after there were a few questions from students who were able to stay.

Perrino then took me on a tour of the Chemistry laboratories on the fourth floor of the Science Building. I saw the freshman chemistry labs where Bill Cobb would have taken his freshman chemistry lab work at Hayward during the 1971-72 academic year. I also saw the Physical Chemistry Laboratory and the laboratories where the professors conduct their research and where the Master's degree candidates work.

At 2:30 p.m., I drove back to my office at Berkeley, arriving at 3:15 p.m. A. Haagen-Smit of Cal Tech returned a phone call to me at 3:30 p.m. He indicated that he must decline my invitation to participate in the AAAS Annual Meeting, but suggested that I contact either John Maga (Executive Officer of the EPA Board), Russell Train (new head of the EPA), or John Middleton (formerly at HEW, former head of the predecessor of EPA).

I mailed to members of the Trails Subcommittee a suggested draft of a report that we might submit to the EBRPD.

Suki and I took a hike to the water tank. Steve went to Oakland to visit Lois before dinner and stayed late. He hasn't decided yet whether he will accompany me to Europe week after next.

I heard President Nixon's address to the nation on the Watergate at 6:00 p.m. He again denied any involvement in the planning of the coverup of the Watergate incident and made a call for people to forget it and to get behind him in his programs for the good of the country.

I then drove, at 7:30 p.m., to the Garden Center in Oakland to attend a meeting of the EBRPD Citizens Task Force (agenda and minutes attached). Here I met a number of old friends whom I hadn't seen since last April or May. The meeting was presided over by Joe Bort, with Grant Reid of Overview and Bill Horne of the Citizens Task Force

357a



# EAST BAY REGIONAL PARK DISTRICT

11500 SKYLINE BOULEVARD/OAKLAND, CALIFORNIA 94619/TELEPHONE (415) 531-9300

BOARD OF DIRECTORS: MARLIN W. HALEY, President; HOWARD L. COGSWELL, Vice President; FRED C. BLUMBERG, Secretary  
PAUL J. BADGER, Treasurer; MARY LEE JEFFERSON, JOHN J. LEAVITT, CLYDE R. WOOLRIDGE □ RICHARD C. TRUDEAU, General Manager

## CITIZENS TASK FORCE

*Reid, Boat, Horne*

### REVISED MEETING AGENDA

DATE: Wednesday, August 15, 1973

PLACE: Vista Room of the Oakland Garden Center, at Lake Merritt -  
666 Bellevue Avenue, Oakland

TIME: 6:45 p.m. - Special repeat showing of the Shoreline Sub-committee presentation for those who missed it at the July 18 meeting. The presentation takes approximately one-half hour. Coffee will be served, courtesy of the Shoreline Sub-committee.

### 7:30 p.m. - REVISED AGENDA

1. Public Agency Advisory Committee Report and Recommendations
2. Presentation by Harry Wirth of 'Save Skyline Boulevard' re Lineal Park along Skyline connecting Redwood - Sibley - Tilden
3. Sub-committee Reports
 

<ol style="list-style-type: none"> <li>a. Criteria</li> <li>b. Non-traditional Park Functions</li> <li>c. Small Proposed Park Sites</li> <li>d. Parkland Classification</li> <li>e. Org. Structure &amp; Adm. Practices</li> <li>f. Dev. Plans for Existing Parks</li> </ol>	<ol style="list-style-type: none"> <li>g. Recreational Demand</li> <li>h. Finances</li> <li>i. Trails</li> <li>j. Shoreline</li> <li>k. Internal Transportation in Parklands</li> </ol>
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NOTE: It is not necessary for those committees with nothing new to report to prepare a presentation.

4. General Discussion of Procedures & Format for Final Task Force Recommendations
5. General Discussion from the Floor

NOTE TO ALL MEMBERS: To facilitate discussion of various committee reports, Task Force members should bring sub-committee reports and recommendations that have been mailed to you since June 18 as no copies will be distributed at meeting.

Bill Horne  
August 9, 1973

## MINUTES OF CITIZENS TASK FORCE MEETING

Vista Room of Oakland Garden Center  
Lake Merritt - Oakland

Wednesday - August 15, 1973

1. Report of the Public Agency Advisory Committee

Public Agency Advisory Committee recommendations were filed for information (P.A.A.C. meeting of August 9, 1973 - minutes previously mailed).

2. Ridgelands Presentation

Presentation by Margaret Tracy of the Preserve Area Ridgeland Committee was placed on agenda for Task Force meeting of August 29, 1973.

3. Chairman's Remarks

Task Force Chairman Joe Bort indicated that he felt it was time that the Task Force begin making decisions that would form the beginnings of the final Task Force report. Mr. Bort indicated that he deemed it important that we at least consider some sort of allocation system (geographic and/or interest) and, further, that we endeavor to insure that each area of the District receive adequate attention (i.e., new parks) in the final Master Plan.

4. Sub-committee Chairmen's Meeting

Following discussion, it was moved, seconded and adopted that the existing sub-committee chairmen meet as a special committee relative to the development of the Task Force presentation to be given at the "work session" with the Board of Directors on Tuesday, August 21, 1973.

5. Outline for Work Sessions - Board of Directors

The following documents were distributed:

- a. Memo from Bill Horne dated August 15, 1973, relative to the work sessions with the Board of Directors.
- b. Summary of the Policies for Planning (as prepared by Assistant General Manager Jerry Kent).
- c. Summary of Public Resources Code (state law) as it relates to the role of the East Bay Regional Park District.
- d. Outline of Work Session Format with Board of Directors.

6. Review of Selected Policies as Recommended by OVERVIEW

a. Policy #5 - Historic Sites

Following discussion, it was unanimously adopted that the Task Force agree with the OVERVIEW recommendations that the District only acquire historic points of interest if they lie within larger land areas suitable for use as a regional park.

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 Wednesday - August 15, 1973

b. Policy #6 - Scenic Roads

The policy indicates that the District not enter into a program of internal scenic road construction. The Task Force had adopted this policy in October, 1972. No changes voted at this time.

c. Policy #7 - Interest in Park Access Roads

No objections were voiced in this policy, which states that the District requests that it be informed of all proposed construction along park access roads.

d. Policy #8 - Roads Within Parklands

No basic objections were voiced to this policy, which states that the District will restrict and eliminate, where possible, unnecessary roads within parklands.

e. Policy #9 - Roadside Rests

No objections were voiced to this policy, which recommends against the development or operation of systems of roadside rests outside regional parks.

f. Policies #11, #12 and #13 - Non-park Open Space

In Policy #11, delete in line 2 "within the District boundaries" and in line 4 delete "within its boundaries."

A consensus seemed to agree that acquisition of non-park open space was acceptable under certain circumstances, even if the land acquired was never anticipated for active park use.

The whole question of non-park open space was referred to the Non-traditional Park Functions Sub-committee (Sue Watson, chairman) for review and recommendation.

g. Policy #15 - Holding Category

This policy was referred to the Finance Sub-committee for further review. It was generally agreed that there was not enough flexibility as the policy was stated.

h. Policy #16 - Donated Properties

The policy was generally accepted with the addition of a third criteria as follows:

(3) or unless it could be of future economic value to the District.

7. Proposed New Policy Relative to Wildlife

Task Force member Brian Murphy proposed the following policy relative to the preservation of wildlife for Task Force consideration:

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 Wednesday - August 15, 1973

In view of the territorial requirements of various species of wildlife, throughout the East Bay Regional Park system, the Park District must take an active role in protecting wildlife that may use adjacent lands as portions of their territories. To implement such a policy, the Park District should first pursue negotiations with adjacent land owners to insure their cooperation with the policy of protecting wildlife (coyotes, fox, bobcats). Secondly, the Park District should pursue legislation to insure that wildlife will be protected outside park boundaries on lands adjacent to parklands.

The territorial requirements of a mountain lion range from 20-50 square miles; a coyote, 10-100 miles; a bobcat, 2-50 miles; a fox, 2-100 miles. The smaller number might apply if there is an abundance of food, and in their search for game, they will move to the higher limits.

This was referred to the Criteria and Non-Traditional Park Functions Sub-committees for review and recommendations.

8. Report of Criteria Sub-committee - Mrs. Bernice May

The Criteria Sub-committee's written report of August 8, 1973, was discussed. Following discussion, it was suggested that the Criteria Sub-committee meet jointly with the Classification Sub-committee to iron out differences between the two committees.

9. Policy #34 - Relative to User Fees

It was indicated that the Park District should consider "the value of" abandoning user fees as a change to the policy as proposed.

10. Periodic Reevaluation and Review of District Policies

Mrs. Buehler, Chairman of the Classification Sub-committee, recommended that it would be desirable for the Park District to periodically re-evaluate and review its general policies. She suggested that an annual or bi-annual review of the Master Plan would also be appropriate. No action was taken on this recommendation at this time.

11. Proposed Skyline Boulevard Lineal Park

Mr. Harry Wirth, Chairman of the Save Skyline Boulevard Committee, made a presentation relative to a proposed lineal park along Skyline Boulevard connecting Redwood, Sibley and Tilden Regional Parks. The Save Skyline Boulevard Committee is exploring every avenue to protect this scenic road and has approached the Regional Park District with the idea of accepting the concept and such lands as are currently in public ownership, and others which may be acquired by the Save Skyline Committee. There are currently 172 city-owned lots in this area and 244 privately-owned lots. Mr. Wirth indicated that Save Skyline Committee and other private interests would be willing to assist in the acquisition of the private lots with private

Minutes of Citizens Task Force Meeting - 4  
Wednesday - August 15, 1973

money sources and also assist in convincing the City of Oakland to donate the city-owned lots should the Park District agree to the proposal.

Following discussion, it was felt that this proposal should be further investigated and was referred to the Trails Sub-committee for a special report.

12. Report of Sub-committee on Existing Parks

Report of the Existing Parks Sub-committee dated August 7, 1973, was discussed, after which the following motions were proposed and adopted:

- a. As funds for the development of existing parks are limited, additional avenues and emphasis on acquiring additional funds to develop existing parks (beyond the existing AB-925 tax monies) should be expanded.
- b. All existing regional park facilities should be master planned as soon as possible. Prior to the actual master planning, a detailed resource study of each existing park should be made.
- c. The question of the future of Lake Chabot and the possible loss of this facility to the Park District was referred to Jerry Kent for discussion with East Bay Municipal Utility District and report back to the Task Force.
- d. The specifics of the sub-committee report were placed on the agenda for the August 29 meeting of the Task Force.

sitting at the table with him. The meeting was taken up largely with a discussion of the policies recommended by Overview in Part II of their report--"Policies for Planning" of the recommended Master Plan for the East Bay Regional Park District. Among the changes adopted was that of making it possible for the EBRPD to accept and administer open space land even though it is not intended to become a park in the future.

A resolution was adopted that the chairmen of the Subcommittees constitute a committee for the planning of the agenda and so forth, in connection with the joint meetings of the Citizens Task Force with the EBRPD Board of Directors to discuss the Master Plan. The first such joint meeting is scheduled for August 21. (After the meeting, we decided to hold the first meeting of the Subcommittee Chairmen for this purpose on Saturday morning, August 18.)

We heard a presentation by Harry Wirth (President of PALCO, San Leandro) on the efforts of his group to Save Skyline Boulevard. There are some 50 or 100 lots along Skyline Boulevard owned by the city of Oakland which will be sold for use as house building sites, and Wirth's group is trying to prevent this on the basis that it might be a lineal park with trails, administered by EBRPD. Bort asked me, as Chairman of the Trails Subcommittee, to assess the feasibility of using this property for trail development, running from Joaquin Miller Park through Sibley Park to Tilden Park. (I arranged with Harry Wirth and Joe Engbeck to meet at the EBRPD headquarters at 11:00 a.m. on Saturday the 18th to undertake this assessment.)

In the course of the meeting, Bort suggested that the Subcommittees present their suggested changes for the Master Plan in the form of actual corrections to the wording of the Master Plan, much in the manner of amending bylaws.

I asked Sue Watson if she would be willing to regard her memorandum to me of July 25 on overnight camping and hostels as the final report on this matter and she said she would and would circulate it with that status.

Thursday, August 16, 1973 - Berkeley

John Sawhill of OMB returned my call shortly before 10:00 a.m. He mentioned that John Curtis will be coming in to see him, and I gave him some background on Curtis's proposal. I brought up the subject of the provision in the AEC budget for geothermal energy development that has not yet been released by OMB. I indicated to him that this is a very important program and we hoped this money would be released. He responded that a Congressman from New Mexico had spoken with him about it also; he will look into this and "see where we go." He indicated that he is looking forward to getting together with Bill Bevan to pursue our conversation about AAAS's role in national science policy.

At 11:00 a.m., I went up to the HILAC to talk to Nurmia and Jose Alonso, who bombarded holmium oxide with O-18 yesterday and made a fractional volatilization of the resultant rhenium, tungsten, and tantalum oxides to detect the induced radioactivities from their gamma rays. This is a prelude to an element 106 experiment in which

Thursday, August 16, 1973 (con't)

chemical identification would be made through the volatility of oxides. I also gave copies of my Hamburg talk to Ghiorso, Nurmia, and on the way back to Liljenzin in his laboratory, for their review and comments.

I had lunch at the table at the lower level outside the cafeteria with Hyde, Bucher, Diamond, Nitschke, and Per Olaf Tjörn, a one-year visitor from the University of Oslo visiting here to work with Diamond and others. At 1:30 p.m., I went up to Building 26, the Medical Services Building, for my annual physical checkup, conducted by Dr. Bert Jenkins.

Joe Cerny and I mailed out our joint memorandum (copy attached), announcing our plans for the Nuclear Chemistry Division Monday afternoon seminar this year, which will include graduate student presentations.

Andy Sessler returned a phone call to me at 3:35 p.m. I indicated that I was calling as a follow-up to our discussion about the possibility of arranging for some luncheons for him with certain Regents. I reported that I have learned that President Hitch is out of the country through the end of the month and that I would not try to do anything without checking with him first. I therefore suggested to Andy that he would best not make such an effort under the circumstances, and he concurred.

John Teem returned a phone call at 4:00 p.m. In response to his request for recommendations for the new Head of the Division of Nuclear Science, I indicated that I have discussed this discreetly with my colleagues here and that we believe he has the man he needs in George Rogosa (who is presently Acting Head of the Division). John indicated that he is getting encouragement in this direction from a number of people. I mentioned the name of Walter Gibson of Bell Laboratories as an alternate recommendation.

He turned the subject to the heavy ion field and its relationship to Berkeley, particularly the SuperHILAC. John stated that we should push ahead much harder and more broadly use the SuperHILAC than heretofore. He needs to get an additional construction line item, not only from the standpoint of the NAS committee's advice and the national program's direction, but also to sell it through the OMB and the Congress. He wants to show that we are making the SuperHILAC into a facility that will be upgraded by its reliability and ability to serve a broader number of users. This will require expansion in experimental area availability. I indicated that we have given priority to getting the machine to operate reliably and that, if there were enough money to do both, I did not think anyone would argue with him. After further discussion, I told him that LBL would call George Rogosa tomorrow morning and we will come in with a request for \$2.4 million. (I noted that the SuperHILAC is the only hope we have for a heavy ion facility in the United States for a least five years and asked if there is a possibility of a bigger facility; Teem said he is trying to develop this.)

*J → blue*

16 August 1973

TO: Staff Members, Post-Doctoral Visitors, Graduate Students,  
and Associated Scientists of the Nuclear Chemistry Division

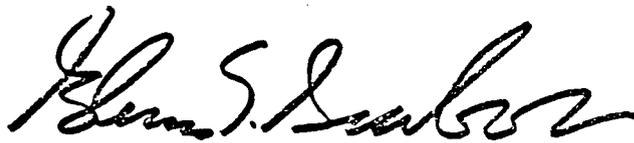
FROM: Glenn T. Seaborg and Joseph Cerny

RE: Announcement of a Change in the Nuclear Chemistry Division  
Monday Afternoon Seminar

In order to broaden the interaction among the various disciplines within the Division and to enhance graduate student participation, we would like to experiment with returning to graduate student presentations on a regular basis in the Nuclear Chemistry Division Seminar.

Our initial plan would be to have two 25-minute talks by graduate students in differing research areas approximately every third Monday, beginning October 1. Joe Cerny will be in charge of scheduling these student talks and he is open to suggestions for speakers from research directors as well as to independent student volunteers.

Attendance at these student seminars on a regular basis by all scientific members of the Division is a necessity if their success is to be ensured.

  
Glenn T. Seaborg

  
Joseph Cerny

GTS/JC/eee

Thursday, August 16, 1973 (con't)

I mentioned to Teem that Ghiorso has also talked with Rogosa about getting priority on the CEA apparatus list. I indicated that there is about \$250,000 worth of items there that would make a big impact on the SuperHILAC. John indicated that they don't know yet what they will do with this resource.

At the conclusion of our telephone call, at 4:15 p.m., I called Al Ghiorso with this information and also passed it along to Earl Hyde.

I took a hike, alone, to the water tank. Suki was reluctant to go because she saw Helen go next door to the Shermans.

Beginning at 7:30 p.m., I attended the meeting of the Lafayette Save Open Space Group at the Town Hall in the Board Room--actually, in what amounted to the ticket office because our hostess for the Dramateurs was selling tickets for tonight's performance at the same time. Present were Bill and Ann Chilcote, Lloyd Townley, Art Unger, Mary Kelley, and Jop van Overeen.

Bill had prepared the attached agenda. We decided to set up a bank account at the Security Pacific National Bank (P. O. Box 720, Lafayette). Chilcote, Townley and I signed bank signature identification slips as the three people authorized to sign checks on the Lafayette SOS account. Checks for contributions to the account are to be sent to: c/o Don Covell at this address. (I will mail a check for \$50 in the morning.) We also agreed on letterhead, including the identification of Lafayette Save Open Space group, with my name on it as chairman and with our address as P. O. Box 673. Art Unger will arrange to have these printed.

I agreed to contact Dick Trudeau of the EBRPD to set up a meeting to explore with him the possibility of EBRPD improving and maintaining the trails and so forth on Lafayette open space, such as Lafayette Ridge. It was agreed that I would try to set up a breakfast meeting with him, together with Chilcote, Townley, and possibly Wally Costa, for the morning of August 27 or August 28 at Sambo's in Lafayette. I said I would call Costa to see whether he could attend after the time is set with Trudeau.

We also discussed means of contacting all the public-spirited organizations--such as Sierra Club, Rotary, Kiwanis, Lafayette Design Project, Lafayette Improvement Association, League of Women Voters, and so forth--to enlist their help in the bond campaign. We made individual assignments among our group to make these contacts, and I agreed to contact the head of the Sierra Club. In this manner, we will arrange for meetings with these various groups to explain our objectives.

We agreed that there would be no meeting of Lafayette SOS next week because the Chilcotes, Townley, and others will be on vacation. The next meeting will be on August 30. I told them about my proposed trip to Europe and hence that my first participation in meetings would have to be that scheduled with the Park Commission for September 27.

# AGENDA      AUG 16, 1973

1. SLIDES FOR OFFICES - PAUL FILLINGER  
OS MAP MISSING

*Chulcoite  
Trinity  
BTB*

*end \$50*

2. BANK ACCOUNT - SECURITY PACIFIC Nat. Bk.  
DON COVELL - MAIL CHECKS - IAF SOS  
P.O. Box 720      Lafayette 94549

3. CAMPAIGN RECESS  
ELECTION RECESS  
PROPOSAL FROM RAEBURN  
CRIS-CROSS DIRECTORY  
CORRESPONDENCE  
TAX STATUS

4. LETTER (DRAFT) TO IMPROV ASSOC

5. ORGANIZATION CONTACT - VOLUNTEERS

*Laf. SOS P.O. 673*

Gerardo Bueno called from their home in Mexico City at about 10:00 p.m. to extend their appreciation for our hospitality to Cha Cha during her visit with us. She had visited Disneyland and so forth in Los Angeles on her way home. Gerardo said that he was making progress on the various matters we had agreed to at the "Normandie Summit." In response to our invitation, he said that he would bring Cha Cha with him to the San Francisco AAAS Meeting when he attends next February.

Friday, August 17, 1973 - Berkeley - San Francisco

In my capacity as Chairman of Lafayette SOS, I phoned Ed Bennett at 9:25 a.m. to inquire about Sierra Club support of the Lafayette bond election. He explained to me that the Bay Chapter of the Sierra Club has three regional groups. The Mount Diablo Regional Group, which would have jurisdiction here, is actively working on open space bond issues in other communities. Ed indicated that they might be able to provide us with their mailing list and could possibly provide financial help. If the Mt. Diablo Regional Group wants the Bay Chapter as a whole to endorse the bond election, they will come to the Executive Committee of the Bay Chapter (of which Ed is a member and Bob Rudemuller is Chairman). Mike Fischer is chairman of the Mt. Diablo Regional Group, and Ed suggested I contact him, which I said I would do. Ed mentioned that there is also a conservation person in that group--they had a lot of experience with Proposition 20 so may be very useful to us. Ed suggested that we might also want to make a presentation at one of the group's monthly meetings, and I indicated that I will talk to Mike about that.

I phoned Regent Robert Reynolds in Los Angeles at 9:45 a.m. in connection with the search for a new Laboratory Director and indicated my position that Sessler and Shirley are the best candidates and best suited for the position. I noted Sessler's role in the development of the Energy and Environment Program, which will be a major part of the Lab, and that in this regard he has done much in terms of relations with the campus. Reynolds indicated that he has perceived a major problem in the needed reorganization of the Lab, with a major thrust. I confirmed that for him and said that I think this is where Sessler would also be strong. Reynolds asked if I think Sessler has the power, imagination, and the will to effect such a reorganization, and I responded that he does--he knows the situation from the bottom up and is ready to act. Reynolds and I agreed that the normal rules about an outsider's objectivity in such situations do not always obtain. He expressed his appreciation for my calling him.

Richard Trudeau (General Manager, East Bay Regional Park District) returned my call at 10:20 a.m. (He confessed that it was he who had applauded, from the back of the room, my statement at the Citizens Task Force meeting on Wednesday night.) He told me that they have hired Bill Bigelow as the new Personnel Manager for EBRPD. I indicated that I had called him in my capacity as chairman of the Lafayette SOS group. In response to my invitation, he will meet with Chilcote, Townley and me for breakfast at Sambo's in Lafayette on August 27. Dick expressed great enthusiasm about our project and said that we can count on any support that he and/or EBRPD can give. He even suggested that they may be able to get the EBRPD Board of Directors to support this.

Friday, August 17, 1973 (con't)

I then called Bill Chilcote, at 10:45 a.m., to report on my conversation with Trudeau.

I went up to the HILAC at 11:00 a.m. and talked with Nurmia and Jose Alonso about their volatility experiments for the identification of tantalum, tungsten and rhenium isotopes, and the bombardment of holmium with oxygen-18. They still look interesting. I then went down to Building 90 with Jim Halverson to look at the new film on the SuperHILAC which Ghiorso will show at the Hamburg meeting. It looks like a pretty good film. Here I also had the opportunity to talk with Ted Kirksey and Ray Wakerling.

I called Joe Katz shortly after noon, having just heard that he had been ill. He indicated that it was last May that he suffered an attack of pancreatitis--which appears to be to the pancreas what hepatitis is to the liver. He said that he has been back to work since June, but is feeling generally feebler and that this experience struck him with "intimations of mortality."

We discussed the possibility of his coming out to Berkeley after Len Nugent is here and agreed to his visiting us the week of November 5. I reported that I haven't yet found anyone to write up the Met Lab Section C-1 history, but am trying to see if I can get money to support Syd Gaarder if he would be willing to come out for a year.

We discussed the papers of the Moscow Symposium. Katz has not received transcripts of my papers from Spitsyn. It has not yet been decided whether these proceedings will be published as a regular or supplementary issue of JINC. Joe is sending the package to Miranda who will then forward them to Pergamon. After some discussion, I proposed that he could include my IUPAC Congress paper, which I will give at Hamburg in September, as an updated version of my Moscow Symposium paper, "Status Report on the Transuranium Elements." Joe asked me to give him a copy and he will publish it; meanwhile he will tell Miranda/Pergamon that one more paper is forthcoming. I suggested that the paper could carry a footnote: "Approximately as given at Moscow, and given at IUPAC..." I noted, however, that I should clear this first with the Hamburg people.

I had lunch at the outside table at the lower level of the cafeteria with Hyde, Poskanzer, Cerny, Bucher, Dave Bowman (here on a visit from Los Alamos), Nitschke, and others.

The China Journal came off the press today, having been duplicated, with photographs, maps and an attractive cover, by LBL. I gave a copy to Mary Neighbor, our summer employee who had undertaken the total project.

I received a letter (copy attached, with my reply) from Allan Labowitz from the U.S. Mission to the IAEA in Vienna, with the tragic news that Konrad Mauritz's wife had killed their three children and then attempted suicide. Sheila mailed out a notice of our forthcoming Program Committee meeting (copy attached), in line with her and Earl Hyde's attempts to make them more entertaining.



UNITED STATES MISSION TO THE  
INTERNATIONAL ATOMIC ENERGY AGENCY

Schmidgasse 14  
A-1082 VIENNA, AUSTRIA  
Tel. 34 66 11

August 8, 1973

Dr. Glen T. Seaborg  
Department of Chemistry  
University of California  
Berkeley, California 94720

Dear Glen:

A week ago, the Mission had its saddest day when our friend and co-worker Konrad Mauritz suffered an unimaginable personal tragedy--the death of his three youngsters, ages 6, 7 and 10, at the hands of their deranged mother, who then attempted suicide.

Mauritz, as you know, was unfailingly cheerful and never revealed any personal difficulties. We only learned from the newspapers, after the horrible event, that his wife had been under treatment on three occasions for mental disorder.

We have heard from Mauritz only briefly since the tragedy. He has been staying with relatives in Styria and it may be some time before he feels able to pick up the pieces of his shattered life. I know you share our grief and sympathy. We hope he will come back to us soon and that we can help him in some way.

Sincerely,

A handwritten signature in cursive script, appearing to read "Labowitz".

Allan M. Labowitz

U.S.A.

August 17, 1973

Mr. Allan M. Labowitz  
U.S. Mission to the  
International Atomic Energy Agency  
Schmidgasse 14  
A-1082 Vienna, Austria

Dear Lab:

I was greatly saddened to learn of the tragedy that has befallen Konrad Mauritz. I hope you will extend to him my heartfelt condolences.

I was certainly pleased to hear from you. Unfortunately, I won't be getting to Vienna this September, although I will be visiting Hamburg, Munich, Paris, Stockholm, and Oslo.

Best regards from Helen and me to you and Mrs. Labowitz.

Cordially,

Glenn T. Seaborg

GTS/sms



If this is the way you felt at the end of the last PROGRAM COMMITTEE meeting, you will be appalled to learn that another one is scheduled for 12:00 noon, FRIDAY, AUGUST 24, 1973, in the same pyramid.

From 2:00-3:30 p.m., I attended a meeting in the conference room of the HILAC Building, whose purpose was a discussion of plans for computer control of the operation of the SuperHILAC. Present were Earl Hyde, Frank Selph, Mike Nitschke, Duane Spence (who acted as secretary), Birt Kortegaard, Ed Hartung, Don Evans, George Kilian, Dick Eppley, Nick Armstrong, Jose Alonso, and Bob Main.

David Shirley dropped in at 4:00 p.m. to express concern over the proposed admission of Jose Carvalho to graduate school in view of his substandard undergraduate record. He feels that the Graduate Division would never accept such a low record. In view of this, I agreed that he should not be admitted. Shirley will write him a nice letter of explanation, suggesting that he might go to graduate school elsewhere to obtain a Master's degree and then, if he does well, apply at Berkeley.

I drove to San Francisco, leaving my office a little before 6:00 p.m., to attend a dinner at the Bohemian Club hosted by Indian Consul General S. K. Bhutani for Indian Ambassador T. N. Kaul. Present, besides Consul General Bhutani and Ambassador Kaul, were Judge Stanley Weigel, Bernard Rosen (who works at Watkins, Johnson in Palo Alto--this is Dean Watkins's firm), John Lawrence, Charles Gould (publisher of the San Francisco Examiner), and others.

I sat between Judge Weigel and Rosen. Weigel and I talked a good deal about Watergate--although a Republican, he is very disturbed about this; he thinks that the adverse effect is so great that no Republican could be elected if the next Presidential election were held today. Not only Watergate, but the whole philosophy and atmosphere and other actions of the present Administration bother him.

After dinner, Consul Bhutani made some welcoming remarks, then called on Ambassador Kaul, who spoke generally on Indo-U.S. relations, giving many examples of differences of opinion and the reasons for the Indian point of view. He also emphasized other common interests and feels these will predominate in the future. This was followed by about an hour of informal discussion, which at times became somewhat rough as the participants criticized India for so many actions that appeared to be anti-U.S. and pro-USSR. Ambassador Kaul handled himself brilliantly and appeared to have a ready answer for each penetrating and embarrassing question.

After the dinner, I drove home to Lafayette, arriving a little after 11:00 p.m. Here I met Dave, Helen having picked him up at the railroad station this afternoon, following his return from Colorado.

Saturday, August 18, 1973 - Oakland - Lafayette

At 10:00 a.m., I attended the meeting of the Citizens Task Force subcommittee chairmen at the EBRPD headquarters on Skyline Boulevard in Oakland. Present were Bernice May, who acted as chairman, Bill Dickinson, Janice Delfino, Margaret Bowman, Susan Watson, Kay Kerr, Florence Buehler, Sally Germain, Stana Hearne, and Dr. Art Emmes, as well as Bill Horne and Doretta Chaney of EBRPD staff. We agreed on a talking paper which comments on goals and policies of the EBRPD Master Plan and that Bill Dickinson will serve as our spokesman at the

Saturday, August 18, 1973 (con't)

meeting of the Citizens Task Force with the EBRPD Board next Tuesday, August 21.

At 11:30 a.m., I left the meeting to tour Skyline Boulevard with Harry M. Wirth, Head of the "Save Skyline Boulevard Committee," and Joe Engbeck, member of the Trails Subcommittee of the Citizens Task Force. We saw examples of the Oakland City-owned and the privately owned lots that Wirth's committee hopes to convert into a lineal park. We stopped at Wirth's home on Skyline Boulevard, where he gave us a copy of their Master Plan Proposal and a map showing the land in question. There are 171 city-owned lots (average size 50 feet by 120 feet), 242 privately owned, undeveloped lots (estimated value \$5-8,000 each) on Skyline and Old Tunnel road, and 8 parcels further north on Grizzly Peak Boulevard in the Claremont Canyon area, of which it is hoped to acquire a 200-foot strip on each side of Grizzly Peak Boulevard. It is hoped to acquire all of the land in these three categories as a start, then on a long-range basis, say by the year 2000, acquire the land with present houses on it and return this to the open space category.

I learned that Wirth (owner at PALCO in San Leandro) has worked on this project for two years, has had the booklets printed at his own expense, and has spent some \$20,000 of his own money on the project. He hopes to have the 171 lots donated to EBRPD by the City of Oakland and 242 lots purchased for EBRPD by donated funds for which he thinks he has located potential sources.

Wirth told us of his large land holdings in Wisconsin and Canada and his 40 acres behind the Huron Mount Club at Big Bay, Michigan, 20 miles north of Marquette.

I told Wirth that I would make a report to Joe Bort of my recommendation as to EBRPD's role in this and that Joe Engbeck will make an oral report at the Citizens Task Force meeting on August 29.

We then returned to the EBRPD headquarters, where I rejoined the meeting of the subcommittee chairmen, which lasted until 1:30 p.m. We agreed to have our next meeting here at about 3:00 p.m. next Saturday following the outing of the Citizens Task Force on a boat on San Francisco Bay.

I then drove home, had lunch, and helped prepare for our planned neighborhood block party, scheduled to be held at our home and field from 3:00-7:00 p.m., to be co-hosted by our neighbors the Shermans. About 100 people, including some 30-40 children, attended. The recreational activities included ping pong, volley ball on our court area, and baseball on our field. We served hot dogs, beer, lemonade and other refreshments. I took the opportunity to talk to many of our guests about the forthcoming open space bond election sponsored by Lafayette SOS. I also discussed our tentative plans to plant grass on our field, and our neighbor across the street, Algie Pulley, and others offered to help. I took a number of color slide pictures with the Retina. A number of people stayed until after 8:00 p.m. and the party was judged a success by all. (Dianne, Dave, Steve, and Steve's

friends Lois Stein and John Anning attended.) There was much talk of making this an annual event.

Mary Paige talked to me about possible pitfalls in our open space bond election. She fears that Happy Valley people, such as Jim and Jane Moore and Elvira Cardin, will oppose it and that I may be able to forestall this by enlisting their help. She thinks we should also enlist the help of Gordon Holmes in a leadership role. She thinks we should avoid big public meetings except for one final, well-managed one. Dean Lesher would be an excellent chairman for this, and Gordon Holmes's lawyer brother should participate to help handle questions. She suggested that we arrange for many "letters to the editor" to local newspapers. She climaxed the campaign for incorporation of Lafayette with a widely distributed "teaser" containing the signatures of 900 prominent people and suggested we do the same. She will pass these ideas on to Bill Chilcote.

Sunday, August 19, 1973 - Lafayette - San Francisco - Lafayette

In the morning, I edited the manuscript of my interview with Dave Ridgway which is to be further edited by the American Chemical Society for publication in the Journal of Chemical Education.

In the afternoon, Helen and I, with our neighbor Catherine Sherman, went to Candlestick Park in San Francisco to see an exhibition football game between the San Francisco 49ers and the San Diego Chargers. San Francisco won, 19-7, largely on the basis of a fine performance by Joe Reed, a rookie quarterback who is quite a scrambler. When we returned home, I spent about an hour hoeing weeds in our field in the region near the tennis court.

After dinner, Helen and I listened to the tape of August 14, 1973 by Lynne and Bill. The big news is that they are going to move to a cottage overlooking the Wabash River up in the region of the Tippecanoe Battleground. I then started a tape to go to them, which the rest of the family will contribute to.

Monday, August 20, 1973 - Berkeley

Dave rode in to work with me this morning to attend a week-long Congress on Genetics that is being held on the campus this week.

I called Bill Golden just before 9:00 a.m. to review the status of our letter-writing to foundation heads. He indicated that I will receive today a letter from Leonard Rieser reporting on his conversation with Danforth Foundation officials. I also reported to Bill that Warren Weaver's letter had errantly gone to the ex-President of the Danforth Foundation. He will follow this up, and we agreed to let the Danforth Foundation rest in the matter of fund-raising for the Headquarters building.

After reviewing my list, Bill recommended that I try to see Philip Jonsson in Dallas and the two people in Michigan, if possible, on my way to Europe. He suggested that he might be most useful as a follow-up to my initial meetings, although he would be glad to accompany me on any New York appointments. He indicated that Charles

Monday, August 20, 1973 (con't)

Horn is the key person to talk with at the Olin Foundation; he also has a reputation as a difficult man. He reported that, after several recent developments, we should not present our collaboration with the Brookings Institution as our only alternative in this matter. There is presently a bill up before the Washington Council which, if passed, will place a moratorium on the destruction of buildings which have been designated as national landmarks. This could potentially delay the construction of our building, in conjunction with Brookings (and which would require the destruction of the existing house), for an indefinite period.

Bill further reported to me his conversation with Kermit Gordon, suggesting that AAAS should not continue to pay \$3,000 a month for space we are not occupying. In the meantime, Brookings will try to lease the property, but with a cancellation clause because they are anxious to have the AAAS as neighbors. We agreed to change the brochure at two points: (1) the money we will require is changed from \$6 million to \$7 million, and the amount we need to raise from contributions is therefore raised to \$5.5 million; (2) the section describing our affiliation with Brookings will be toned down, to indicate that this is one of a number of possibilities.

Fran Freeman called from AAAS at the end of my conversation with Golden, confirming the information he had just given me. She is preparing replacement pages for me.

I called Harry Wirth shortly before 10:00 a.m. to inquire about the discrepancy in the statistics we will be using in our letter to Joe Bort about preserving an open space strip along Skyline Boulevard. I noted that he had indicated that there were 242 private homes on Skyline, whereas the brochure indicates the number to be 144. He explained that the 242 figure includes houses on Old Tunnel Road, Skyline and Grizzly Peak Boulevards in Oakland (10-1/2 miles). The goal is to save the entire greenbelt area. I indicated that we would use the figure 144 on Skyline and Grizzly Peak at this time.

I phoned Wilson Riles, Superintendent of Public Instruction and a member of the Board of Regents, at 10:15 a.m. about the Directorship of the Laboratory, to express my view that Andrew Sessler would be an excellent man for the job. I noted that Foster had withdrawn; I thought he was a fine person but in different lines and therefore not suited for the present position. I emphasized that this position requires close coordination with the faculty on the campus, a man versed in the intricacies of the basic research program here in the Lab--particularly in the new directions in which we are going--and that Sessler is ideally suited for the position from those points of view. He said that he was delighted I had called him and that I can count on his support.

I phoned Philip Jonsson, President of the Jonsson Foundation in Dallas, to arrange an appointment with him at his office on August 29.

At 10:30 a.m., I phoned Mayor Walter Costa and invited him to join us for breakfast on Monday, August 27, with Richard Trudeau.

Monday, August 20, 1973 (con't)

Wally indicated that Lloyd Townley had already mentioned this to him, and he will join us. He told me that he had talked this morning with Nat Owings; we might be able to get someone like Bill Mott to speak for us. I reported to him about my conversation with Mary Paige. Wally said that he had heard something about this. He agreed with Mary that it might be wise for me to talk to Jim and Jane Moore, particularly because of their influence with the Happy Valley Improvement Association, and perhaps Elvira Carden. Wally agreed with Mary's position that it would be a serious mistake for us to have any public meetings because they would almost certainly be taken over by people who have closed arguments. Wally expects to see Dean Leshner next week. (He noted that Tim McAllister has been writing good material in our behalf in the Lafayette Sun.) He has been asked to do a series of taped shows for TV channel 11; he may ask Bill Chilcote and/or me to go with him, taking a model of the city with us.

I then called Joe Engbeck to tell him that I will get the draft of our report on our visit with Wirth to the Skyline Boulevard greenbelt in his hands immediately for his review. Joe reiterated his opinion that the Park District should take the lead but that long-range development should be coordinated by the City, County, and the Park District.

At 10:45 a.m., Eric Carlblom came up to talk to me about a recommendation to medical school. He received A's in Chemistry 1A, 1B and 1C, taking 1B from me Winter Quarter, 1973. He had a grade point average of 3.2 at San Diego State and Solano Junior Community College and a 3.4 GPA during the last year at Berkeley. I said that I would send a letter on his behalf to Peter Van Houten (Coordinator, Pre-Medical Advisory Program at Sproul Hall).

At 11:15 a.m., I phoned Regent William Wilson in Los Angeles to discuss with him the Directorship of LBL and to express my feeling that the nomination of Andrew Sessler is a very good one. I noted that Sessler is a man who understands the Lab thoroughly, has a good grasp of the basic science that is going on, and, particularly, has taken off the last couple of years to build up the energy and environment aspect of our program. In the course of this, Sessler has established a large number of important contacts with the faculty on the campus. I noted that Shirley is excellent too. He indicated that they are having a meeting on this subject within the next week or so. He asked what I thought about Mike May, and I said that I thought he is better suited to what he is doing. Wilson changed the subject to ask if there is any program that any of our labs could get involved in that could help solve the nuclear waste problem, and I suggested Livermore.

Russell Train, Director-elect of the Environmental Protection Agency, returned my phone call at 11:20 a.m. He said that he expects to be confirmed by the Senate sometime next month. I described to him the Co-Chairmen's symposium at the AAAS 1974 Annual Meeting and invited him to be one of our plenary lecturers. I indicated that we would like his talk to tie in with the symposium theme but that he could also say what else he wants about ecology and the environment.

Monday, August 20, 1973 (con't)

Train was enthusiastic about the invitation and said that EPA is looking for exposure to the scientific community. He feels strongly about EPA improving its basis for scientific credibility. He will be back in touch with me after he has studied his schedule.

I had lunch at the table outside the lower level of the cafeteria.

I called Lew Keller at 1:45 p.m. He has a letter in the mail to me, together with slides, in connection with the Hamburg speech. I asked if he had given more thought to the chemical predictions of element 106, but he indicated that he has not because he is working on 115 and has some pressure to interpret 102.

At 2:00 p.m., I met in my office with Jerry Goldberg (representative of Skinner, Owings and Merrill, particularly Owings), Peggy Wheaton (assistant to John Peetz, Director of the Oakland Museum), and Jack Abbott (Executive Secretary of California Tomorrow). They presented their idea to develop a traveling (portable) multi-media show on land use, environment, and natural resources, including patterns of human settlement and community development. The show will be based at the Oakland Museum, and it is hoped it will be developed under contract from the NSF. It would be used both at the AAAS 1974 Annual Meeting (in connection with both the Co-Chairmen's Symposium and the Owings symposium) and later at other places as a precursor to the pilot plan for the 1976 bicentennial. I agreed to call Dr. Robert Lamson (program manager, Office of Exploratory Research and Problem Assessment at NSF in Washington) to express my support for Goldberg's request for \$50,000 as a modification to his earlier request and to underscore the urgency of Lamson's response to this request.

At 4:00 p.m., I attended the Nuclear Chemistry Seminar in the Building 70A conference room. V. S. Ramamurthy (Bhabha Atomic Research Center, Bombay, India) spoke on "Nuclear Shell Effects on the Fission of Excited Nuclei." After the meeting, I talked to him and he reminded me that I had met him during my tour of the Trombay Laboratory at the time of its dedication as the Bhabha Atomic Research Center in January, 1967.

At 5:10 p.m., I received a call from Robert Kramer, President of the Lafayette Jaycees, inviting me--in my capacity as Chairman of the Lafayette SOS group--to speak at a September dinner meeting on the bond issue. Since I will be in Europe, I suggested that they might want to meet at a different time if they want me there, or have other Lafayette SOS people appear in September. He said that John Hind will be in charge of the project and may be further in touch with us.

I hoed weeds near the tennis court for about an hour before dinner. Dave spent all day and evening at the genetics meeting in Berkeley, so Helen drove in to pick him up after the night lecture by Curt Stern.

Tuesday, August 21, 1973 - Berkeley

Dave rode in with me to attend the genetics meeting on the campus.

I called Mike Fischer (Chairman, Mt. Diablo Regional Group, Bay Chapter, Sierra Club) at 10:10 a.m. to indicate that our Lafayette SOS group would like to meet with his group, perhaps making a presentation at one of their meetings. He told me that the Executive Committee (the group that takes any official stands on issues) will next meet on September 17, the location to be determined. The first general meeting of the Mt. Diablo Regional Group will be on Thursday, October 11, at Acalanes High School. He said we could have some of our people at both of those meetings. He told me that Pleasant Hill is the only other city he knows of which will have an open space initiative on the ballot in November (theirs is a tax override). Walnut Creek will probably do something in the spring. He indicated his assumption that his group would be in agreement with our program but that they would want to see it. If they do want to support it, they could also offer the use of the Sierra Club's mailing labels. The only restrictions on them are that the labels have to be used on a mailing that is in the name of the Regional Group, but with whatever the Lafayette SOS wants to put out in it. As regards monetary support, he said that the general meeting would be the place to request contributions. He thought there would not be enough time to set up such fund-raising events as wine-tastings. I gave him the names and phone numbers of Bill Chilcote and Lloyd Townley, and he will be in touch with them to arrange their being at the Executive Committee meeting.

Shortly after noon, I returned a call to Anne Keatley to discuss her proposed "Science in China" Symposium at the AAAS 1974 Annual Meeting. She outlined to me a program of eight topics, the first two of which are more general than the rest. The other six topics will have speakers from fields valuable for Americans to study in China. She will have a full day for her symposium. She proposes that each topic have a speaker and a discussant, and she suggested the following topics and speakers: (1) Chinese politics and ideology and how they affect science policy in China--Doak Barnett, Brookings Institution; (2) Chinese interest in international scientific exchange--Frank Yang; (3) Fertility control--Carl Djerassi; (4) Earthquakes--Edward Chao, U.S. Geological Survey, and Bruce Bolt, discussant; (5) Acupuncture anesthesia--John Bonica, Washington; (6) Agricultural development--George Harrar; (7) Physics--Luis Alvarez, with Viki Weisskopf, discussant; plus an eighth topic. Anne said she will have a lot of printed factual information available on tables at the symposium. She indicated that she would like to keep the 8th topic open in case a Chinese scientist might wish to participate in the program. I reported to her that I had extended an invitation in Mexico City to the Chinese to attend the San Francisco meeting and will re-extend the invitation at an appropriate time. In response to my queries, she indicated that she had asked Emil Smith if he might speak on chemistry or biochemistry in China but that he didn't feel equipped to do that.

I then walked down to the campus to attend a meeting of the Executive Committee [of the Steering Committee] of CHEM Study with

George Pimentel, Kenneth Pitzer, and David Ridgway at lunch in the South Dining Room of the Faculty Club.

We made a number of decisions: (1) In response to a request from the American Chemical Society, we agreed to finance the James Bryant Conant Award in the Teaching of High School Chemistry to the extent of \$3,000 a year for three years, with the proviso that the ACS immediately start to search for another sponsor to take over at that time--if they fail, CHEM Study would finance it for another two years as a maximum. (2) We will support half the cost of making a film on the Lawrence Hall of Science to explain its offerings to the public with a maximum of \$5,000 on our contribution. (3) We agreed to apply up to \$10,000 as seed money to get started (script and so forth) on a film on the conservation of energy. I called to Pimentel's attention the value of keeping in touch with Hollander on this, to the impending start of John Holdren on the interdisciplinary faculty in Energy and Environment on the campus and his value to such a program, and to the October symposium on energy to be held at the Oakland Museum at which Holdren and I will be the wrap-up speakers.

After the luncheon, Ken Pitzer talked to me about my assignment from Jacob Bigeleisen to prepare the nominations of Dave Shirley and John Rasmussen for membership in the National Academy of Sciences. I assured him this was under way. He suggested that the Rasmussen nomination be done jointly with the Physics section.

I met in my office at 2:40 p.m. with Paul Donovan. This was a visit in connection with his new position as Head of the Office of Energy Policy (OEP) in the NSF. We discussed in a general way his new duties. He told Stever that he was taking this position on a temporary basis and he told me that he was still looking for another position closer to research, even though it might be an administrative position in some place like LBL. He has just visited LASL, where he was impressed by the progress being made in the secret research on the use of lasers to separate U-235 and U-238. After our meeting, I took him down to see Jack Hollander.

Earl Hyde and I met from 3:30-4:30 p.m. in my office with Andrew Streitwieser, Kenneth Raymond, Tom Parsons, John Conway, Richard Diamond, and Jerry Bucher. The purpose of the meeting was to discuss possible applications of our research on actinide chemistry to energy production in order to prepare a proposal to the Nuclear Sciences Branch of the AEC Division of Physical Research which is prepared to support some basic backup research in the energy field. We decided to submit a proposal that would emphasize the following four areas: (1) the further investigation of organometallic compounds of the actinides (by Streitwieser and Raymond) directed toward the discovery of volatility methods for the separation of actinide elements from radioactive wastes and so forth and toward the discovery of a complexing agent that might extract plutonium from human bones; (2) an investigation (by Conway) of the possibility of producing an efficient laser based on an actinide element; (3) studies (by Diamond and Bucher) of ion exchange properties of actinides that might have applications to separation procedures; and (4) a proposal (by Parsons) of an expanded program of actinide chemistry in order to support the first three proposals.

I mailed to Joe Bort my report on Joe Engbeck's and my review of the Skyline Boulevard project (copy attached).

At 4:40 p.m., I received a call from David Granados, who works with Ernie Marriner in the City Manager's Office of Lafayette. He arranged for me to appear on a television show for channel 6 (Cable-vision) about our Lafayette open space project, the taping to take place next Monday, August 27, at 4:30 p.m. Wally Costa will also appear. I will ask Bill Chilcote to get slides ready. Granados indicated that channel 6 presently beams south of the Boulevard. The program is becoming a regular part of their fare. The film will then be available to our organization.

I hoed weeds on our field for about an hour before dinner. Helen drove in to pick up David at 10:45 p.m. following his attendance at the Congress on Genetics. He had dinner with Bill Howe at International House. Steve drove in to see Lois after dinner.

Wednesday, August 22, 1973 - Berkeley

Dave rode in to work with me to attend the Congress on campus. I went directly to the office of my dentist, Kent Kohler, for my regular checkup. He found no cavities. I left the car keys in my locked car, so Helen came in to open it with the extra keys.

At 10:40 a.m., I placed a call to Olaf Bloom in Stockholm, and talked with his daughter Berit in his absence, to discuss the arrangements for my visit there on September 15-16.

In my capacity as a University Professor, I called Larry Andrews, Dean of the College of Letters and Sciences at UC Davis, to arrange a visit to the Davis campus this fall. We arranged that I will give my lecture, "Recent Research on the Transuranium Elements," at a joint physics and chemistry colloquium at 4:00 p.m. on Tuesday, October 23. I then called Alec Alexander at the Santa Barbara campus to arrange a University Professor visit there on Thursday, October 25. He will have Acting Dean Bruce Rickborn be in touch with me about this.

At 11:15 a.m., I called Robert D. Fisher, President of the Seeley G. Mudd Fund in Los Angeles, and talked with his Secretary, Miss Wright, in his absence. I called to explore the possibility of my meeting with him in Los Angeles on October 26 to discuss our AAAS headquarters building fund-raising project. Miss Wright informed me that one of the conditions of the Mudd Trust is that their money is to be used only for the construction of a building on the campus of a privately supported, four-year, Protestant institution of about 1,000 students. It does not therefore appear that my talking with Mr. Fisher would be productive. She indicated that the trustees are under the jurisdiction of the court, report annually, and that she would be very surprised if they did anything for this AAAS project. She said that she will tell him of our conversation and will write a confirming letter to me.

I called Dr. Russell Mawby (President, W. K. Kellogg Foundation in Battle Creek, Michigan) at 11:30 a.m. to discuss the possibility of an appointment to discuss our AAAS project. After reviewing our

## LAWRENCE BERKELEY LABORATORY

UNIVERSITY OF CALIFORNIA

BERKELEY, CALIFORNIA 94720 □ TEL. (415) 843-2740

August 21, 1973

Mr. Joseph P. Bort  
Attorney At Law  
Central Building  
Oakland, California 94612

Dear Joe:

In response to your request I made a tour over the critical parts of the area for which the Skyline Boulevard Committee, as represented by Harry M. Wirth, is presenting a Master Plan. I was accompanied by Wirth and by Joseph Engbeck, a fellow member of the Trails Subcommittee. Wirth identified a number of the key areas of land for us, gave us a copy of the descriptive brochure "Master Plan Proposal--Skyline Boulevard" and a map upon which this land is marked.

The Master Plan Proposal envisages as an ultimate lineal park (perhaps by the year 2000) a 200-foot wide strip on both sides of Skyline/Grizzly Peak Boulevard, extending over a 10.5 mile stretch of road from Joaquin Miller Park on the south to the Oakland-Berkeley City Line on the north. In order to insure the viability of this concept, rather early action is required on the acquisition of 171 Oakland City-owned lots and 144 privately owned lots, all on Skyline Boulevard, and 8 large parcels (181 acres total) on Grizzly Peak Boulevard. It is hoped that the City-owned lots could be obtained as gifts, and the privately owned lots and the 200 foot strips along the large parcels could be purchased (total cost estimated at somewhat over a million dollars) through the use of corporate or foundation gifts. With this accomplished, the concept could be saved; on the other hand, continued home building would doom it. (The subsequent acquisition of the 131 developed homes, all those within the 400-foot wide strip, and the conversion of the corresponding lots to open space, would be a long-range, year 2000 undertaking.)

Wirth is requesting that the East Bay Regional Park District take on the responsibility of acquiring this land with his pledged help on the negotiations with the City of

Mr. Joseph P. Bort

- 2 -

August 21, 1973

Oakland and fund-raising for the private lands. The moratorium on the sale of the privately owned lots expires on September 1 and only a show of interest by EBRPD can save the Project after this date. Wirth is especially desirous of obtaining the immediate active support of the Citizens Task Force which he regards as an impressive, energetic and influential group.

Because the undeveloped lots along Skyline Boulevard are interspersed with the developed lots, only the 200-foot strips along the 8 parcels next to Grizzly Peak Boulevard are suitable for immediate trail development. Control of the 8 large parcels as a whole or at least of the 200-foot strip would provide an ideal route for a vital link in the National Riding and Hiking Trail along the Berkeley/Oakland hill ridges. If the longer-range plan for a 10.5 mile lineal park were to materialize, other perhaps equally important trail opportunities would eventually result. Riding, hiking and biking trails of spectacular scenic quality could be developed parallel to the existing scenic drive along Skyline Boulevard. This would be highly desirable in itself and would lessen the pressure to develop such facilities in the Huckleberry Trail Area where they would be less appropriate.

Apart from the trail aspect this Skyline/Grizzly Peak Boulevard Master Plan Proposal is exciting as an unprecedented and very appealing park concept. It would connect Joaquin Miller, Redwood, Sibley and Tilden Regional Parks together into one continuous Regional Park. With a well-planned tree planting program, redwoods for example, one can picture an inspiring 10-mile drive made all the more remarkable by its location literally within a metropolitan area.

Joseph Engbeck and I suggest that this Proposal is worthy of the most serious consideration by the Citizens Task Force. The East Bay Regional Park District should take the lead in developing guidelines for cooperative action by the affected public agencies.

Sincerely yours,

Glenn T. Seaborg

GTS/ssk

cc: Bill Horne  
Joseph Engbeck

Wednesday, August 22, 1973 (con't)

calendars, we agreed to meet in Chicago either: (1) for dinner on Friday night, November 2, or (2) Saturday morning, November 3. I agreed to send him our brochure and background information, which they will explore (my cover letter attached); he will review his calendar and be back in touch with me.

I then called William Baldwin, President of the Kresge Foundation, in Troy, Michigan. We will meet in his office on August 30 to discuss our AAAS project.

Since I was continuously involved in phoning to set up these appointments for visits to Foundations to try to acquire funds for the AAAS building and had a number of calls pending, I had lunch at my desk.

W. O. Milligan phoned me at 12:50 p.m. in connection with the Welch Award. It has been suggested that he attend the Nobel Award Ceremonies in Sweden to see how they are conducted, and I endorsed the idea. He indicated that Per Löwdin has told him he could guarantee his receiving an invitation. I indicated that I would write a letter in his behalf if it would be useful.

At 12:55 p.m., I contacted Charles Horn, President of the Olin Foundation, at his business office in Minneapolis. He asked me to write him a letter, enclosing copies of the proposal for the other two members of the Board (which I did, attached). After some discussion, it appears that I might have a possibility of meeting with him in Minneapolis on Friday, October 12. He asked for at least a week's notice. He also indicated that he might be in Los Angeles sometime in October, and I asked him to let me know when he is going there in case there is a chance of our meeting there. He stated that it will be 1975 before the Olin Foundation will have any new money to commit. Their procedure is not to share the funding on any project that they undertake. They normally go onto a small independent college campus, completely build and fully equip a building for the campus, and turn it over to the college. (Actually, throughout our conversation, Mr. Horn declared "No chance!" at me at least a half a dozen times. He indicated that this project's having no connection whatsoever with the University of California was "one thing in our favor." He knew nothing of AAAS or of Science magazine, which I described to him briefly. I told him that AAAS is beginning to give more attentions to the applications of science and technology for the benefit of mankind, and he responded that "it's about time!" He expressed fear of ever setting foot in Berkeley. It was when I told him that I had served for ten years as Chairman of the USAEC that he indicated that he would be in Minneapolis in October. I would enjoy an opportunity to talk with Mr. Horn.)

At 1:30 p.m., I called Dana Creel, President of the Rockefeller Brothers Fund in New York City, and talked with his secretary, Mrs. Stekker, in his absence. She told me that my letter had gone forward to their Executive Vice President, William Deitle, who will be in the office on Monday, the 27th, at which time I will call him.

*American Association  
for the Advancement of Science*

GLENN T. SEABORG  
Chairman, Board of Directors

LAWRENCE BERKELEY LABORATORY  
UNIVERSITY OF CALIFORNIA  
BERKELEY, CALIFORNIA 94720

August 22, 1973

Dr. Russell G. Mawby, President  
The W. K. Kellogg Foundation  
400 North Avenue  
Battle Creek, Michigan 49016

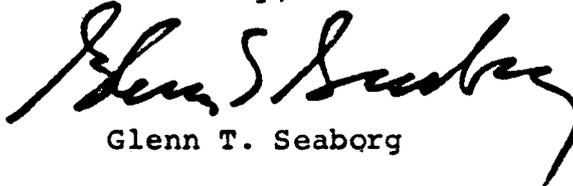
Dear Dr. Mawby:

As a follow-up to our telephone conversation today, I am enclosing a copy of our proposal for support of the cost of construction of a National Science Center building in Washington, D.C. I am also sending you under separate cover a big packet of AAAS literature which may be more than you want and with which you can do as you please.

I hope that your schedule will permit you to have dinner with me in Chicago (perhaps at O'Hare Airport) on Friday evening, November 2.

With best regards,

Cordially,



Glenn T. Seaborg

GTS/sms

Enclosure

*\* or nearby*

bxc: William Golden  
William Bevan  
Leonard Rieser  
Fran Freeman

*American Association  
for the Advancement of Science*

GLENN T. SEABORG  
Chairman, Board of Directors

LAWRENCE BERKELEY LABORATORY  
UNIVERSITY OF CALIFORNIA  
BERKELEY, CALIFORNIA 94720

August 22, 1973

Mr. Charles L. Horn  
Fagre and Benson Attorneys  
1300 Northwestern Bank Building  
Minneapolis, Minnesota 55402

*(wrong address)*

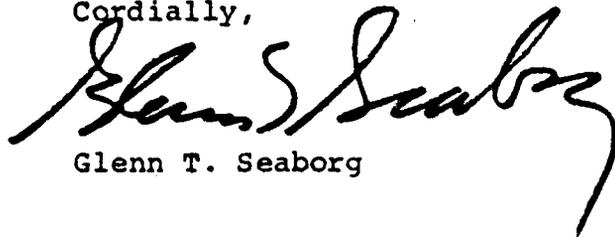
Dear Mr. Horn:

As a follow-up to our telephone conversation today, I am enclosing three copies of our proposal for support in the cost of construction of a National Science Center building in Washington, D.C.

Since I will be returning to San Francisco from Chicago on October 12, and have other business in Minneapolis that I might take care of, I would appreciate the opportunity to meet with you. I will be in touch with you at the end of September, upon my return from a trip to Europe, to discuss this further.

With best regards,

Cordially,



Glenn T. Seaborg

GTS/sms

Enclosures

bxc: William Golden  
William Bevan  
Leonard Rieser  
Fran Q. Freeman

(In our telephone conversation, Mr. Horn indicated that the Olin Foundation won't share their donoring with anyone else. I've therefore edited our proposal as it went to him, per the enclosed.

G.T.S.

)

I submitted to the Chemistry Department my entry for the departmental publication "Research Interests 1973-74" (copy attached).

At 3:00 p.m., Anthony G. Lagiss [pron. Lahdg-ess] came by to talk to me in my capacity as chairman of Lafayette SOS. He is concerned that we might have our eyes on his 18 acres of property as a link in the connection between the trail on Lafayette Ridge and the Sacramento Northern right-of-way. His land fronts on Springhill Road and is in the form of a rectangle extending north with the east end fronting on Elizabeth Street. There is a chain-link fence in the form of a triangle at the southwest corner. He would not like to have to give this up because he may build his home on the north end if he is required to move from his present 20 acres in the area between Deer Hill Road and Highway 24 (north of the highway and west of Pleasant Hill Road). I told him that I did not think there was any intention to include his 18 acres in the open space acquisitions and that I would let him know if it should turn out that acquisition of his land was contemplated.

I hoed weeds in our field for an hour and a half before and after dinner, watching President Nixon's news conference on Watergate during dinner. Dave got a ride home from the Congress on Genetics late in the evening.

Thursday, August 23, 1973 - Berkeley

Steve's passport arrived by special delivery at 8:00 a.m. this morning. He had applied for it Monday. Dave rode to work with me to attend the Congress on Genetics.

I called MacLean Gander, President of the Charles A. Dana Foundation in Greenwich, Connecticut, at 8:40 a.m. and talked to his secretary, Mrs. Gallagher, in his absence. She asked that I talk with their Vice President, Dr. Henry W. Littlefield, who will be there on Tuesday morning. She indicated that Mr. Gander will be leaving the country at the end of September and she doesn't have his schedule. I indicated that I will call Dr. Littlefield on Tuesday morning and in the meantime asked her to look at Mr. Gander's November 1 calendar (or November 2, p.m.). (Greenwich is 45 minutes by train from New York City.)

I then called Nathan Pusey's secretary, Margaret McKenna, at the Andrew W. Mellon Foundation in New York and arranged to meet with him in New York on November 1 to discuss our AAAS project.

At 8:50 a.m., I called Robert Lamson at NSF to express my support for the project proposal of Jerry Goldberg, which would develop an exhibit at the AAAS 1974 meeting. He will have Rich Stevens get in touch with Jerry Goldberg.

At 9:30 a.m., I attended the meeting of the superheavy elements chemistry planning group at the HILAC Building. Present were Nurmia, Hyde, Diana Lee, Jim Harris, Norris, Kratz, Liljenzin, and later Binder and Ghiorso. Nurmia reported on his experiments on the bombardment of  ${}^{67}\text{Ho}^{165}$  with  $\text{O}^{18}$  to produce Re and presumably W and Ta isotopes. His treatment of the data now shows that the volatile

## RESEARCH INTERESTS

GLENN T. SEABORG  
LBL Building 70A  
and 446 Latimer  
1973-74

## I. Lanthanide and Actinide Chemistry

The purpose of this project is to characterize the chemical, electronic, and magnetic properties of the actinide series and, for comparison purposes, the lanthanide series. The techniques utilized include optical spectroscopy, magnetic resonance, magnetic susceptibility, x-ray diffraction, Mössbauer spectroscopy, and chemical synthesis and metal production techniques.

Specific problems now under way include:

(1) Optical and magnetic studies of various actinide ions diluted in single crystals in order to determine the electronic energy levels.<sup>1,2</sup> Fitting the experimental spectra allows one to determine the various important interactions in these heavy ions. Another aspect of this problem is the elucidation of the solid state chemical reactions induced by the radioactivity of the actinide ions.

(2) Preparation of the transplutonium metals and measurements of their physical properties.<sup>3</sup> Because of the limited availability and relatively short half-lives, these syntheses are carried out on the milligram scale. The transplutonium metals appear to be structurally simpler than the earlier actinide metals, so studies of their physical properties will help in the interpretation of the properties of the entire series.

(3) In conjunction with Professors Streitwieser and Raymond, optical and magnetic properties of organometallic complexes of actinides and lanthanides.<sup>4</sup> The recent syntheses of "sandwich" complexes of actinide ions has generated much speculation about the bonding in these unusual compounds. Available magnetic evidence suggests  $\pi$  bonding is important. Further magnetic and high resolution optical measurements are needed in order to understand the properties of these compounds.

## II. Transactinide and Superheavy Elements

The transactinide elements stand at the edge of the known elements. Thus, the study of the chemical properties of these elements can test how far the chemical periodic system can be extended and ultimately the underlying electronic properties which allow the periodic system to exist. Deviations from the predictions of the periodic system will provide the basis for appropriate modifications or extensions of the quantum mechanical treatment of atoms.

At the present time, the known elements extend through atomic number 105. However, recent theoretical predictions of nuclear stability suggest that the man-made elements might be extended to element 114 or possibly beyond.<sup>5,6,7</sup> Thus, a dozen or more new elements may be within our reach through the use of the new Super Heavy Ion Linear Accelerator (Superhilac) now beginning operation at Berkeley. Electronic effects which are negligible in the low atomic number elements should become very important in these so-called superheavy atoms, e.g., relativistic effects, and may produce unexpected chemical behavior.<sup>5,6,8</sup>

The chemical properties of many elements up to 121 have been predicted in sufficient detail that they can be used in the design of experiments.<sup>5,6,8</sup> Therefore, much of our effort is being directed toward the development of chemical separation techniques that can establish the chemical relationship of these elements to one another and their position in the chemical periodic system. In particular, ion-exchange and solvent-extraction chromatographic separation schemes for elements 108 to 121 are being investigated. These schemes are based on extrapolation from the chemical homologues Os to Ac as modified by recent relativistic Hartree-Fock calculations.

Frequently, only a few atoms of a new element can be produced at one time and they may live for only a few minutes or seconds. Therefore, a search for rapid chemical separation techniques is continuously being made. That as few as 10 to 100 atoms at a time can yield meaningful and important chemical information is demonstrated by the experiments<sup>9</sup> on elements 102, 103, and 104. In order to repeat a given experiment hundreds of times over a period of weeks, a fully automated and computer-controlled chemical system has been constructed and is being tested. It will be used for attempts at the first aqueous chemical separation of element 105 from its neighboring elements. The cation-exchange separation to be used is based on the prediction that element 105 will exhibit a chemical behavior similar to Ta and Nb.

Experiments are being planned to attempt the synthesis and chemical identification of element 106, which is predicted to have a half-life of less than a second.

### III. Heavy Ion Reactions

The reactions of accelerated heavy ions (defined as ions heavier than those of helium) is an area of study of increasing interest and importance. Such interactions differ markedly from those induced by simple projectiles such as protons, deuterons or helium ions because of the collective effects of the heavy ions, and therefore much new information can be obtained. The new Superhilac will be capable of accelerating ions as heavy as uranium to sufficient energies to make them capable of undergoing nuclear reactions with any target nucleus (up to uranium).

A powerful tool for such investigations is the chemical separation, and identification through their radiations, of the products of such bombardments. For example, in the bombardment of uranium with argon ions, the yields of some 140 isotopes distributed among 60 elements have been determined by using this technique. The broad distribution of products seems to be composed of three components: (1) nucleon transfer products, (2) a broad distribution of fission products presumably from a "fusion-fission" mechanism, and (3) a narrower distribution of more neutron-rich fission products presumably from fissioning nuclei near  $^{238}\text{U}$ . The variation of yield of the "fusion-fission" reaction with the increasing atomic number of the projectile and of the target nucleus is of especial interest and this can be best studied by this chemical separation technique. The information obtained on the nucleon transfer reactions by this technique can be correlated with that obtained by direct physical measurement techniques to yield much definitive information on nuclear structure and nuclear reaction mechanisms.

In this work the chemical separations are performed on the "one atom at a time" scale and hence, procedures are used in which the separation step is repeated many times so that even a single atom will behave statistically just like a macro amount of the same substance. Methods which meet these criteria are in general based on the use of (1) cation exchange, (2) anion exchange and (3) solvent extraction such as with aliphatic amines. These methods, combined with volatility procedures, make possible rapid and complete separations of a large number of chemical elements--accomplishments that seem extraordinary on the basis of traditional experience in the chemical separation field.

The program contemplates a wide scale application of these techniques to study the mechanism of a broad range of nuclear reaction mechanisms.

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Thursday, August 23, 1973 (con't)

products were  $\text{Na}^{24}$  and  $\text{Cl}^{34\text{m}}$ , not Re, W (e.g. 22-day  $\text{W}^{178}$ ), and Ta oxides as had previously been expected. This is a disappointment, but the experiments will be continued with various modifications. The aim is to use thick targets of  $\text{CfO}_2$ , such as 10 mg per  $\text{cm}^2$ , to increase the yield of element 106. We decided that the next experiments might be (1) Ho oxide plus  $\text{O}^{18}$  with hydrogen reduction and (2) Ho fluoride plus  $\text{O}^{18}$  to look for volatile W compounds containing  $\text{W}^{178}$  (22 days).

At 10:30 a.m., we went on to the regular biweekly SuperHILAC seminar, also in the conference room of Building 71. Ghiorso started with a status report of the SuperHILAC. He described a number of problems with Adam. He has tested SASSY with  $^{40}\text{Ar}^{7+}$  ions and is making progress here. Next we had a report by Harvey Gould on helium-like atoms. He described the transition life-times in helium-like vanadium ( $Z = 23$ ) and compared them with results on helium-like Cl, Ar and Ti. The results with vanadium seem to be a little higher than predicted by theory.

Herve Nifenecker reported on some work on the mechanism of fission reported at the Rochester conference last week. Gutbrod also reported on the heavy ion session at Rochester.

Paul Lochak called me at 12:20 p.m. and we discussed several aspects of my schedule, including the arrangements for my lecture at the U.S. Embassy on September 13 and his arrangements for Stephen. I mentioned other names of people I might like to see while I am in France. Lochak asked if I had talked with Sol Linowitz since his (Paul's) visit here on August 3, and I did not recall that I had. Lochak reported that Sol had told him that he personally and Coudert would willingly commit a lot of time and effort to involving people in the United States to organize a corporation where there is none now in the diffusion field. Lochak said that Sol wanted to talk with me about this before my arrival in France, and I indicated that I would probably talk to him.

I had lunch at the table outside the lower level of the cafeteria with Hyde, Poskanzer, Nifenecker, Regis Babinet (a NATO fellow here for one year, replacing Nifenecker), Bucher, and Gutbrod.

I called Landrum Bolling's secretary, Miss Morrison, at the Lilly Foundation in Indianapolis at 1:40 p.m., and we arranged an appointment there on October 11. She indicated that he may be in Washington at the same time as I during that week, and we may change this appointment accordingly. She mentioned that their Board had had a meeting on Lilly's policies and priorities for the future, which will have a bearing on the outcome of our discussion.

I then called James S. Coles, President of the Research Corporation in New York, and arranged to meet him on November 1 at 11:00 a.m. He indicated that he is not optimistic about support from Research Corporation for our AAAS project because they are experiencing a greatly increasing demand upon their supply; however, he said he would be more than glad to see me and talk with me.

Thursday, August 23, 1973 (con't)

I called Sol Linowitz shortly before 2:00 p.m., indicating that Paul Lochak had called and suggested that we might talk about the gaseous diffusion project. I related Paul's report that Sol was enthusiastic about this. Sol responded that he had said to Lochak that he did not know whether it is a possibility or not but that someone should do some thorough digging to find out what the prospects are for cooperation with people in this country. Only then, if the investigator establishes that something like this can be done, should we figure out how to coordinate things. He cautioned Paul against drawing conclusions from having talked only with the two of us. Sol was pleased that Lochak will arrange a meeting for me with people in France to talk about this. Sol described Lochak's report that people in France are determined to go forward with this project--they have the financing; Lochak thinks they can do it faster than it could be done in the United States; it would be mutually beneficial if the project has American technological help; therefore, in light of our energy problems, it could be mutually beneficial. I conjectured that the matter of technical assistance from the USAEC is a thorny one, mainly because of the Congress where they don't think there is any two-way gain in these things. Sol and I agreed that the whole thing struck us as vague, and he is concerned that Lochak not "peddle a project." I said I was glad that I had talked with Linowitz and mentioned that I had told Lochak that Pete Flanigan in the White House is still the key person in this area.

I then called Olaf Bloom in Stockholm at 1:55 p.m. to discuss the arrangements for my visit to Stockholm. I confirmed that I will arrive in Stockholm on Friday night, that Steve will be with me, and that we will depart Sunday evening. He had received my letter (which he described as a "complete mental confusion") yesterday. I will call him back on the 27th to confirm arrangements. He reminded me that King Gustaf of Sweden is dying; he can no longer recognize the members of the royal family. This is even a personal loss because I have met the family many times. He told me that Sunday the 16th will be a national election day in Sweden. Of my impending visit, he said "it does suit." He extended warm greetings to Helen and each member of the family from Eivor and virtually each member of his family (he mentioned that Siv is in Spain).

At 3:20 p.m., I phoned Assemblyman John Knox in Sacramento and invited him to speak on the future of government in the AAAS 1974 Annual Meeting Co-Chairmen's Symposium. He replied that he would be pleased to do this, adding that just this afternoon he had got his bill for a regional planning agency off the floor of the Assembly (AB 2040). I indicated that Jane would be in further touch with him about the particulars.

I hoed weeds in our field for about an hour before dinner. Rudholm was there preparing the holes and watering system for the five live oak trees we are going to plant along the front. Steve drove in to see Ron after dinner and stayed late. Helen drove in to pick up Dave, who was at an evening session of the Congress on Genetics, at which Shockley's and Jensen's theories were being heatedly discussed.

Friday, August 24, 1973 - Berkeley

Helen drove Dave in for a 7:30 a.m. departure for a visit to Davis by some of the participants of the Congress on Genetics.

I called Stanley Schneider at 8:40 a.m. to tell him of my scheduled talk to the Symposium, "Major Factors of the World, 1994," sponsored by the World Future Society at the AAAS Annual Meeting in San Francisco next February. I asked whether he would be willing to help with the production of a text since I must put it in publishable form. I mentioned that what is required is a discussion of the most significant changes that are likely to occur in the world during the next twenty years, including specifically the identification of ten major changes. I suggested a 15- or 20-minute speech would be adequate. He said that he would think about it and send me a proposed outline of some of the ten major items.

Shortly before 10:00 a.m., I called Bill Golden in New York to give him a status report on my contacts with foundation presidents for our AAAS building fund-raising project. After reviewing the list, I indicated that I will send him a summary of this next week after I have talked with the people at Rockefeller and the Dana Foundation. He suggested that I might want to send more AAAS literature to Charles Horn at the Olin Foundation, which I said I might do. He was quite ecstatic over my progress and observed that I would never do as a foundation executive because I'm too prompt, too systematic, and work too hard.

Barbara Thomas called me from the AEC in Washington to say that Julie Rubin has been getting inquiries about his seeing me in Brussels during the week of September 9. I gave her Paul Lochak's name, address and phone number in Paris as a center for coordination of my schedule.

Shortly after 11:00 a.m., I called Mason Willrich, who is spending this sabbatical year in the Law Department at PG & E in San Francisco. He told me that he got started there in July and will work through next summer. He has become involved in two major issues: (1) the curtailment situation and what to do with the fuel shortage--how to ration if we have to cut back, and (2) capacity expansion--where to build. He is finding it illuminating to study these problems from the inside. When I inquired who he is working with most closely, he indicated that he can go wherever he wants to in the company but he has been working primarily with the Law Department along with some contact with the Commercial Applications Department. Names he mentioned were J. Y. De Young, Bart Shackelford, Fred Mielke, and Dick Peterson. He and his wife are living in Dick Lyman's house on the Stanford campus. I suggested that we may be able to get together after I return from Europe.

John Pomeroy of NASA in Washington called me at 11:50 a.m. to suggest as a possible subject for a future Welch Foundation conference that of cosmo-chemistry. He suggested a wide range of potential areas which this might involve. I indicated that it sounds like a pretty good idea, and I will take it up at the next meeting of the Scientific Advisory Board in November. I said that we are now talking about a

Friday, August 24, 1973 (con't)

program in 1976. In the meantime, he will write me a letter about this, which will suggest people in the Houston area who would be likely contacts. (He indicated that he had written along these lines to W. O. Milligan a couple of years ago, but his letter went unanswered.)

The Nuclear Chemistry Division Program Committee held a bag-lunch meeting in my office from 12:00-1:15 p.m. Present were Richard Diamond, Jack Hollander, Earl Hyde, Arthur Poskanzer, David Shirley, Kenneth Street, and David Templeton. Earl read the announcement (copy attached) by Bernard Harvey and David Clark about the split of the beam at the 88" cyclotron. He also announced the invitation we have received from Oak Ridge National Laboratory to send a representative to their Chemistry Information Meeting on September 10-12.

The 184 Club is sponsoring an open house at the laboratory on Sunday, September 30, in the afternoon. Earl asked Tom Parsons and Ralph McLaughlin to be 2/3 of the committee for the Division; he will ask someone from the 88" cyclotron also to serve. There was some discussion as to whether we should provide some sort of tour or viewing of the SuperHILAC or declare it off-limits because of the danger factor. Hyde will ask Tom and Ralph to talk to Ghiorso about this.

Earl asked the committee members to submit any outstanding employee evaluation reports. Earl reviewed our deliberations about how to participate in the new energy programs of the AEC, which apparently will provide money from various sources within the AEC. Earl described the proposals that were discussed at our meeting in my office on August 21. The proposals will be completed today, for Jack Hollander to carry with him to Washington.

Earl reported on construction progress at the SuperHILAC and our negotiations with John Teem, which have now led us to request \$2.4 million in FY75. We said that we will provide experimental staging areas and shops, offices and conference rooms, etc., but not additional beam lines at this time. Earl described the steps he is now taking for the SuperHILAC to be ready for this forthcoming expansion (e.g., management review, computer hardware, etc.).

Earl outlined miscellaneous personnel matters. He then raised the problem of police on the Hill; in conformity with salary and benefit increases for policemen elsewhere, ours will become extremely expensive. The Lab is considering having a minimum number of policemen on the job. The Lab would thereafter use campus or Berkeley police. LBL presently has 12-13 policemen; however, there has been an average of only 3-4 incidents per month when a policeman was really necessary. Arthur Poskanzer inquired about the actinide chemist position we had earlier described in connection with our proposals of energy related programs to the AEC. I explained that we have discovered a serious void here since Burriss Cunningham's death and the request for this position within the energy program is to open the possibility of getting a position that we could not otherwise get.

MULTIPLE HEAVY ION BEAMS FROM THE 88-INCH CYCLOTRON

We have successfully run beams of 104 MeV  $^{16}\text{O}$  into two experimental areas simultaneously by a trivially simple method.

At a radial focus between the cyclotron and the switching magnet, we inserted a  $20\mu\text{g}/\text{cm}^2$  carbon foil with a roughly 1 mm diameter hole. The fully stripped  $^{16}\text{O}(8+)$  beam was bent  $40^\circ$  in the switching magnet to the primary experimental area. The  $^{16}\text{O}(4+)$  unstripped beam that passes through the hole is then theoretically bent by  $20.6^\circ$ , but with the help of two small  $1^\circ$  bending magnets just beyond the switching magnet, we were able to transmit the 4+ beam into the  $20^\circ$  experimental area. It was passed through the two beam analysis magnets, giving a perfectly normal beam spot. We could not focus it into the spectrometer because we do not yet have enough quadrupole power supplies to run both beam lines simultaneously.

The parasite beam will be very useful for instrumentation and for experiments requiring small beam intensities.

*David J. Clark*  
 \_\_\_\_\_  
 David J. Clark

*Bernard G. Harvey*  
 \_\_\_\_\_  
 Bernard G. Harvey

ve

cc: F. Selph  
 R. Main  
 A. Ghiorso  
 E. K. Hyde  
 H. Grunder  
 D. J. Clark  
 A. D. Bacher (Indiana)  
 D. G. Kovar (Argonne)

David Shirley expressed concern about the disappearance of equipment money in our budget; Earl noted that the same can be said for AIP funds. Earl and I will call this to John Teem's attention at the right opportunity. I gave a rundown on my forthcoming trip to Europe, asking if there were anyone I should see. Dave Shirley suggested I see Anatole Abragam at Saclay.

At 2:00 p.m., I attended a meeting of the group considering the applications of the computer to the control of the SuperHILAC. The same general group was present as on August 17. Don Evans described the system that is used at the Bevatron, known as the "digital processor system" and there was considerable discussion as to how this might serve as a model for the SuperHILAC. Apparently, the SuperHILAC system will be quite different.

I left the meeting at the intermission and dropped by to see Matti Nurmi. He is planning the system for the bombardment of rare earth fluoride targets at the SuperHILAC to produce volatile fluoride compounds of tungsten preparatory to the use of a similar chemical system for element 106.

W. M. Laetsch, Director of the Lawrence Hall of Science, called me at 4:15 p.m. LHS is working with the campus development office on a campaign to try to get northern California industries to take out renewable memberships in the Hall. For this they would like to have a letter go out over the signature of a well-known industrialist. He asked if I would approach Bill Hewlett in this regard, but I indicated that I would be embarrassed to do this in light of our relationship on the AAAS Meeting. I thought Hewlett's doing this might be in the realm of possibility and suggested Luis Alvarez as a contact, but Mac thought that they should probably go to someone else on this short-term matter and hopefully involve Hewlett on something else at a later time.

I mailed to the Trails Subcommittee the final version of the "Comments on Overview Recommended Master Plan (June 1973)" for submission to the Citizens Task Force (copy attached).

I hoed weeds on our field for about an hour and a half before dinner. Rudholm was out there digging the holes for our live oak trees and the ditch for the plastic water line to the trees.

Eric called at 9:00 p.m. from the Ranger Station about 16 miles from his work station in Washington State. He completes his job on September 9, then will ride home with a friend, after which he plans to drive to Yosemite to see Ruthie and proceed with her to her home. Helen drove in to the campus to pick up Dave following his day's activities in connection with the Congress on Genetics.

Saturday, August 25, 1973 - Oakland - Lafayette

Helen and I drove to the Oakland Naval Center at the end of 7th Street in Oakland, where at 9:00 a.m. we joined members of the Citizens Task Force for a boat trip on San Francisco Bay. Present were Mr. and Mrs. Fred Blumberg, Florence Buehler, Fred Casanares and his guest, Howard Cogswell, Bill Dickinson, Stana Hearne and her

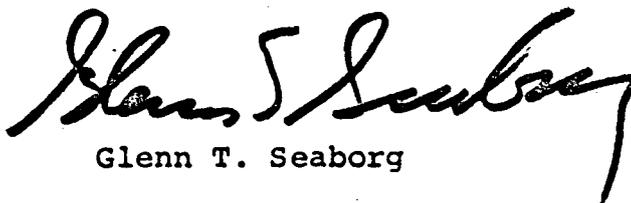
LAWRENCE BERKELEY LABORATORY  
UNIVERSITY OF CALIFORNIA  
BERKELEY, CALIFORNIA 94720 □ TEL. (415) 843-2740

*blue*

August 24, 1973

TO THE TRAILS SUBCOMMITTEE,  
EBRPD CITIZENS TASK FORCE:

I am enclosing our final version of "Comments on Overview Recommended Master Plan (June 1973)" with the attached section on "Regional Trails," edited according to our recommendations.

  
Glenn T. Seaborg

GTS/sms

Enclosures

August 24, 1973

## COMMENTS ON OVERVIEW RECOMMENDED MASTER PLAN (JUNE 1973)

by the Trails Subcommittee,  
EBRPD Citizens Task Force

The Trails Subcommittee submitted a report on March 14, 1973, with a number of recommendations of specific trails, including priority recommendations, and a recommendation that a defined fraction (suggested as 15%) of land acquisition funds should be devoted to trails. Although many of our recommendations were incorporated in the Overview Recommended Master Plan of June 1973, some important recommended trails were omitted or given inadequate priority, and our suggestion of a definite allotment of funds to trails was not accepted.

On the basis of a reconsideration of this situation, the members of the Trails Subcommittee hereby reiterate their recommendations of specific trails and designation of funds to trails with the hope that they will be included in the final Master Plan. Among the trails that we feel should be reinstated are:

- (1) the trail from the Orinda BART station to Sibley (Round Top) Park;
- (2) a more direct trail from Mount Diablo to Contra Loma;
- (3) the extension of the California State Riding and Hiking Trail at its present terminus at Pine Hollow Road and Missouri Street to Mount Diablo State Park;
- (4) and a higher priority for the trail from Briones Regional Park along Lafayette Ridge and the Sacramento Northern right-of-way to Las Trampas Regional Park.

In addition, the Trails Subcommittee would like to recommend again that the Huckleberry Trail be classified as a nature trail for pedestrians alone (actually a single-file path), and that there be some specified, interpretative trails for the physically handicapped--in particular, trails for the blind and those required to use wheelchairs.

Furthermore, the committee would like to endorse the section, "Changes in Regional Trail Map" for the shoreline trail from Richmond to Coyote Hills Regional Park, as suggested in the Shoreline Subcommittee's report of "changes recommended in the Overview Master Plan."

The Trails Subcommittee's suggestions are incorporated as additions and deletions to the enclosed copy of Part 5, the "Regional Trails" section, of the Recommended Master Plan.

Glenn T. Seaborg  
Chairman, Trails Subcommittee

Attachment

# REGIONAL TRAILS

TRAILS SUBCOMMITTEE  
recommended changes as  
indicated: pp. 3, 4, 5.

## INTRODUCTION

The law under which the East Bay Regional Park District operates (Public Resources Code Section 5541) authorizes the Park District to (among other things) "control, operate, and maintain a system of trails." Accordingly, the Park District has provided a series of trails for many years; however, most of them have been within the boundaries of the parklands. Most of the users of the trails were "Sunday strollers"; therefore, in-park trails were adequate, and the problems involved in the acquisition of separate trails rights-of-way could not be justified by the limited demand.

More recently, there have been significant changes in leisure activity patterns: the national horse population is now greater than it was when the horse was the primary means of transportation (there are estimated to be 25,000 pleasure-use horses within the Regional Park District); the availability of high-quality touring bicycles has resulted in a great increase in the total number of recreational bicyclists (there are approximately 600,000 bicycles within the Park District); and leisure time has increased so that many Sunday strollers have become week-long backpackers. The effect of these changes is that the regional parklands can no longer accommodate all the recreational movement that exists. The number of trail users (both existing and potential) is too great and the distances that can be travelled within the parklands is too short. Clearly there is a need for trails beyond those provided within regional parklands.

In September 1966, the Regional Park District, in Resolution No. 2720, approved a "preliminary plan and concept for a two-county hiking, bicycling, and horse-back riding trail." That plan has been updated from time to time, but it was necessary for OVERVIEW to restudy the entire trails question in the context of its master planning for the acquisition and development of new parklands. The results were three-fold:

1. Policies to aid in the planning of the regional trail system.
2. A Regional Trails Plan, described by words and by map.
3. Recommended policies for priorities and means of implementing the Regional Trails Plan.

## POLICIES FOR REGIONAL TRAILS

Since trails are an integral part of the mission of the East Bay Regional Park District, and a trail is a "parkland" as much as any other type of parkland, OVERVIEW developed the same sort of Purpose and Goals, Minimum Standards, and Planning and Management Guidelines for Regional Trails as for the other types of parklands. But because many persons and groups are primarily interested in trails, these policies for trails are printed in this Part (as the Appendix) rather than in Part 2, Chapter 3, "Parkland Classification System".

**THE REGIONAL TRAILS PLAN**

By applying the above planning policies to the topographical opportunities and physical constraints of the East Bay, the Regional Trails Plan has been developed and is illustrated on the Regional Parklands and Trails Map.<sup>1</sup> The Regional Trails Plan is composed of two basic elements: (1) the Regional Bicycle/Hiking Trail System; and (2) the Regional Equestrian/Hiking Trail System.<sup>2</sup>

**Bicycle/Hiking Trail System**

The bicycle/hiking trail system is based on four major north-south spines with four major east-west connectors. The north-south spines follow:

1. The Bay shoreline, from Richmond (Point Pinole) to the mouth of Alameda Creek, then through Coyote Hills Regional Park to the Dumbarton Bridge and the San Mateo County Line (where it connects with a regional trail in San Mateo County).
2. The Berkeley-Oakland hills ridgeline from Richmond to Castro Valley.
3. The San Ramon Valley from the Contra Costa Canal to Pleasanton.
4. A portion (within the District) of the proposed State Bicycle Route which will extend from Sacramento to Los Angeles via Antioch, Bethany Reservoir, and San Luis Reservoir.

The east-west connectors should follow:

1. The Bay shoreline from Richmond (Point Pinole) along the Southern Pacific railway line to Martinez, then along Waterfront Road to Port Chicago.
2. From Martinez to Pacheco, then along the Contra Costa Canal through Concord to Port Chicago and Antioch.
3. The Berkeley (and Oakland) city bicycle trail networks from the Bay to Lake Temescal, then along the old Sacramento Northern Railroad grade to Walnut Creek.
4. From the Bay, along Alameda Creek flood control channel, then through Niles Canyon and along Arroyo de la Laguna to connect (at the Regional Park District boundary) with the Livermore trail system (which extends eastward to meet the State Bicycle Route).
5. San Leandro Creek from the Bay to Lake Chabot, then through Castro Valley and east along the proposed frontage road of Interstate 580 to Dublin.

In addition, there are for bicyclists and hikers some minor loops and spurs: from

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<sup>1</sup>A study is underway—administered by the Bay Area Rapid Transit District (BARTD) and jointly financed by BARTD, the East Bay Regional Park District and the federal government—on methods for encouraging recreational and commuter travelers to use both BART and a bicycle on a single continuous trip. The study began only in Spring, 1973 and will not be completed until late 1973 or early 1974; thus the OVERVIEW recommendations on a Regional Trails System are made independently of the BARTD/Trails Study. However, the recommended Regional Trails System takes account of the fact that the BART stations in the East Bay will be major sources of trips by foot and bicycle to the East Bay Regional Park District's parklands. Therefore, the Regional Parklands and Trails Map shows the location of all BART stations in the East Bay, and includes many of those stations either on a regional Bicycle/Hiking Trail link, or connected to the Regional Bicycling/Hiking Trail System by a short spur route. The BART/Trails Study is expected to incorporate this Regional Trails System into its planning, rather than duplicate the work presented in this report.

<sup>2</sup>Only the Regional Trail links are mapped—the trails that meet the criteria set forth in the Appendix to this Part. The numerous other bicycle/hiking and equestrian/hiking trails that have been and will be built pursuant to local trail plans will serve in conjunction with the Regional Trails System as feeders from residential areas and to recreational and commercial destinations, but they are not really "regional" and are not mapped.

central Richmond to Point Richmond and Point San Pablo; an alternate (to the shoreline) route through Berkeley along the Santa Fe right-of-way: Mission Boulevard between Castro Valley and Union City; around San Leandro Bay; or Calaveras road from Niles Canyon to Calaveras Reservoir and Santa Clara County from San Leandro Bay to Alameda Beach; from the Contra Costa Canal at the Ygnacio Relift Station along the Ygnacio Canal and Castle Rock Road to Castle Rock Regional Recreation Area and Pine Canyon.

The Park District has already begun to implement portions of the bicycle/hiking trail system. The following segments already exist or negotiations are in progress leading toward their acquisition: (1) Alameda Creek from the Bay shoreline to Niles Canyon; (2) Stanley Boulevard between Pleasanton and Livermore; (3) across the dam and along the south shoreline of Lake Chabot; (4) Contra Costa Canal, from Diablo Valley College to Willow Pass Road; (5) the Southern Pacific right-of-way from Rudgear Road to Danville; and (6) the Sacramento Northern right-of-way from Reliez Station Road to St. Mary's College.

Wherever possible, the trails are to be located off existing roadways. Although it has been generally believed that bicyclists can use almost any vehicular roadway, the increasing numbers of bicycles and bicycling accidents have led to the conclusion that bicycles and automobiles should be separated if at all possible. Nevertheless, in urban areas the cyclists will still have to use public streets as feeder routes to the regional trail system.

#### Equestrian/Hiking Trail System

Two factors have worked to delineate the equestrian/hiking trail system from the bicycle/hiking trail system. First, it is difficult to find suitable equestrian routes through urban areas. Secondly, the equestrian's ability to negotiate more severe terrain than the bicyclist makes many more remote and scenic routes suitable for horsemen.

The equestrian/hiking trail system is based on two major north-south spines with four major east-west connectors. The north-south routes should follow:

1. The National Riding and Hiking Trail, with its connections, from Point Pinole through Wildcat Canyon, south along the Berkeley/Oakland hill ridges, through Hayward onto Pleasanton Ridge, then along Alameda Creek to Sunol Regional Wilderness.
2. The canal links and the San Ramon Valley from Port Chicago to Pleasanton, then down Arroyo Valle to Del Valle Regional Park.

In addition, the shoreline trail through Hayward between San Leandro Creek and Alameda Creek should be open to equestrian use.

The west-east connectors should be:

1. From Point Pinole along Pinole Creek, through Briones Regional Park, then along the Contra Costa Canal through Concord to Port Chicago and Antioch.
2. From the Contra Costa Canal at Ygnacio Relift Station, across Lime Ridge, through Clayton, then along Nortonville Road to Contra Loma.
3. From Redwood Regional Park, along the Utah Easement and Bollinger Canyon through Las Trampas Regional Park to Danville.
4. Along San Leandro Creek between the Bay shoreline and Lake Chabot.
5. From the Bay, along Alameda Creek flood control channel, then through Niles Canyon and along Arroyo de la Laguna to Pleasanton.

and vital links:  
Finally, there are for equestrians and hikers some loops and spurs/

13. Sibley (Round Top) Park to Orinda.

14. Mount Diablo State Park directly to Contra Loma.

15. Extension of California State Riding and Hiking Trail at its present terminus at Pine Hollow Road and Missouri Street to Mount Diablo State Park.

1. Lake Chabot to Las Trampas Regional Wilderness.
2. Las Trampas Regional Wilderness to Briones Regional Wilderness.
3. Pleasanton Ridge to Pleasanton via Tehan Falls.
4. Tilden Regional Park to Briones Regional Wilderness.
5. Sunol Regional Wilderness to Del Valle Regional Park (north and south routes).
6. San Ramon Valley to Mount Diablo State Park.
7. Dry Creek, from Walpert Ridge through Garin Regional Park to Alameda Creek.
8. Across the Vargas Plateau and along the Fremont Coastal Range Peaks from Niles Canyon to Monument Peak.
9. From Briones Valley School, northeast across Franklin Ridge and Martinez Ridge to Pacheco.
10. Tilden Regional Park to Orinda.
11. From the Ygnacio Relift Station along the Ygnacio Canal and Arroyo del Cerro to Mt. Diablo State Park.
12. From Clayton, along Donner Creek to Mt. Diablo State Park.

Some segments of the equestrian/hiking trail system have already been initiated by the Regional Park District. The following links already exist or negotiations are in progress leading toward their acquisition: (1) Alameda Creek flood control channel from the Bay shoreline to Niles Canyon; (2) Contra Costa Canal from Diablo Valley College to Willow Pass Road; (3) the Utah Easement; (4) the National Riding and Hiking Trail from Wildcat Canyon Regional Park to Chabot Regional Park; and (5) the California Riding and Hiking Trail. In addition, ~~a trail for hiking only is being developed through the Huckleberry Preserve area~~

a nature trail for pedestrians only (actually a single-file path) is being developed through the Huckleberry Preserve area. Also there should be some specified, interpretative trails for the physically handicapped--in particular, trails for the blind and those required to use wheelchairs.

#### PRIORITIES

To insure a reasonable balance, a definite fraction (an average of 15% seems about right) of land acquisition funds should be devoted to trails. Trails cannot readily

Because of inevitable limitations upon the funds available, priorities must be established for trail acquisition and development just as they must be for the acquisition and development of other parklands. ~~But trails cannot~~ be separated into high, medium and low priorities as has been done with the sites of other kinds of parklands that qualify for acquisition because the acquisition and development of trails are even more complex than the acquisition and development of other types of regional parklands. What can be done is to apply general policies to determine which of the various regional trail corridors are of high priority and then to allow the acquisition of trail links within those corridors to depend upon the availability of properties and the extent to which other public and private agencies offer cooperation including the expenditure of their funds for acquisition. The general policies which, in the opinion of OVERVIEW, should govern the allocation of effort on acquisition and development of regional trail links are these:

1. Trail links which are in great demand and which will serve a large number of users should be given high priority. (Often, but not always, these links will adjoin population centers.)
2. Trail links which contribute to the continuity of the overall trail system should be given high priority.

- 3. Trail links which are located in areas already having trails or which serve user groups already being well served should be given low priority.

Application of these policies results in the recommendation that the high priority corridors for acquisition and development be the following:  
 (of the land or the hiking rights)

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- Bicycle/Hiking Trail System**
- 1. The Bay shoreline, from Richmond (Point Pinole) to the mouth of Alameda Creek.
  - 2. From Martinez to Pacheco, then along the Contra Costa Canal through Concord to Port Chicago and Antioch.
  - 3. The San Ramon Valley from the Contra Costa Canal to Pleasanton.
  - 4. The Berkeley (and Oakland) city bicycle trail networks from the Bay to Lake Temescal, then along the Old Sacramento Northern Railroad grade to Walnut Creek.
  - 5. From the Bay along Alameda Creek flood control channel, then through Niles Canyon and along Arroyo de la Laguna to connect with the Livermore trails system.

- Equestrian/Hiking Trail System**
- 1. Along the National Riding and Hiking Trail from Point Pinole through Wildcat Canyon then south along the Berkeley/Oakland hill ridges to Lake Chabot.
  - 2. From Lake Chabot along San Leandro Creek to the Bay shoreline.
  - 3. Along the Bay shoreline from San Leandro Creek to Alameda Creek.
  - 4. From the Bay, along Alameda Creek flood control channel, then through Niles Canyon and along Arroyo de la Laguna to Pleasanton.
  - 5. From Redwood Regional Park along the Utah Easement and Bollinger Canyon, through Las Trampas to Danville.
  - 6. Along the Contra Costa Canal from Pacheco through Concord to Port Chicago and Antioch.
  - 7. Along the San Ramon Valley from the Contra Costa Canal to Pleasanton.
  - 8. Las Trampas Regional Wilderness to Briones Regional Wilderness.

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**IMPLEMENTATION**

The very concept of a Regional Trails System contemplates that one agency will have the ultimate responsibility for the design criteria, the rules concerning access and other such questions, and the distribution of public information concerning the regional trails system. This agency should be the East Bay Regional Park District, working in close and continuing cooperation with the counties, cities and other public agencies affected by the regional trails system.

Acquisition and development of even the priority links of the regional trails system will be an enormously complicated job, and will involve cooperation between the Regional Park District and many other affected government agencies. Many of the trail links are on lands already owned by public agencies; these should be made available without significant charge by lease or license of sufficient duration to justify the expense of improving the corridor for trail purposes. Where a proposed trail corridor is on private lands, it will often be possible to obtain a right-of-way (whether by fee title, or easement, or license) wide enough for the trail in the course of development approval by the local jurisdiction. And, where this does not prove feasible, there will at least in some localities be a willingness to use local tax funds for the acquisition of trail rights-of-way in recognition of the fact that a large majority of the users of any particular regional trail link will

no doubt be residents of the jurisdiction which the link traverses. In some such cases, local tax funds will be used for the acquisition of private lands which then can be conveyed or leased to the Park District at nominal cost for trail purposes; in other cases a local government will offer to participate jointly with the Park District, sharing costs of acquisition. The same possibilities exist for local governments to develop and improve trail links, either totally from their own funds or by contributing funds to a joint effort with the Park District. (A current excellent example of cooperation between the Park District, the public agency which owns an available right-of-way, and the cities through which the right-of-way passes is the Contra Costa Canal Trail now under planning.) The Park District should give priority for trail development to those places where the right-of-way is provided at no cost to the District because the property is already owned by the public, or where the local jurisdiction offers to share the cost of acquisition and development with the Park District. (Park District financing of Trails acquisition and development is discussed in Part 4, "Acquisition, Development, and Financing.")

But even acquisition and improvement of the trail corridor does not settle the question of responsibility for the regional trail network. There are still the jobs of maintaining and policing the trail links and the trailheads. Here no general rules can be laid down. The tasks should be allocated in the most efficient manner in order to reduce the total financial burden upon the taxpayers of the East Bay Regional Park District, who are, of course, also taxpayers of local jurisdictions. In some cases, where the trail corridor is adjacent to a road or to a right-of-way of another public agency, it would be most efficient for that agency to maintain the trail right-of-way as well as its adjoining facility. On the other hand, where the trail follows an independent right-of-way, there may be no public agency that has maintenance crews and patrol officers nearby and the Regional Park District should be prepared to take on this responsibility.

A distinction should probably be made between the agency that actually does the work of maintaining and policing a trail link, and the agency that bears the cost of this work. The Park District could, of course, agree with a local jurisdiction that one of the two agencies would perform the maintenance and policing operations, and charge the total cost thereof to the other on a periodic basis. Finally, where a regional trail follows a local street network, the local jurisdiction (city or county) should bear the responsibility for maintaining and policing the trail.

In summary, the regional trails system is just in the process of being born, and the questions of who will do the acquisition, development, maintenance and policing necessary to sustain this system, and how the costs will be borne, are still open to negotiation between all the public agencies that are jointly trying to meet the public interest in establishing the regional trails system. The East Bay Regional Park District should take the lead in these negotiations, seeking the maximum possible cooperation—including financial participation—from affected cities, counties and districts.

Saturday, August 25, 1973 (con't)

guest, Bill Horne, Mary Jefferds, Mr. and Mrs. Luther Linkhart, Paul Loze and his guest Kazutoshi Ichikawa (Loze works for the Moraga Company; Ichikawa is an exchange student sponsored by the Rotary Club of Tokyo), Bernice May, Brian Murphy, Jane Putnam and her guest, Molly Reeves, Sheila Saxby, Barbara Stone and her husband, Mr. and Mrs. Carl Strandberg, Carol Thompson, Sue and Bob Watson, Helen, and I.

We boarded the Revenge IV (a 63-foot Sea Scout boat belonging to Troop 16 of Piedmont) and began our tour of the shoreline and bay. We went north, staying as close to the eastbay shoreline as water depth would permit. We surveyed the Emeryville landfill and Watergate complex, the Berkeley shoreline (where Howard Cogswell would like to see a trail), Murphy Meadows, Point Isabel (where construction of the Bulk Mail Center could be seen under way), to Brooks Island. At Brooks Island, we turned back through the channel to view it from the north side. We proceeded along Point Richmond where we could view the site of the new George P. Miller Park and Nichol Knob, then under the San Rafael Bridge, past Point Molate and the little lighthouse island to Point Pinole, where he hooked up to the old dilapidated pier, shut off the motors, and had a sandwich lunch.

We then returned across San Pablo Bay, under the San Rafael Bridge and across to the Marin County side of the bay. We proceeded alongside Tiburon and then through Raccoon Straits between Angel Island and Tiburon. This area of the bay was filled with sailboats. It was windy and watery as we crossed the windpath coming in from the Golden Gate. We went across and had a close view of Alcatraz and then back to the Oakland port, our starting point. It was a nice day, somewhat cold, but sunny in the afternoon.

At a little after 4:00 p.m., I attended the meeting of the Subcommittee Chairmen of the Citizens Task Force to work on the Task Force's presentation to the EBRPD Board of Directors regarding the Master Plan. Present were Bill Dickinson, Sue Watson, Bernice May, Sally Germain, Janice Delfino, Dr. Emmes, Stana Hearne, Florence Buehler, and Bill Horne. I suggested that Dickinson serve as chairman and this was accepted. Bill suggested that we proceed in two steps: (1) amend the Master Plan as a result of our suggestions and (2) prepare and present a General Plan. The latter would be essentially a 10-page summary of Part I of Overview's Recommended Master Plan. We discussed, item by item, the 34 policies recommended in Part 2 of Overview's Recommended Master Plan as summarized in the document prepared by EBRPD staff. This group of Subcommittee Chairmen will meet again in about two weeks and it was agreed that I might be represented in my absence. I indicated that I would suggest Joe Engbeck for this role.

Rudholm planted our five oak trees today along the front of our field--three live oaks and two cork oaks. Dave used the Bonneville today to drive in to the campus to join one of the field trips of the Congress on Genetics. After dinner, I read the excellent articles on the energy crisis in the current (September) Science and Public Affairs--Bulletin of the Atomic Scientists while Helen and Steve watched television.

Sunday, August 26, 1973 - Lafayette - Berkeley - Lafayette

I hoed weeds in the field in the morning. Helen drove Dave in to Berkeley at 8:00 a.m. so that he could join one of the excursions, the one on bird watching, of the Congress on Genetics. Helen went to the San Francisco 49ers-Denver Broncos game at Candlestick Park with Earl Hyde and Alan Hollander. The 49ers won, 43-7.

I drove in to Berkeley and presided over a meeting of Citizens for Urban Wilderness Areas (CUWA) at the Roger Reeve residence from 1:45-5:30 p.m. Present were Joyce Burr, Susan Watson, Mary Jefferds, Marian Reeve, Roger Reeve, Margaret Tracy, Arthur Emmes, and Mary Lee Bowerman.

Arthur Emmes, representing PARC (Preserve Area Ridgeland Committee), and Mary Lee Bowerman, representing the Save Mount Diablo Group, accepted our invitations to join CUWA. We took up the following items:

(1) We reviewed and approved the CUWA comments on the Overview Recommended Master Plan to be sent to the EBRPD Board members and Dick Trudeau. To arrive at the final version, we edited the draft CUWA Committee Report prepared as the result of a meeting attended by the CUWA Subcommittee--Joyce Burr, Sue Watson, Margaret Bowman, Marian Reeve, and Lenora Strohmeier.

(2) We reviewed progress since the last meeting.

(3) Sue Watson reported on the Huckleberry Trail area and the remaining problems in connection with the horse trail bypass.

(4) Margaret Tracy of PARC made a presentation on The Ridgeland. We voted to support this grandiose, long-range plan of a continuous ridgeland open space from Point Pinole to south of Sunol. There will be a hearing on local aspects of this before the Planning Commission of Alameda County at the County Building on September 17, at which Marian Reeve will represent CUWA.

(5) Mary Bowerman made a presentation for the Save Mount Diablo Group. This group advocates acquiring the foothills area (Mitchell Canyon) as a higher priority than north peak through use of the \$1 million of presently available State funds. We indicated that CUWA will continue to support this point of view and Roger Reeve will write letters to William Penn Mott and Senator Thomas Nejedly, stating our support.

Helen drove in to pick up Dave at 8:30 p.m.

Monday, August 27, 1973 - Lafayette - Berkeley - Moraga

I attended a breakfast meeting at Sambo's Restaurant in Lafayette with Mayor Walter Costa, Bill Chilcote, and Richard Trudeau. The purpose of this meeting was to discuss with Dick Trudeau the possibility and form of support by the EBRPD Board of Directors for the Lafayette Save Open Space plan. Chilcote had prepared the attached summary, a copy of which was given to Trudeau. Trudeau said that the

## TOPICS FOR DISCUSSION NOV 11, 1973

LAFAYETTE! SOS. PLAN

PARK TO PARK

RIDGES & SLOPES

NO CITY COUNCIL ASSISTANCE

\$6,000,000 PROX 1700 ACRES (3,000-4000) <sup>ACRE</sup>

72 CENTS ON TAX RATE

2/3 VOTE REQUIRED NOV 6, 1973

PETITION TO CITY COUNCIL

## FRDPD PARTICIPATION POSSIBILITIES

PATROLING TRAILS (HORSE?)

TRAIL CONSTRUCTION (HIKING, RIDING)

PROPERTY OUTSIDE LAFAYETTE

APPRAISALS OF TYPICAL LAND

ROUNDING BOUNDARIES (BRIONES/LAFAYETTE)

ENDORSEMENT & OTHER SUPPORT

Monday, August 27, 1973 (con't)

indicated support by EBRPD would depend upon (1) the modification of the Master Plan to allow EBRPD a broader role in open space, which modification is being recommended by the Citizens Task Force, and (2) subsequent approval of such cooperation with Lafayette by the EBRPD Board of Directors. He indicated that the latter will probably require some discussions with individual members. We discussed a possible endorsement of the Lafayette SOS bond issue by the EBRPD Board, and it was agreed that Costa and Chilcote will work with Donn Black on preparing a resolution that might be used.

Trudeau and I told Costa about the proposal to have Costa and members of the Walnut Creek and Pleasant Hill open space groups make a presentation to the Citizens Task force prior to their visit to the Mount Diablo area on Saturday, September 8.

I told them about Mary Paige's conversation with me and the need to talk to people in the Happy Valley area. Chilcote will call Mary in this connection. We also discussed our impending television filming scheduled for this afternoon at 4:30 p.m. The concept of expanding the boundaries of Briones and Las Trampas Regional Parks to make the connecting trail possible as part of the EBRPD Master Plan was also discussed and noted by Trudeau.

I also told them about the visit by Anthony Lagiss, the proposed appearances before the Lafayette Jaycees suggested by Robert Kramer, and about my talk with Mike Fischer concerning our relationships with the Mount Diablo Regional Group of the Sierra Club Bay Chapter.

I stopped off at my office at the Lab briefly, then walked down to the campus to attend the memorial service at the Alumni House at 10:30 a.m. for William Monahan. The large Commons Room was packed with his friends. Harry Wellman made the opening remarks. Then Lynn Waldorf gave the eulogy describing Bill's career, after which Harry brought the ceremony to a close. I met a large number of my old friends during the next 15 or 20 minutes and conversed with them.

I called William Dietel, Vice President of the Rockefeller Brothers Fund in New York, as a follow-up to my letter to Dana Creel and at the suggestion of Creel's secretary. He indicated that Mr. Creel has asked him and another member of the staff to talk with me; we set an appointment for the late morning of November 2.

I had lunch in the cafeteria at the lower level with Liljenzin, Kratz, Norris, and others; later joined by Dave and his Washington friend Bill Howe who is now a graduate student in Molecular Biology and Genetics at the University of Arizona at Tucson. With them also were three of Howe's friends from the University of Arizona--Richard Hull and Sheila Coyne, graduate students in Molecular Biology and Genetics, and Joan Harper, a senior at the University of Arizona, interested in graduate work in the same field, possibly at Berkeley.

After lunch, we walked up to the HILAC Building where Al Ghiorso and I gave them a complete tour of the SuperHILAC and its experimental facilities, such as SASSY, FAKE, and so forth.

Monday, August 27, 1973 (con't)

I called Olaf Bloom in Stockholm at 1:45 p.m. about the itinerary for my visit to Sweden. He will meet us at the airport on Friday night and drive Steve and me to the Grand Hotel. He will then come by at about 8:00 a.m. on Saturday the 15th and drive us to Stora Skedvi, where we will have a family reunion. He said that many of the relatives will be present. Steve and I will then spend Saturday night at Stora Skedvi--they are gathering together a lot of beds. On Sunday we will ride back down to Stockholm to catch the plane to Oslo. I said that I will bring my 35mm China trip slides and he will have equipment for showing them.

I mailed to Gesellschaft Deutscher Chemiker the manuscript for my plenary lecture to be given at the IUPAC Congress in Hamburg on September 2. I sent to Lombard Squires a letter supporting the nomination of E. Philip Horwitz for the Ernest O. Lawrence Award (copy attached). I wrote Vern Knudsen, extending the greetings of Wei Yung-tsieh when we saw him at Nanking University, and Samuel Silver, extending Pao Chia-shan's greeting (they had known each other at the MIT Radiation Laboratory).

I mailed to Anne Keatley an edited account of my visits to institutes and universities during our trip in the People's Republic of China. I mailed the same report to Harold Fidler in lieu of a foreign trip report to the Laboratory (cover letter attached).

At 3:05 p.m., I called Joe Engbeck to review several matters prior to my departure for Europe. In regard to the Skyline Boulevard Project, I expressed my hope that he would carry the ball on anything that is needed while I am away. I told him of my conversation with Mary Jefferds, who was against the project at first because she thought the liability and upkeep would be too much. I explained how I had also discussed this with Fred Blumberg, members of CUWA, etc., and could see that it would be necessary to discuss this with each EBRPD Board member at appropriate times. I asked him to represent me, for the Trails Subcommittee, on the Citizens Task Force Committee of Subcommittees, which he said he would do. I suggested that he stay in touch with Bill Horne about this. I indicated that this committee will probably be very useful and described our meeting last Saturday. I asked him to be prepared to make a presentation for the Trails Subcommittee at Wednesday night's meeting of the Citizens Task Force; I noted that Bill Horne will have our written report available for general distribution. Joe said he will do this.

I mailed to the Board of Directors of the EBRPD and to Dick Trudeau the comments of CUWA on the Overview Recommended Master Plan (copy attached).

I drove to the offices of Cablevision (Channel 6) in Moraga, arriving at 4:30 p.m. Mayor Wally Costa, Bill Chilcote and I were filmed on a program covering the Lafayette Open Space bond election. The program ran about an hour, during which time we discussed generally the proposed Lafayette SOS bond issue, pointed out some of the areas and the plans for trails on the large relief map of Lafayette, and showed some slides of the area. We concluded by asking people who

August 27, 1973

Dr. Lombard Squires, Chairman  
General Advisory Committee  
U.S. Atomic Energy Commission  
Washington, D.C. 20545

Dear Lom:

I am writing in support of the nomination of E. Philip Horwitz for the Ernest O. Lawrence Award. I have become well acquainted with Horwitz during the past two years in connection with our mutual interests in devising chemical processes for the separation of superheavy elements.

Horwitz, with his coworker C.A.A. Bloomquist, has over recent years through an elegant and meticulous research program, developed chemical procedures for the rapid separation of the actinide elements. These are based on the utilization of high efficiency chromatographic columns using such extractants as di(2-ethylhexyl)orthophosphoric acid (HDEHP). He has broadened this program to devise efficient chemical separation processes for a wide range of elements, the homologues for the superheavy elements, and in this program he has utilized a number of new extracting agents, including a number of aliphatic amines. This work has served as a prototype and inspiration for others who are working in the general area of the chemical identification of prospective superheavy elements.

I am very favorably impressed by the careful, meticulous, and imaginative manner in which Horwitz carries on his research program. His work has gone a long way toward revolutionizing and replacing the traditional methods of chemical separation.

Lombard Squires

- 2 -

August 27, 1973

I believe that E. Philip Horwitz qualifies very well to be a recipient of the Lawrence Award.

Sincerely yours,

Glenn T. Seaborg

GTS/sms

August 27, 1973

Dr. Harold A. Fidler  
Director's Office  
4133 Building 50A  
Lawrence Berkeley Laboratory

Dear Harold:

As you know, Mrs. Seaborg and I visited the People's Republic of China from May 24 to June 10, 1973. We were members of a scholarly delegation sponsored by the Committee on Scholarly Communication with the People's Republic of China (CSCPRC).

The Committee has requested a report on my visits to institutes and universities. Enclosed is a copy of my report, together with a list of persons met, which may be of interest to the Laboratory or the Atomic Energy Commission. The report covers my visits to:

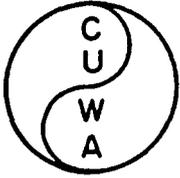
Institute of Geophysics, Peking (May 25, 1973)  
Research Institute of Atomic Energy for Utilization  
in Agriculture, Peking (May 26, 1973)  
Institute of Chemistry, Peking (May 28, 1973)  
Institute of Physics, Peking (May 29, 1973)  
Peking University, Peking (May 30, 1973)  
Institute of Physics (lecture), Peking (May 30, 1973)  
Institute of Atomic Energy, Peking (May 31, 1973)  
Tsinghua University, Peking (May 31, 1973)  
Nanking University, Nanking (June 3, 1973)  
Institute of Nuclear Physics, Shanghai (June 7, 1973)  
Science and Technology Center, Shanghai (June 8, 1973).

Sincerely yours,

Glenn T. Seaborg

GTS/sms

Enclosures



CITIZENS FOR URBAN WILDERNESS AREAS  
1052 MERCED, BERKELEY, CALIFORNIA 94707

August 27, 1973

Glenn T. Seaborg  
Chairman  
Thomas Bowman  
V. Chairman  
Geraldine Jackson  
Treasurer  
Roger Reeve  
C. Secretary  
Karen Davis  
R. Secretary

To the Board of Directors, East Bay Regional  
Park District: Marlin W. Haley, President  
Paul J. Badger  
Fred C. Blumberg  
Howard L. Cogswell  
Mary Lee Jefferds  
John J. Leavitt  
Clyde R. Woolrdige  
and General Manager Richard Trudeau:

I am enclosing a copy of comments by Citizens for Urban Wilderness Areas on the Overview Recommended Master Plan, as adopted at a meeting of CUWA yesterday.

These comments are tied to the EBRPD staff document, "Policies Recommended by Overview, Part 2 'Policies for Planning' of the Recommended Master Plan for the East Bay Regional Park District," a copy of which is also enclosed.

Glenn T. Seaborg  
Chairman

Enclosures

## CITIZENS FOR URBAN WILDERNESS AREAS

## Comments

on the Overview Recommended Master Plan  
for the East Bay Regional Park District

We think that, on the whole, the Recommended Master Plan is a good one and that the proposed policies for planning are good general rules. However, we feel that some revisions in basic policy statements or additions to them are in order, as follows.

1. Perhaps the most important need is a more aggressive land purchase philosophy. There needs to be a formulation of such an administrative policy to commit the District to implement this master plan.

This should include using all possible buying power available to the District and not waiting for either a bond issue or tax override before committing funds for purchase. Each delay means that more tax dollars ultimately will be spent.

2. We feel that an EBRPD bond issue should not be on the same ballot with the State Bond Issue. If land owners feel that EBRPD will have many millions more for land purchases, prices will soar.

However, we feel that a periodic review (preferably an annual review, as has been suggested by the Finance Committee) could determine the point at which such methods might be necessary.

3. We feel that a land bank philosophy should be spelled out. It is hinted at in various places, as in Policy 15 and 16, but it should be made more clear. Purchase of land piecemeal on a "pre-park" basis saves money not only for the District in any one year, but also gives the sellers a tax break in not having to pay capital gains on a total sale in one tax year.
4. Priorities should always include both development and maintenance costs. Small parcels of land with large development and maintenance costs have plagued EBRPD in the past, and we should encourage the District to avoid such traps. This is suggested in Policy 20.
5. We agree that resource analysis studies should be conducted for both existing and new parks. This has been suggested for old parks by the Subcommittee on Development of Existing Parks, paragraph 3, page 1 (report of August 7, 1973) and by Policy 30, step 5a.

However, there is a need to detail a method and a philosophy of land use based on resource analysis which should determine the carrying capacity of the land and the potential compatibility of various uses of the land, through a thorough vegetative and wildlife characteristics study. No overall site plan should be made except as the result of these vegetative and land assessments. Indeed, Overall Site Plans should follow hearings on the results of these resource analysis studies before plans for use are developed. This will lead to maximum protection of the land and optimum use of the total park resource.

6. We commend EBRPD for its present public hearing policy, but we are recommending a more structured way to get information to the Board. Usually formalized plans are presented to the Board before the Board has made a policy decision as to land use. We feel that the Board should receive a report of the resource analysis as well as the results of the public hearings before plans are formalized.
  7. One area which has not been mentioned anywhere but which needs more review in planning various park activities is the question of public safety and public security. The police function at the moment in some parks is so obtrusive that there is an annoyance, many times, of the park users. We feel that there should be minimum visibility of the present ranger force, including an optimum use of warnings before citations are issued. These suggestions underline the basic difference between a public relations function and a police function. This needs a special management study and, perhaps, the re-naming of the police force. The present term "ranger" is confusing to everyone who isn't from Texas.
  8. Along with our interest in the function of the public safety factor in our parks is the District's legal responsibility for injury or accident. We would like this legal responsibility spelled out, particularly with regard to Vehicular Recreation Areas and swimming pools.
  9. We feel that no formal programmed recreation except for interpretation and education should be the responsibility of the District. There is no objection to recreation facilities located where it is appropriate according to the land resource analysis, but EBRPD should not commit itself to large-scale planned recreation. We generally support Policies 18, 19, 20 and 21 with particular emphasis on Policy 21e. We would like to see Policy 17 read "diverse outdoor park experiences" rather than "recreation activities."
- Programmed recreation by concessions, lease, or non-profit organizations must receive Board approval and must be under continuing environmental monitoring and control of management to preserve environmental quality. The prime purpose for which lands are set aside must continually control their use.
10. One form of Park District responsibility has not been stressed--that is, the District has an important educational job to do in supplying leadership to explain the purposes and meanings of parks. One area where this can have great input is in the so-called urban threshold or urban wilderness area. Here large numbers of people can be taught how to use and get the most enjoyment from the natural scene which a park seeks to preserve. Shoreline parks are important examples--they will be used by large, mixed-age groups and will provide places where people can learn to treat and interrelate with the environment.
  11. Another need for the District is the buffering of park land from undesirable industrial activities, massive housing developments, freeway encroachment, etc. We suggest that EBRPD work cooperatively with all public agencies, delineating our areas of interest, to protect such land.

12. Another major area needing more thought is the management and development (or non-development) of Preserves. Indeed, the selection of sites needs careful analysis which we feel is not adequately detailed. To preserve an area selected for a very special value needs unusual management techniques. As an example, paths through such preserves ordinarily will not be part of a through-traffic trail system--indeed, often they must not be. Most preserves will need special vegetative and/or protective management, including such things as control of neighboring water supplies. Marshes can quickly disappear if water is diverted, and areas like Huckleberry Preserve can suffer severe damage if overwatering due to lawn irrigation is not controlled.

Therefore, there should be a definite allocation of funds for the preserve category. Within this category, the allocation should provide for a representation among the different types of preserves. The competition for preserves should not be that for scarce resources of either land or water. Rather, the balance should be sought between various botanic preserves, various wildlife preserves, and various geological or historic preserves, so that one type of preserve need not compete with a different type.

All types of preserves will serve a useful and important function for a regional park agency.

POLICIES RECOMMENDED BY OVERVIEW  
PART 2 "POLICIES FOR PLANNING" OF THE RECOMMENDED MASTER PLAN  
FOR THE EAST BAY REGIONAL PARK DISTRICT

CHAPTER 1 RECREATION DEMAND

Policy #1 The East Bay Regional Park District will initiate a program to monitor the number of users in all its parklands, the existing demand for the parklands, and the potential demand from present non-users.

A survey will be undertaken as part of a continuous monitoring program every ten years to guide the Park District in projecting demand, allocating resources, and planning management operations.

The monitoring system will consist of a three-part operation. Part I would be oriented toward determining the relative use of parklands and of areas within each parkland, and would be carried out on a routine schedule that could be integrated into on-going management and maintenance operations. Part II would be oriented toward learning who uses the parklands and how they use the parklands, information fundamental to any attempt at precise demand analysis or projection. Part III would be oriented towards finding out who does not use the parks and why.

CHAPTER 2 THE ROLE OF THE EAST BAY REGIONAL PARK DISTRICT

Policy #2 By adopting as its primary responsibility and role the acquisition of areas for parkland use and the conservation and improvement of these parklands for the purpose of making the outdoor environment available for the enjoyment and education of the general public, the East Bay Regional Park District can insure maximum efficiency in the allocation of its financial resources, provide the public with a firm definition of the Park District's role, and establish parameters for making policy decisions on the types of elements to be included within the regional parkland system.

Policy #3 The East Bay Regional Park District will adopt as its fundamental mission the acquisition of areas for parkland use and the conservation and improvement of these parklands for the purpose of making the outdoor environment available for the enjoyment and education of the general public.

Policy #4 A comprehensive study of historic site preservation, restoration, and interpretation will be undertaken. Ideally, this study should cover all nine Bay Area counties and should be administered by the Association of Bay Area Governments. At minimum, the study should encompass historic sites in the East Bay (Alameda and Contra Costa Counties).

Policy #5 Until the ABAG Historic Site Study is completed the East Bay Regional Park District should acquire points of historic interest only if they lie within larger land areas suitable for use as one of the categories of regional parkland.

- Policy #6 Scenic roads or parkways to be built in the two counties that comprise the Regional Park District should be built by the counties (or, within incorporated cities, by the respective cities) rather than the East Bay Regional Park District.
- Policy #7 The Regional Park District will request that it be informed of all proposed construction along parkland access roads, and should voice its opposition to the approval of any such construction that would detract from the scenic quality of the roads.
- Policy #8 As a long range goal, the Regional Park District will set out to restrict the development of, and where possible, eliminate unnecessary roads in its regional parklands.
- Policy #9 The East Bay Regional Park District will not undertake a program of acquiring, developing, or maintaining any single or system of roadside rests outside the regional parks. Roadside picnic areas within the regional parks should be provided, however, at appropriate locations.
- Policy #10 The East Bay Regional Park District will not seek additional legislative powers which would allow it to regulate non-park open space lands.
- Policy #11 The Regional Park District will take an active role with respect to the preservation of non-park open space within the District boundaries. The Park District will not acquire any non-park open space except in accordance with its own plan delineating what areas within its boundaries are actually of District-wide importance as non-park open space.
- Policy #12 Immediately upon adoption by Alameda and Contra Costa Counties of open space elements of their general plans and of "consistent" zoning ordinances, the Regional Park District will devote a major effort on a crash basis to (1) reviewing the two counties' open space plans (and any city open space plans which provide for regional-scale open space) and the ordinances intended to implement them, and (11) mapping those open spaces which local governments have earmarked for open space conservation and which the District finds to be non-park open space of District-wide importance.
- Policy #13 Pending completion of the Park District's Open Space Review, the Park District will acquire fee title (as compared to development rights or scenic easements) only in land areas that are so located and of such a character that they might some day either: (a) meet the Minimum Standards for one of the regional parkland types through the acquisition of additional surrounding lands; or (b) be suitable for transfer to another public agency for use as a local, state, or national parkland.
- Policy #14 None of the existing tax resources available to the Regional Park District (including the additional 5¢ tax that will become available in 1974) will be spent on non-park open space. In cooperation with the cities and counties, the Regional Park District Open Space Review will consider sources of new funds for the acquisition of non-park open space within the Park District boundaries.

Policy #15 A land area which does not, by itself, meet the minimum standards for any of the regional parkland categories but which has the potential of being "rounded out" into a viable parkland unit through the acquisition of surrounding lands may be acquired and held by the Park District without dedicating it to park use. A land area should be thus held for as short a period as possible. Generally, within five years a parcel should either be made part of a parkland assigned to a parkland classification and meeting minimum size standards for that classification, or transferred to another public agency.

So as to hold open all options for the eventual parkland or other use of the land, any area acquired under the preceding paragraph should not be opened to public access or public use. Any economic use of the area, such as grazing, crop production, or quarrying may be continued if this would not result in any conditions adverse to the eventual use of the land for park, recreation, or non-park open space uses. Simple measures such as controlled burning, erosion controls, and replanting may be undertaken if they would serve to enhance the natural values of the land and would be consistent with the most probable parkland classification eventually to be applied to the land.

Policy #16 The East Bay Regional Park District will accept the donation of fee title or of temporary use only of properties which either: (1) have the potential of being rounded out into a viable parkland unit meeting minimum standards through the acquisition of surrounding lands; or (2) have natural qualities which make continued existence in open space beneficial to the general public.

Policy #17 The East Bay Regional Park District will primarily provide for outdoor recreation activities.

Policy #18 To the greatest degree possible, active recreational activities will be separated from passive recreational activities, through the application of the Planning and Management Guidelines that are part of the Parkland Classification System.

Policy #19 The East Bay Regional Park District will emphasize providing for those recreational activities which encourage each individual to become an active participant in the activity rather than a passive spectator of such an activity.

Policy #20 In providing for recreational activities within regional parklands, the East Bay Regional Park District will emphasize: (a) accommodating the activities with as little adverse effect on the natural environment as is possible; (b) serving the activity needs with as general-purpose an area or facility as is feasible; (c) employing good land management practices in the continuing operation of the activity area; and (d) keeping maintenance and operations costs as low as possible.

Policy #21 To the extent feasible and compatible with surrounding uses, the East Bay Regional Park District will accommodate any unique recreational needs by permitting special interest groups, other public recreation agencies, or private concessionaires to stage activities within the regional parklands, providing the following criteria are met:

## Policy #21

Cont'd.

- a) The facility or event must be open to the general public and cannot be limited to the membership of any individual organization or group of organizations.
- b) The fee charged for competing in an event, watching the competition, or using a recreational facility, must be as low as possible to encourage maximum participation in the event. The fees charged by a special interest group or local recreation agency should be just high enough to off-set the cost of staging the event. The fees charged by a lessee or concessionaire should be comparable to those charged by others for similar activities.
- c) Some means must be provided for the general public to experience a featured recreational activity as well as to watch competition in the activities. In most cases, this will probably involve classes for beginners provided in conjunction with a competitive event.
- d) The facility or event must be compatible with the policies of the Parkland Classification System for the planning and management unit within which the facility or event is located.
- e) The development, operation, and maintenance of a facility must be done by the sponsor to the fullest extent possible, but with the planning and design of all facilities subject to the review and approval of the Regional Park District.

## Policy #22

The East Bay Regional Park District will provide an intensive program of nature education and interpretation through a cooperative effort of the Park District, other public land-holding agencies, and educational institutions.

CHAPTER 3. PARKLAND CLASSIFICATION SYSTEM

Policy #23 In addition to adopting a parkland classification system, the Regional Park District Board adopts the following general policy:

The Board of Directors may, by resolution, establish that a potential parkland site that does not completely meet the Minimum Standards for the particular type of parkland which the site would be designated is, nevertheless, suitable for acquisition, if the Board resolution explains in detail the deficiencies of the area with respect to the appropriate Minimum Standards and contains the following specific findings:

- A. Despite the deficiencies of the potential parkland site with respect to the Minimum Standards for the particular type of parkland which the site would be designated, the site still achieves the Purpose and Goals of that particular parkland category; and
- B. The site possesses outstanding qualities that outbalance its deficiencies under the appropriate Minimum Standards.

Policy #24 Regional Park and Regional Shoreline Classification (see pgs. 30-32 of Part 2)

Policy #25 Regional Recreation Area, Regional Shoreline, and Regional Vehicular Classification (see pgs. 32, 33 and 61 of Part 2)

Policy #26 Regional Wilderness Classification (see pgs. 33, 34 of Part 2)

Policy #27 Regional Preserve Classification (see pgs. 35, 36 of Part 2)

Policy #28 Regional Trail Classification (see pgs. 9-11 of Part 5)

Policy #29 Regional Open Space Reserve Classification (see pg. 37 of Part 2)

Policy #30 The Regional Park District will henceforth utilize the following six-step process in applying the Parkland Classification System:

Step 1. Preliminary Evaluation. Evaluate each potential site against the Minimum Standards for one or more of the regional parkland categories. Discard those sites that meet none of the Minimum Standards.

Step 2. Setting Priorities. Develop a high, medium, or low priority for acquisition of each site through the application of the Parkland Acquisition Criteria and Priority System.

Step 3. Acquisition Decision. Adopt Board resolution determining which sites to acquire.

Step 4. Designation of Parkland Classification. Adopt Board resolution designating each site acquired in one of the six major parkland categories.

Step 5. Developing and Adopting an Overall Site Plan. This step involves three separate actions, performed separately for each parkland site:

- a) Make a detailed resource study of the expected ultimate extent of the parkland area.
- b) Prepare an Overall Site Plan (OSP) for the parkland, based on the

resource analysis. (The OSP delineates the planning and management units within the parkland and establishes specific development plans to the greatest extent feasible.)

c). By resolution of the Park District Board, adopt the Overall Site Plan.

CHAPTER 4. PARKLAND ACQUISITION CRITERIA AND PRIORITY SYSTEM.

Policy #31 In order to determine which sites should be acquired for regional parkland use, the priority for acquisition of each site, and the "minimum" and "preferred" acquisition that should be considered. A four-step site evaluation process will be utilized. The East Bay Regional Park District will henceforth utilize this site evaluation process for periodic re-evaluation of the sites now recommended and for evaluation of sites proposed in the future.

Step 1. Determining Initial Eligibility. Evaluate each potential site against the minimum standards for one or more of the following regional parkland categories:

Step 2. Applying the Parkland Acquisition Criteria. Evaluate each potential site that meets one or more sets of minimum standards by rating it "high," "medium," or "low" depending on how well the site measures up to the requirements for each of the following criteria:

- Relative Suitability
- Need/Demand
- Accessibility
- Threat of Loss
- Ease of Acquisition

Step 3. Applying the Priority System. Compare each qualifying site against other sites in the same category of parkland. This step involves four separate actions, performed separately for each parkland category:

a) Establish a "weight" - Above Average (A+), Average (A), or Below Average (A-) - for each of the five criteria to reflect its importance in evaluating sites in that category.

b) By means of "flow charts", graphically combine the weighting of each criterion with the ranking (High, Medium, or Low) as to that criterion of each site in that category of parkland.

c) Run all the sites through the flow chart designed to reflect the weighting of the criteria for the appropriate parkland category.

d) Group the sites into High Priority, Medium Priority, and Low Priority acquisition groups, depending on their order of weighted rankings as indicated by the appropriate flow chart results.

Step 4. Determining Minimum and Preferred Acquisitions. Evaluate each potential parkland site, using a list of guidelines, to determine what parcels comprise the "minimum acquisition" and the "preferred acquisition" for each site.

APPENDIX

Policy #32 As soon as the AC Transit bus network has stabilized in its post-BART-opening framework, the Park District and AC Transit will jointly study whether marginal extension of any of the existing lines and/or marginal increase in the days and frequency of service of any of these lines might appreciably increase the use of transit service to the parks, particularly for those segments of the population that may not have automobiles. It is further recommended that at least an interim report on this subject be made to the Citizens Task Force not later than September 15, 1973 and that the Citizens Task Force cover this item in its recommendations to the Board of Directors before the end of 1973.

Policy #33 The external use of alternative transportation systems (such as A/C Transit) might correlate very well with the need for alternative transportation systems within some of the regional parklands. The needs of the entire Park District for such vehicles will be determined before buying a system for one parkland, no matter how immediate the need at one park may appear to be. Determining the needs of all the parklands should be a high priority for the Park District during 1973. The criteria for such internal transportation equipment should be perfected before ordering transportation units.

Policy #34 The Regional Park District should consider completely abandoning user fees for its general facilities, and should evaluate the net effect of the prospective loss of income versus the prospective savings in personnel and equipment.

wanted more information to get in touch with Bill Chilcote, and members of Lafayette SOS would then try to meet with them.

After the program, the Program Director of Channel 6, Frank Logan, talked to me and said that his mother, Alice Logan, had worked for me at one time. He said that this program will be shown on Channel 6 Cablevision--which covers the south side of Mount Diablo Boulevard--in about three weeks but that it may also be shown later by Televents, which covers the north side of Mount Diablo Boulevard and is the cable company which covers our home.

Dave again spent the day and evening on the campus attending the Congress on Genetics. Steve visited his friend Brent. Suki and I took a hike to the water tank. I talked to Irene Torngren, who was with a group playing tennis on our court. She offered her full time services to work for Lafayette SOS.

I called George Cardinet, who was in Wyoming, at 7:00 p.m. and asked him to serve as a backup to Joe Engbeck on Trails Subcommittee presentations during my absence in Europe; he said he would be glad to do this.

Tuesday, August 28, 1973 - Berkeley

Dave rode in with me so that he could attend the Congress on Genetics.

I called Henry W. Littlefield, Executive Vice President of the Charles Dana Foundation in Greenwich, Connecticut, at 8:50 a.m. to ask if we could arrange an appointment there on November 2 in connection with our AAAS building fund-raising project. He indicated that he doubted such a conversation would be productive because the Dana Foundation Board has screened and attached priority to some 60 project applications, while they only award 5 or 6 projects per year. He suggested that I keep him informed about our project and that we might be able to talk in another six months, after which they will begin to review projects again. I indicated that I will call him a little before my November trip to explore the possibility of an appointment.

At 9:30 a.m., I attended a meeting of the Planning Group for the superheavy element program in Ghiorso's office at the HILAC Building. Present were Ghiorso, Jose Alonso, Carol Alonso, and Matti Nurmia. We talked about the problem of the Adam source for the SuperHILAC and the need to install a new column. We also planned the practice experiment for element 106 whereby Nurmia will bombard dysprosium fluoride to look for volatile tungsten isotopes.

At 11:30 a.m., I went by to see Ted Norris and, on the way back to my office, ran into Jol Liljenzin and said goodbye to him--thanking him and complimenting him on his great accomplishments during his stay here.

Paul Lochak called the office to discuss further the arrangements for my visit in France. He talked first with Sheila, then with me at the HILAC, and called back again shortly after 12:00 p.m. We went over the details of my itinerary. I will visit Orsay and Saclay on

Tuesday, August 28, 1973 (con't)

Monday, September 10. We will go to Brussels on September 11, meeting with EDF people on September 12, with the Ministry of Industrial and Scientific Development people on September 13. He requested a short synopsis of my lecture to be given at the American Embassy on September 13 which will be used in lieu of simultaneous translation.

I called Ann Chilcote to tell her of Irene Torngren's offer of fulltime help for Lafayette SOS and then had lunch at the table outside the lower level of the cafeteria with Franz Plasil (of the GROLLs group), Hans Gutbrod (who is completing his stay at LBL), Earl Hyde, Dave Shirley, and Wladyslaw Swiatecki.

At 2:30 p.m., John Maga, Executive Officer of the State Air Resources Board, returned my call. I invited him to speak on air pollution at our Co-Chairmen's Symposium at the AAAS Annual Meeting. I suggested that he cover what air pollution does to us, what its future is, and how it will affect the Bay Area in the 1990's. I emphasized that the focus of the symposium will be on the Bay Area, but it is hoped that similarities to other parts of the country would be developed, using the Bay Area as a prototype for solutions for the rest of the country. Maga agreed to give the talk. He said that the future of the air pollution problem in the Bay Area is like that of San Diego or Los Angeles.

I called Harold Ticho (Department of Physics, UCLA) at 2:55 p.m. to give him my views about the desirability of Andrew Sessler as the next LBL Director. I countered a number of arguments that he had received from others about Sessler's "inability to stick to projects" such as the electron ring accelerator and the Energy and Environment Program. I explained that he dropped the former when it appeared to be unfeasible and he saw the other through until it was taken over by Hollander.

I mailed further AAAS literature to Charles Horn at the Olin Foundation in Minneapolis. I completed and mailed to Paul Lochak a synopsis of my talk, "Energy for the Future," to be given at the American Embassy in Paris on September 13. I mailed to William Golden, William Bevan, Leonard Rieser, and Fran Freeman a status report on my approaches to foundations for the AAAS building project (copy attached).

In the afternoon, Dave drove to Walnut Creek to attend his court hearing on his citation for speeding; he asked for and received a postponement because of the large number of cases ahead of his. Steve drove to Davis to his rented house to pick up some of his clothes preparatory to his trip. Suki and I took a hike to the water tank. After dinner, Dave brought his friends Joan Harper, Dave and Karen home to spend the evening.

Pete and Jane called to tell us her uncle Alfred Leberfeld (her mother's brother) has died. Jane will fly to New York for the memorial services, returning to Washington the same day. Pete and Jane will drive to New York to spend the Labor Day weekend. He started Law School at Georgetown University this week and finds it

*American Association  
for the Advancement of Science*

GLENN T. SEABORG  
Chairman, Board of Directors

LAWRENCE BERKELEY LABORATORY  
UNIVERSITY OF CALIFORNIA  
BERKELEY, CALIFORNIA 94720

August 28, 1973

To: William Golden  
William Bevan  
Leonard Rieser  
Fran Freeman

From: Glenn T. Seaborg

Re: Status Report on Approaches to Foundations for  
AAAS Building Project

I have now contacted each of the foundations on our initial list. Appointments have been scheduled, as indicated below, around trips eastward on August 29-30, around the period October 11-12, and November 1-2.

Charles A. Dana Foundation. I talked with the Executive Vice President, Dr. Henry W. Littlefield. He reported that they will not be making further pledges for another six months. I will call him again before my November trip, in the hopes of an exploratory conversation on the afternoon of November 2 at his office in Greenwich, Connecticut. He was very pessimistic.

Jonsson Foundation. I have an appointment with the President, Philip R. Jonsson, in Dallas at 2:30 p.m. on August 29.

W. K. Kellogg Foundation. I have talked by phone with the President, Dr. Russell G. Mawby. We will meet in Chicago on either Friday evening, November 2, or Saturday morning, November 3. I mailed to him our proposal and the packet of AAAS literature.

Kresge Foundation. I will meet with the President, William H. Baldwin, at his office in Troy, Michigan, at 12:00 noon on Thursday, August 30. He informed me that Kresge has committed its 1973 funds and will not be open for formal applications until January 1, 1974; however, "this does not preclude a preliminary discussion."

Lilly Endowment, Inc. Through his secretary, Miss Morrison, I am scheduled to meet with the Executive Vice

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President, Landrum R. Bolling, in Indianapolis on Thursday, October 11, at 11:30 a.m. through lunch. She indicated that he may be in Washington at the same time as I during that week, in which case we may try to arrange to meet there. She mentioned that their Board had recently had a meeting on Lilly's policies and priorities for the future.

Andrew W. Mellon Foundation. Through his secretary Margaret McKenna, I have arranged for an appointment with Nathan Pusey at his office in New York on Friday, November 1, at 9:30 a.m.

Seeley G. Mudd Fund. In Robert D. Fisher's absence, I talked with his secretary, Miss Wright. I suggested October 26 as a possible time for a visit with him in Los Angeles, but the chances are not good that they will take it. She indicated that the conditions of the Trust are such that they only support building construction at privately supported colleges, and "she would be surprised if the Trustees would bend here." (A subsequent review of Golden's letters of January 4 and 31, 1973, however, suggests that there might still be a possibility here.)

Olin Foundation. I had a lengthy, and certainly stimulating, phone conversation with the President, Charles L. Horn, at his law office in Minneapolis. (My experience confirms the legends about his reputation.) He declared "No chance!" at least five times during our conversation. But I pressed him and may be able to get an appointment in Minneapolis on Friday, October 12. He told me that Olin Foundation has no money to commit until 1975. Their procedure is not to share the funding on any project that they undertake [apparently, in our case, this would even include the proceeds from the sale of our present building]; they normally go onto a small independent campus, completely build and fully equip a building, and then turn it over to the college. I mailed to him in triplicate an accordingly edited version of our proposal, and a package containing the Handbook and 1972 and 1973 Annual Meeting programs.

Research Corporation. I have an appointment with the President, James S. Coles, at his office in New York on November 1, at 11:00 a.m. He indicated that he is not optimistic about support from Research Corporation for AAAS because they are experiencing a greatly increased demand upon their supply, particularly for projects that previously had Federal funding. Nonetheless, he is willing to talk.

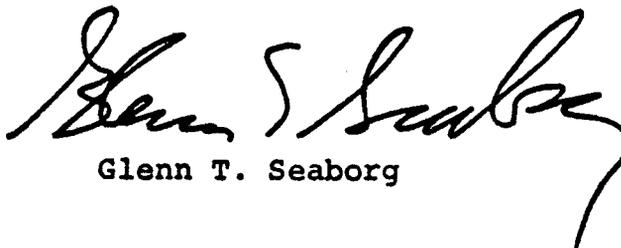
Rockefeller Brothers Fund. I talked with the Vice President, William Deitel, and am scheduled to meet with him

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August 28, 1973

in New York on November 2 at 11:00 a.m. He indicated that Dana Creel had asked him and another staff member to meet with me; it is not clear whether or not Creel will be present at this meeting.



Glenn T. Seaborg

/sms

Enclosures

challenging, interesting, but tedious and somewhat difficult. Jane has taken on some group leadership responsibilities at the Psychiatric Institute on a temporary basis.

Wednesday, August 29, 1973 - Lafayette - Dallas - Detroit

Helen drove me to the San Francisco Airport where I boarded American Airlines Flight No. 496, which left at 8:15 a.m. and arrived in Dallas (Love Field) at 1:15 p.m. I checked my two bags in two lockers, had a bite to eat in an airport coffee shop (the Soda Fountain), and took a taxi to the Republic Bank Tower, the headquarters of the Jonsson Foundation.

Arriving a little early, I went directly to the office of the President, Philip R. Jonsson, on the 33rd floor (Room 3300). I was ushered into his office immediately, beginning our meeting at about 2:20 p.m. His secretary, Ruth Yates, served me a cup of tea. He began by telling me he is familiar with my accomplishments; he obtained a degree in physics from MIT and has been in business ever since. He is in the oil and gas business, owns radio station KRLD (a CBS affiliate) in Dallas, is a member of the board of TAGER, the Association for Graduate Education and Research of North Texas, and an educational TV network for a number of colleges in this area of Texas. (He gave me a copy of the Annual Report, 1971-72, and the Bulletin, Fall 1973.)

I described the nature, purposes and program of AAAS, its growth and need for a new headquarters building. I went on to describe the expanded concept of a National Science Center, the projected cost and location of the presently planned building. I indicated a total cost of \$7 million, of which AAAS will furnish \$1.5 million from the proceeds of the sale of its present building. In response to his inquiry about a possible mortgage to further help defray the cost, I said we recognize this as a fall-back position but would prefer to raise the entire \$5.5 million either from one source or from a consortium of foundations. I indicated our willingness to name the building after a major donor. I gave him a copy of the draft of our brochure, explaining that the indicated request for \$1 million is only to be regarded as an example and not a formal request to the Jonsson Foundation for that exact amount. I also gave him a copy of the AAAS Handbook and said I would have Mrs. Saxby send him immediately, before my return from Europe, the other AAAS material referred to in the brochure.

He indicated that, although the presently available funds are all committed, this proposal is sufficiently interesting to bring to the Board of Trustees of the Jonsson Foundation for consideration for a future possible object of support. The Board, which will next meet in October, consists of members of his family--his father and mother, Mr. and Mrs. John Erik Jonsson, his brother Kenneth A. Jonsson (also a physics graduate of MIT, lives in Los Angeles, has an interest in radio station KRLD, and is head of a foundation that supports research in cancer at places such as UCLA), his sister Mrs. George Charlton, who lives in Dallas, and himself. He will talk to his father about our project and request and, depending on his degree of interest, will present it to the Board at its October meeting, then will let us know

Wednesday, August 29, 1973 (con't)

if there is no interest or if they want to pursue it further. I offered to have AAAS people come down to Dallas to explain the proposal further if their interest warrants. He said he appreciated this offer. He indicated that the Jonsson Foundation couldn't cover the entire project because this total is comparable with their entire worth, but did indicate a donation as part of a consortium is consistent with their philosophy.

Our conversation continued in a wide-ranging manner. His father is now retired, serves as Honorary Chairman of Texas Instruments, and has his office in the same suite as the Jonsson Foundation. He called his father's office with the view of our walking down the hall to meet him but, unfortunately, he happened to be at Texas Instruments this afternoon. His father is Swedish with both parents born in Sweden; they met and married in this country. I noted the coincidence of names with my son, John Eric III, and Eric's great grandparent. When I told him my sons Eric and Steve attend Davis, he said his son Mark will begin his junior year and son Mike his freshman year at Davis this fall. When I told him that I am going to give a talk at Davis on October 23 in my role as University Professor, he said he will ask Mark and Mike to attend so they can meet Steve and Eric.

He indicated that he would like to have me meet Nell Johnson, his father's assistant, but she is away on a long overdue vacation. He also said he would like me to meet Dr. Bryce Jordan, President of the University of Texas, Dallas (formerly the Graduate Research Center of the Southwest when it was headed by my friend Lloyd Berkner).

The conversation ranged into my visit to the People's Republic of China and I gave a general description of my observations about this visit. I said I would send him a copy of my China Journal. He was familiar with and much interested in my background, in educational television, membership on the NET Board, etc. I told him about the Welch Foundation and my membership on the Scientific Advisory Board and also a little about Science Service.

The conversation went on for about two hours, at which time it was necessary for me to leave to catch my plane. He walked with me to the nearby Sheraton Hotel to help me catch a taxi. He seemed genuinely pleased that I had made a special trip to Dallas to visit him. I told him this was my first visit to a foundation in connection with this project.

I travelled by taxi to the airport and arrived just in time to pick up my bags and board American Airlines Flight No. 266, which left at 5:15 p.m. and arrived in Detroit at 8:30 p.m. As I was picking up my bags, I met Farno Green and Peter Hochstein of the General Motors Technology Center. They referred to their contract with Kevex to develop a process using Cd-109 to measure carburetor emissions. Hochstein is particularly concerned with this. They are pleased with the progress and the fact that the price of Cd-109 has dropped by a factor of 2, of great importance if the process is put into widescale use. I put my big bag in a locker, took a courtesy bus to the nearby airport Ramada Inn, and checked into Room 159.

Thursday, August 30, 1973 - Detroit - New York

I had breakfast in the Inn restaurant and checked out a little later. At 10:15 a.m., I took a taxi to Troy for my meeting with William H. Baldwin, President, the Kresge Foundation (7th floor, Standard Federal Savings Building). Arriving a little early, I took a walk on the grounds of the nearby Somerset Golf Club, then went up to Baldwin's office at 11:45 a.m. He was in the adjoining office of his law firm, soon came out, and escorted me to his office as President of The Kresge Foundation, then almost immediately drove me to the Bloomfield Country Club for lunch.

He told me a little about his background and that of The Kresge Foundation and its founder, Sebastian Kresge. Baldwin's mother's name was Jensen and her parents were born in Denmark. His father served as an attorney for The Kresge Foundation when Sebastian Kresge was alive, having earlier served as the first Mrs. Kresge's attorney in her divorce proceedings.

I told him something about the background of AAAS, its purposes and future plans. I indicated that the building needed to accommodate future needs and those of a National Science Center is estimated to cost \$7 million, of which \$1.5 million can come from the sale of the present AAAS building. I said we would be pleased to receive the total amount from a consortium of foundations. When I said that AAAS would be willing to name the building after a major donor, he said this is not a matter of concern to The Kresge Foundation--they would even approve the naming in honor of another partial donor should Kresge turn out to be a partial donor.

Baldwin then told me something about available funds from The Kresge Foundation. These depend on the income from their corpus, the requirements of the foundation reform act of 1969, and the consequent possible requirement or wish to spend some money from their corpus. They have already made preliminary commitments for some \$14 million of their 1974 grants which could turn out to be nearly all they will spend, or their expenditure could be more than twice this--they won't know until next May, by which time their decisions will be made.

Applications, in the form of letters, which typically run as short as one page up to considerably longer, backed with as little or as much supporting material as is considered by the applicant to be appropriate, are due immediately after January 1. Applications dated before about December 28 of this year will be returned for resubmission in early January. By early January, they mean the first few days in January, certainly not any later than the first week or so.

He will cover my meeting with him today with a memorandum which will be the beginning of a file on the AAAS application. He was very favorably impressed that I had taken the trouble to pay him a special visit and today's date will establish a kind of chronological position in comparison with other competing applications.

They receive some 600-800 applications per year and each is carefully evaluated. He said they will surely not be able to give us a grant covering the entire amount. It is difficult to judge what he

would consider a reasonable grant, but he used examples in the range of a few hundred thousand dollars in describing some multiple-funded projects they have participated in. (Perhaps a request for about \$1 million would be reasonable, but I named no figure.)

Although he wanted no material before our application is sent in, I did give him a copy of our draft brochure (saying the mentioned \$1 million is only used as an example) and of the AAAS Handbook for use to help him prepare his memorandum. We shouldn't send him any more material now but should accompany our January application, which should be a personalized letter, with the packet of backup material.

The six Trustees include Stanley Kresge, a son of Sebastian Kresge, and another Kresge. The allocations of available funds will be made by the Trustees by next May. AAAS will have to show in detail where the total amount will come from and any grants will be contingent on our procuring the promised funds. The Kresge Foundation gives "brownie points" for producing matching funds, although I wasn't clear on whether this applies to funds from other foundations.

Our conversation continued, covering our families, my forthcoming trip to Europe, etc. He has four children--a girl (through college), a boy now in Australia, and two younger girls still about college age. I told him about our visit to the People's Republic of China and, in view of his interest, promised to send him a copy of China Journal.

After lunch, I rode with him back to the Standard Federal Savings Building where I took my leave of him. The taxi driver, at his request, had waited for me, so I rode back to Detroit to the Metropolitan Airport with him. Here I boarded American Airlines Flight No. 584, which left at 3:30 p.m. and arrived at New York LaGuardia Airport at 5:00 p.m. I took a taxi to the International Hotel, near Kennedy International Airport, and checked into Room 639.

I then took a taxi to Kennedy International Airport and met Steve as he came in on TWA Flight No. 800. We then took the International Hotel courtesy bus to the International Hotel. I called Sheila at the office to be brought up-to-date on recent correspondence, business, etc. Steve and I then had dinner in the coffee shop and spent the rest of the evening until bedtime in our room.

Friday, August 31, 1973 - New York - London

Steve and I had breakfast in the coffee shop, checked out and took a taxi to the Pan American section of Kennedy International Airport. Here we checked in on Pan American Flight No. 100. We spent a little time in the first class lounge by invitation. I had my carry-on bag x-rayed in the weapons search process at the control point. We boarded the flight, which left at 10:30 a.m. and arrived in Heathrow Airport, London, at 9:40 p.m.

We went through passport control and customs (just a walk through), then were met by Mickey Rubenstein (Jane's brother) and his friend Yvon. Yvon drove us in her little Mini, our four bags fitting in with some difficulty, first to the Heathrow Hotel (which was the

wrong place), then to the Sheraton Heathrow Hotel, where Steve and I checked into Room 2080 on the second floor. (This was automated with a soft, hard drink, beer dispenser, oven for dispensing a continental breakfast, coffee, etc.)

We then set out on a tour of London with Yvon driving in her Mini. We drove on Highway M-4 in to West London. We drove by Earl's Court (an American section of West London), the Chelsea district, the Embankment, where we stopped to view the Thames River at Chelsea Ridge near the Buttersea Bridge, the home of Sir Thomas More, Chaney Road, Carlyle, Kings Road, the headquarters of the Duke of York, Victoria Station (terminal point of trains from the continent), Westminster Abbey and Parliament Square with Big Ben striking midnight as we passed by, Whitehall, 10 Downing Street, Trafalgar Square, National Gallery of Art, The Mall, Sir James Palace, Sir James Park and Green Park, Buckingham Palace, Hyde Park Corner, home of Duke of Wellington, Royal Academy of Art, Piccadilly Circus, Shaftesbury Avenue, the Soho District, the Bloomsbury District, the British Museum, the London School of Economics, and the Old Curiosity Shop.

We then passed by Temple Bar and entered the "City of London." Here we drove down Fleet Street (where the newspapers are centered), St. Paul's Cathedral, London Bridge, the Tower of London (where we stopped for a closer look), King William Street (the financial district), Bank of England, the Royal Stock Exchange, Center Point (a modernistic office building never occupied), the Post Office Tower (tallest building in Europe), Oxford Circus, Selfridges Department Store on Oxford Street, Marble Arch with the nearby Hyde Park Speaker's Corner, Harrod's Department Store (which sells everything), and Imperial College. We then headed back to the Sheraton Heathrow Hotel via Highway M-4, arriving at about 1:30 a.m.

Steve and I thanked Mickey and Yvon for the marvelous tour of London, said goodnight, went to our room and immediately retired for the night.

Saturday, September 1, 1973 - London - Hamburg

Steve and I had breakfast in the hotel coffee shop, checked out, and took the Sheraton Heathrow Hotel courtesy bus to Terminal 3 of London Heathrow Airport. We were scheduled to depart on Pan American Flight No. 104 at 11:15 a.m. However, there was a fantastic line-up of people at each of about eight ticket counters and it took us nearly an hour to reach a check-in point (where we checked three bags). By this time it was 11:30 a.m., but fortunately the flight departure was delayed, they said until 12:15 p.m.

I stood in line next to Salvador Luria, who recalled that we were both awarded honorary degrees at the same commencement at Rutgers. He remembered my conversation about Dave, inquired about him, and said I should advise him to emphasize the fundamentals--chemistry, biochemistry, mathematics.

We went through passport control and spent nearly another hour in the waiting room, boarding Flight 104 at 12:30 p.m., after going through the weapons search point with one carry-on bag. The flight

took off at 1:00 p.m., after waiting another 20 minutes for some transfer of mail, and arrived in Hamburg at 2:15 p.m.

We went through passport control and customs (just a walk-through), changed some money (240 Deutschmark for \$100), and took a cab to the Loews Hamburg Plaza Hotel, which is located next to the Congress Centrum. It was drizzling a little and the traffic was very heavy, so we didn't arrive at the Hotel until 3:30 p.m. We checked into room 1523. There soon was a knock on the door and a boy delivered a little box, "Höchster Porzellan," containing three ashtrays, with the compliments of Gesellschaft Deutscher Chemiker and Farbwerke Hoechst A.G. (and a little pamphlet with the history of Höchster Porzellanmanufaktur). Also included were welcoming letters from Dr. W. Fritsche of the General Secretariat of the XXIVth IUPAC Congress and representative of the Gesellschaft Deutscher Chemiker and Professor Dr. Franz Lux of the Institut für Radiochemie der Technischen Universität, München, and a briefcase of material connected with the XXIVth IUPAC Congress.

We noticed from our hotel room an area that looked like a large park and decided to go down and explore. We found that we had to pay 3 DM each to enter, then found ourselves at IGA Hamburg 73 (Internationale Gartenbauausstellung)--a kind of world's fair. We walked around in the drizzle, ending up at the far end where the modest exhibits of the various countries were situated. We visited Sweden's exhibit, a couple of small shed-like structures with a few simple Sweden items in them. We then took the small train back to the Fernsehturm (resembling the Space Needle of the Seattle World's Fair) where we took the elevator up 128 meters to the restaurant level. We had dinner at the stationary level just below the rotating circular dining room. Here Steve and I had a good talk about his girl problems. We then walked back through the IGA Hamburg 73 grounds to the adjoining Congress Centrum Hamburg and Loews Hamburg Plaza Hotel and went up to our room. We watched TV and read during the remainder of the evening.

#### Sunday, September 2, 1973 - Hamburg

Steve and I had breakfast in the hotel coffee shop, after which Steve took a walk and I studied the slides and material for my plenary opening lecture this afternoon. Tom O'Connor of USIS (America House) called to ask me to speak to Hamburg businessmen about nuclear power plant environmental questions.

We had lunch in the coffee shop, then went to the neighboring Congress Centre registration area. Here we met Ghiorso (just arriving), Don Ferguson, Bob Silva, Greg Choppin, Basil Kanellakopoulos, Robert Cairns (of ACS), Ivo Zvara, Georgy Flerov, Cornelius Keller, and others. I talked to J. Benard (University of Paris), past President of IUPAC, and Sir Harold Thompson, President of IUPAC, who told me that in the meetings of the Executive Committee, ratified by the Council, held in Munich last week, it was decided to create a Joint Commission of IUPAC and IUPAP to settle the controversy over the discovery and naming of elements 104 and 105. Steve and I then returned to our room for a while and I went over my slides again.

Sunday, September 2, 1973 (con't)

At 4:00 p.m., we went down to the Congress Centre Hamburg and met more people: Spitsyn, Herrmann, Ahrens, Trautman, Fritz and Ann Weigel and their two sons, Chwa-Kyung Sung of Korea, Joe Peterson, Nobufusa Saito (University of Tokyo, whom I met with Sagane at Berkeley more than 20 years ago), and others.

We then went to Room 2, where the plenary opening session took place. We sat in the front row as the session opened with some Bach music by a string orchestra. Following this, we had the welcoming addresses by: Dr. Feodor Lynen, Munich (BRD), President of Gesellschaft Deutscher Chemiker; Professor Sir Harold Thompson, Oxford, President of IUPAC; Bürgermeister Peter Schulz, Hamburg (BRD), President of the Senat of the Free and Hansestadt Hamburg; and Professor Dr. Horst Ehmke, Bonn (BRD), Federal Minister for research and technology.

Following this there was an intermission of about 45 minutes, then we reconvened. Professor Lynen introduced me and I gave my talk, "Status Report on the Transuranium Elements," illustrated with about 80 slides, lasting about 70 minutes (until 7:30 p.m.). Just before my talk, I gave a copy of my manuscript to Dr. Schwochau for publication in extract form in *Naturwissenschaftliche Rundschau*.

After my talk, Dr. Masanobu Sakanoue (Radiochemical Laboratory, Faculty of Science, Kanazawa University, Kanazawa, Japan) asked me to send him reprints (C & EN, Dec. 1945 and Nucleonics, 1949) of my most important classical work on actinide theory, which will be cited in the historical series on "periodic table" which the Chemical Society of Japan is preparing.

I then went out in front of the Congress Centre Hamburg and had my picture taken with Lynen for Congress purposes under the guidance of Dr. H. Grünewald, press officer of the German Chemical Society.

Steve, Ghiorso and I then went to the restaurant at an upper level of the Congress Centre (Kranler Hamburg im Congress Centre Hamburg) and had a bite to eat.

Steve and I returned to our room for a moment, then went down to the Congress Centre to attend the reception in Room 3. We joined Sir Harold Thompson, Dr. Lynen, Dr. Benard, Dr. Maurice Williams (Executive Secretary of IUPAC, situated at Oxford University), and others. Benard found Flerov and Zvara and brought them over to talk with me about possible names for the Joint Commission on the naming of 104 and 105. Names such as Sergei Kapitza, Vitalii Goldanskii, Bonifatij Kedrov, Sven Björnholm, Jean Fuger, Marc Lefort (or Bouissieres), Gunter Herrmann, B. J. Trzebiatowska, Earl Hyde, Lew Keller, and George Cohen (or Robert Penneman or Darleane Hoffman) were mentioned. Flerov, with Zvara translating, also talked about a cooperative Berkeley-Dubna experiment, such as the bombardment of Pu-244 with Ca-48, to look for superheavy elements. As we were talking, Dr. Gerd-Jürgen Beyer, of East Germany, working at Dubna (where I met him last year) on the mass spectrographic identification of superheavy elements, came by to say hello and then Flerov and Zvara left with him.

Before leaving, Beyer took a picture of the three of us which he said he will show to Tumanov (who has been ill with stomach trouble).

Steve talked a good deal with Williams about his interest in psychology. As we were leaving the room, I talked to Lux and Weigel to line up my program in Munich on Friday, Saturday and Sunday. Steve and I then returned to our room and soon retired for the night.

Monday, September 3, 1973 - Hamburg

Steve and I had breakfast in the hotel coffee shop, sitting next to Dr. and Mrs. Wolfgang Stoll (head of Firma Alkem GmGH, German plutonium fuel and Pu-238 pacemakers processing plant situated at Hanau/Main [Frankfurt]).

I stopped by the press office and had my picture taken for a journal of the Gesellschaft Deutscher Chemiker. I then went to Room 13 of the Congress Centre to hear the main lecture of Don Ferguson on "Chemical Processing of Nuclear Fuels" at the opening of Section 6, Radiochemistry. He was introduced by the chairman of this session, W. Schüller of Karlsruhe. The main remaining problem is the removal of radioiodine from the stack gases and liquid effluents, and this will soon be solved. Total exposure to population, exclusive of iodine, will be only one millirem per year by the year 2000. In the question period, Ferguson said it will be possible to lower the predicted release of 0.3 curie of plutonium per year from the Midwest and Barnwell processing plants. Koch showed me a copy of volume 7a Transurane, of Gmelin's Handbuch, containing the articles by Hyde and me.

Next I heard G. Kaiser of Jülich on "Neuere Entwicklungen sur Wiederaufarbeitung von HTGR-Brennelementen." Sitting next to Ferguson, he said he thinks the HTGR can handle the nuclear fuel situation until the year 2000 so that the LMFBR, whose fuel element costs have been grossly underestimated, need not be pushed for commercial operation before that time.

I then went out in the hall and talked to Mdm. Monique Pages, Gregory Choppin, Joe Peterson, and Jean Fuger. Steve, having spent the morning in the general area, joined me, and we went to lunch in the Kranzler restaurant in the Congress Centre with Trautman, Ahrens, Gerhard Klein (University of Mainz), Kratz (Jens's brother), Silva and his son Gregory.

After lunch, Steve and Gregory headed for the IGA Hamburg 73 and I went to Room 13 to attend the afternoon session. I met K. Bächmann, University of Darmstadt, who works on chemical separation procedures for the superheavy elements, and made arrangements to visit him at his University next Thursday afternoon.

Greg Choppin served as chairman of the afternoon session of Section 6, Radiochemistry, and introduced W. Stoll (Hanau), who spoke on "Herstellung von Brennelementen." At the intermission, I met Gebauhr, chairman of the Science Council of GSI, and Karl Lieser, University of Darmstadt, both of whom are very interested in the question of naming elements 104 and 105.

Monday, September 3, 1973 (con't)

I then heard the talk "Die Fabrikation von HTGR-Kernbrennstoffen," by E. Zimmer of Jülich.

Kari Eskola came by and I went with him to Kranzler restaurant to join Pirkko (Mrs. Eskola) and their daughter Paula who were having a meal there. They had attended the nuclear physics meeting in Munich last week and had driven to Hamburg, with a side trip to the Alps en route. They are planning to board a boat on their way back to Finland tonight. We brought each other up-to-date on our activities, then went down to the registration area in the Congress Centre where they met and spent the rest of the afternoon talking with Ghiorso, Silva, Nitschke, and other friends.

Steve and Gregory returned from their visit to IGA Hamburg 73 at 5:30 p.m. A little later we went up to our room for a while so Steve could change out of his wet clothes--it has been raining. We then went down to the coffee shop of the hotel and had a bite to eat, joined by Herrmann at the end of the meal.

Steve, Herrmann, Ghiorso, Choppin, and I then walked about a mile to the Hamburg City Hall to attend a reception and buffet supper. We arrived after the speeches. Steve and I sat at a table with Herrmann and Dr. and Mrs. F. Baumgärtner. We talked about possible successors to Cunningham at LBL, and Herrmann and Baumgärtner thought Joe Peterson is as good a possibility as any. Baumgärtner thinks very highly of B. Kanellakopoulos as a hard and efficient worker and believes he could spend a year at LBL.

Spitsyn joined us on our walk home. He wanted to discuss three matters with me. (1) He asked if I had been invited to the peace conference in Moscow to be held in October (he had suggested I be invited), and I told him I had, but had been forced to decline. (2) He said he had sent me copies of my three Moscow Transuranium Symposium papers on December 18 and again on April 5. I said I had not received either set. I suggested that I give him a copy of my IUPAC paper instead of my main Moscow paper which I have learned can also be published in Russian despite the fact that it will appear in English in the Journal of Pure and Applied Chemistry. He agreed to publish this in Russian (and not in the Journal of Nuclear and Inorganic Chemistry along with the rest of the Moscow Symposium) and I arranged to give him a copy of this paper tomorrow. He will send me copies of the other two papers a third time for me to check so they can also appear in the Russian publication of the entire symposium. (3) He inquired about the Mikheev-New Melekes exchange arrangement, saying this is impossible because New Melekes is not a laboratory of the Soviet Academy of Sciences. I explained that it is the USAEC, not Lew Keller, that is insisting on this exchange. Ghiorso joined the conversation and said the problem could be settled by having Mikheev come to LBL next summer. Spitsyn agreed to this and suggested that the U.S. scientist in exchange go to the Institute of Physical Chemistry in Moscow and to Dubna.

I introduced Ghiorso to Jacques Benard and Sir Harold Thompson. Ghiorso agreed that the idea of a Joint Commission to settle the names

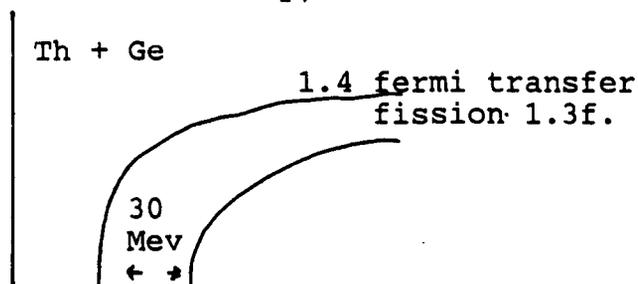
of elements 104 and 105 was a good one, but emphasized that this Commission will probably ask that more experimental work be done (in connection with the Flerov spontaneous fission activities) before it can make a decision--this may delay a decision several years. Benard told me that he will suggest to Sir Harold Thompson, who must appoint the chemists, the names of chemists that Flerov and I discussed with him (Benard) last night, and will suggest next week to the President of IUPAP, who must appoint the physicists, the names of physicists that Flerov and I discussed with him (Benard) last night. Ghiorso agreed that these constitute a reasonable set of names.

Steve and I then went up to our room, found a message from O'Connor of USIS saying that Wednesday lunch is impossible for our meeting, and retired for the night.

Tuesday, September 4, 1973 - Hamburg

Steve and I had breakfast in the hotel coffee shop. I then went to Room 13 to attend the session on Transuranium Elements. I gave a copy of my manuscript, "Status Report on the Transuranium Elements," to Spitsyn.

H. R. von Gunten (Würenlingen, Switzerland) presided, referred to my opening speech on Sunday, and introduced Ivo Zvara who spoke on "Studies on the Heaviest Elements at Dubna." Zvara began with a brief reference to his 1966 experiments on the alleged identification of the tetrachloride of 104. He then described his separate experiments on frontal thermal chromatography to identify the volatile chloride of 104 (produced from Pu-242 plus Ne) and 105 (produced from Am-243 plus Ne) and found deposition of 104 and 105 chlorides in the region of temperature gradient as detected by spontaneous fission. He then described experiments, begun at ORNL, on identifying 105 using volatile bromides, formed by use of  $\text{Br}_2$  and  $\text{BBr}_3$ , using the temperature gradient column. They are starting to look for 106 using  $\text{Cm}^{246}$  plus  $\text{Ne}^{22}$  to form  $106^{263}$ . (He also mentioned 107.) He described identification of W isotopes from rare earth bombardments using the chlorides produced by reactions with  $\text{SOCl}_2$ . They also saw volatile  $\text{HReO}_4$  and observed Hf molecules that requires 0.3-0.4 seconds to be formed. Zvara then went on to discuss chemical procedures for use in the identification of superheavy elements. He gave some history of the concept of "fusion-fission" and "overshoot" approaches. He said the U-300 and U-200 tandem combination of cyclotrons accelerates  $\text{Xe}^{+9}$  to 120 Mev in U-300, puts them through 4 micrograms per  $\text{cm}^2$  of carbon foil, then accelerates  $\text{Xe}^{+30}$  to 800 Mev. With Ge they get  $\text{Ge}^{+5}$  in U-300 and 600 Mev  $\text{Ge}^{+18}$  or  $\text{Ge}^{+19}$  in U-200. With Ge plus Th and a wheel detection, they found no superheavy element, half-life 1 millisecond to 1 day, with cross section less than  $10^{-34}$  cm.



Means high excitation and therefore much neutron emission before SHE can be formed.

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Experiments with  $Ta^{181}$  and  $Xe^{136}$  found distribution of Au isotopes but yield of heaviest elements lost due to cascade fission.  $U^{238}$  plus  $Xe^{136}$  gave a few counts of  $Cf^{254}$ . The distribution of Au isotopes from Ta plus Xe shows very high yield of neutron excess isotopes. Zvara showed the Map of Isotopes with the Sea of Instability and the ships for reaching the Island of Stability. He described Eichler's experiments in which volatile fission products (from  $U^{238}$  plus high energy H) were separated by chemical reaction with hydrogen--about 30 elements, many in metallic form, were separated by thermal chromatography.

In the question period, I asked Zvara if the Au isotopes from Ta plus Xe and  $Cf^{254}$  from U + Xe could be due to transfer reactions (rabbit ears) and he said this is impossible--I pointed out that our LBL results from U plus Kr seems to show very little fusion reaction.

After an intermission, K. Bächmann (University of Darmstadt) spoke on "Modellversuche zur schnellen Abtrennung superschwerer Elemente in der Gasphase."

Then J. Römer (Heidelberg) spoke, in German, on "Methoden zur chemischen Identifizierung kurzlebiger Transaktinidenelemente." For 106, Römer suggested the use of  $106(CO)_6$  on a 1 second time scale. They did some experiments with C and O ions with the heavy ion accelerator at Heidelberg. They did experiments for 104 and 105 with  $Ge + O^{16} \rightarrow Zr$  and  $Fe + C^{12} \rightarrow Ge \rightarrow Ga + \beta^+$ , plus  $SrCl_2$  to give  $ZrCl_4 + GaCl_3$ . For 106, they used  $Cr^{51}(CO)_6$  (from  $C^{12}$ ) and  $Mo(CO)_6$ . For 112-114, they used  $Ni + C^{12} \rightarrow Se \rightarrow As + \beta^+$  and  $Ag + C^{12} \rightarrow I$ .

In answer to my questions, Römer said he thinks  $106(CO)_6$  can be formed on a millisecond time scale and G. K. Wolf said Ga (for 105) and As (for 112) and I (for 114) are only the best compromises they can make with their accelerator.

P. Hoffmann (University of Darmstadt) spoke next on "Voraussage von Eigenschaften der Verbindungen der Transaktinidenelemente 104 bis 117." He has calculated electronegativity of elements 104 to 117, boiling points of many compounds, carbon and chlorine bond energies, etc.

Next H. Meier (Geophysical Institute at Bamberg) spoke on "Anomalien der natürlichen Häufigkeit von  $^{239}Pu$ ." He finds in volcanic sources ratios of Pu-239 to U-238 that are  $10^3$  to  $10^4$  times higher than those in uranium ores. He has no good explanation--the fact that this happens only in volcanic rock suggests that the samples originate in magmas from the lower earth. The neutron flux, as measured by Nd isotopes, is not excessively high. Perhaps there are superheavy element precursors. He didn't look for V. V. Cherdyn'tsev's 4.5 Mev alpha emitter in these materials.

At the end of the morning session, Steve (who had spent the morning with Greg) came by and we went to lunch at Restaurant Grille, Hotel Graf Moltke, with Herrmann, Zvara, Bob and Greg Silva, Baumgärtner, Lieser, Born, von Gunten, and others.

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Steve and I then returned to the Congress Centre to Room 13 to hear Ghiorso's talk, "The SuperHILAC and the Superheavy Element Program." He was introduced by the chairman for the afternoon, Georges Bouissieres (Orsay). Ghiorso showed Halverson's movie of the SuperHILAC and described the problems of construction and the operation of the SuperHILAC and some of the experimental area and equipment, including SASSY.

After an intermission, Silva gave his talk, "Chemical Studies on the Heaviest Elements." They find that No(II) behaves chemically a great deal like Ca(II). He also described the  $104^{257}$  alpha x-ray coincidence experiments which confirm the Berkeley discovery of 104.

Next, Norbert Trautman (University of Mainz) spoke on "Development of Rapid Separations of Transactinide Elements from Aqueous Solutions." He described fast chemical separation methods for Zr, Nb, Mo, Tc, Ra isotopes, produced as  $Cf^{252}$  fission products or by  $U^{235}$  or  $Pu^{239}$  neutron irradiation.

Then E. W. Bohres (Jülich) spoke on "Schwingungsspektren und Kraftkonstanten von Aktinid(IV)-chloriden," and Fritz Weigel (University of Munich) on "The vapor pressure of protactinium(V)-bromide." Nitschke then spoke on "Fast On-Line Chemistry by Computer." He described FAKE.

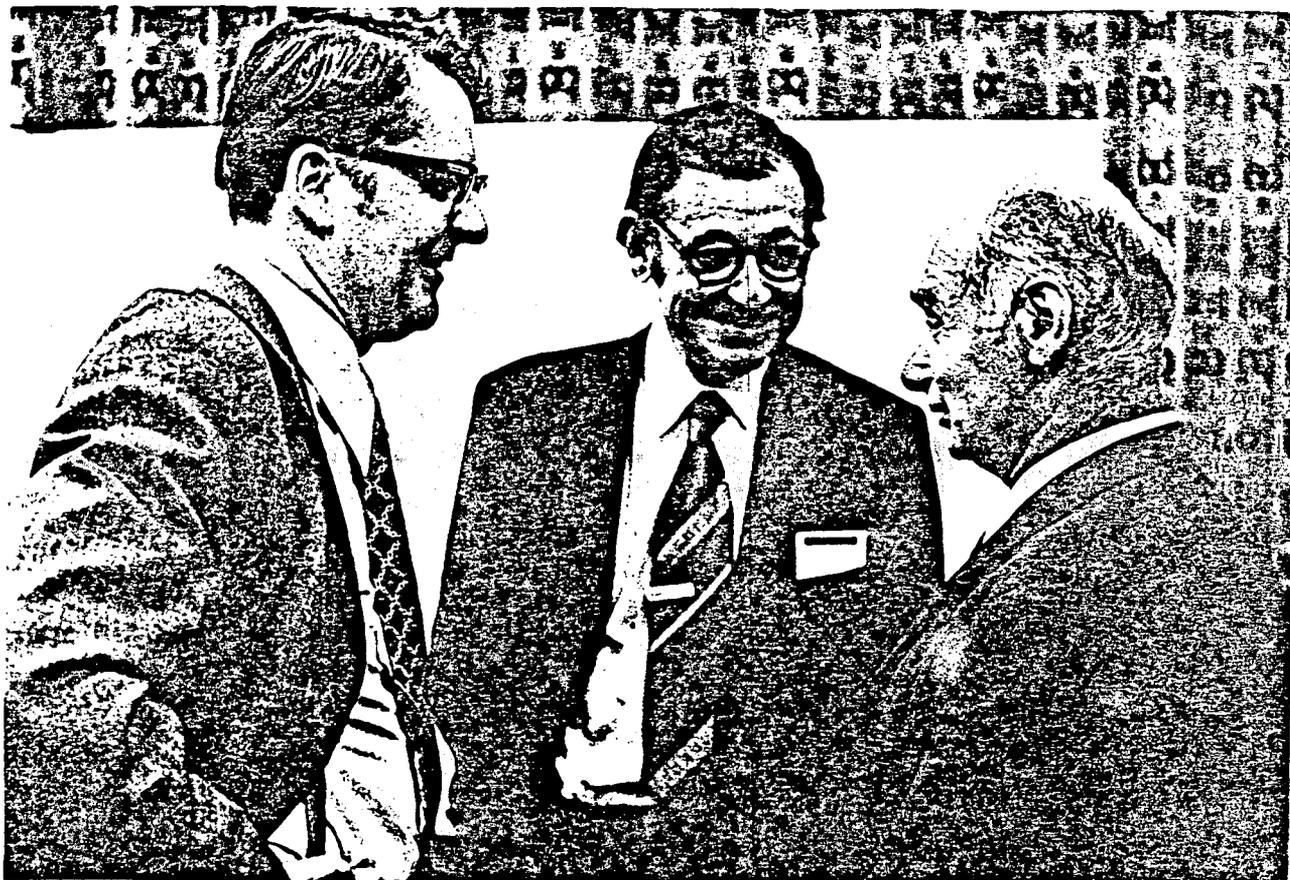
I suggested to Trautman and Silva, in the presence of Herrmann and Ahrens, that they bring their apparatus for the study of the fast chemistry of niobium to LBL for use in their 105 chemistry experiments.

Professor Masanobu Sakanoue gave me a slide listing a quotation from my book Transuranium Elements on the role of Nagasaki in announcing to the world the discovery of plutonium and his paper, "Plutonium Content of Soot of Nagasaki" and a reprint of his paper, "Content of Plutonium, Thorium, and Protactinium in Sea Water and Recent Coral in the North Pacific."

S. Siekierski of the Department of Radiochemistry, Institute of Nuclear Research, Warsaw, Poland, gave me a copy of his reprint, "The Existence of Regularities, Tetrad or Double-Double Effect in the Changes in Unit Cell Volumes of the Compounds of the Actinides in Different Oxidation States."

Steve and I went back to our room, changed clothes, and went to the reception hosted for the authors of the Transuranium Elements Handbuch by the Gmelin Institute, by G. Koch, in Room 7 of the Congress Centre. I learned there will be six Transuranium volumes, out of a total of 262 Gmelin volumes (85,000 pages). The volume by Hyde and me will cost about \$220 but we can buy a copy at half price. Monique Pages gave Steve the phone number of her daughter Catherine to call in Paris.

Steve and I then went to the ballroom of our hotel to attend the reception and banquet given by Gesellschaft Deutscher Chemiker. There



Ivo Zvara, Albert Ghiorso, Georgy Flerov: IUPAC Congress.

GTS, Stephen Seaborg, Gunter Koch: Hamburg, 9/4/73.



were about 150 guests, including Spitsyn, Herrmann and Flerov of the Radiochemistry group. At the reception, I met again Professor Wilhelm Klemm (we met in the United States several times). Steve and I sat at a table with Professor and Mrs. Kurt Heyns (head, Institute of Organic Chemistry and Biochemistry, University of Hamburg), Professor and Mrs. Heinrich Nöth (head, Institute of Inorganic Chemistry, University of Munich), and Dr. K. Weissermel (head of research, Farbwerke Hoechst AG, Frankfurt). I sat between Heyns and Nöth. Nöth is a boron chemist and is rather well informed in inorganic chemistry. As the dinner was getting under way, Dr. Lynen made welcoming remarks and Sir Harold Thompson responded, both in German.

After dinner, I talked to Professor N. M. Emanuel, member of the committee of IUPAC concerned with naming 104 and 105 (and of the Institute of Chemical Physics, USSR Academy of Sciences). He said it was he who suggested that Goldanskii be on the Joint Commission that is being constituted to decide this issue. He told me that Vitalii and Mila are quite distressed because Mila's father, Dr. Nikolai Semenov, has divorced his wife (Mila's mother) to marry his secretary and no longer speaks to Mila.

Steve and I returned to our room at 11:00 p.m. and soon retired.

### Wednesday, September 5, 1973 - Hamburg

Steve and I had breakfast in the hotel coffee shop. I then went to Room 13 in the Congress Centre to attend the Symposium on the Transuranium Elements. Y. Marcus (Jerusalem) served as chairman of the session and introduced V. I. Spitsyn, who spoke on "Fortschritte in der Chemie der Aktinidenelemente." They still get  $-1.55 \pm 0.04$  V for  $E^0$  for Es(II)-Es(III) and  $-1.60 \pm 0.05$  V for  $E^0$  Cf(II)  $\rightarrow$  Cf(III). He claims Soviet scientists first found Am(II), by Musikas, et al. [Radiochem. Radioanal Letters, 2 (1) 21 (1969)]. They found for Am(II)-Am(III), value  $E^0 = -2.2$  V. He cited Francois David, C. R., Acad. Sci. Paris 274, 440 (1970) on (II)-(III)  $E^0$  values obtained by radiopolarography.

He showed special (II) states for Gd, Ce, Pr, Pu, U, Th, and Np, and Sm(I). They have synthesized the first transuranium compound of type  $Me_8^I Np Mo_{12} O_{42} \cdot 18 H_2O$  with  $Me^I = Na, K, Rb, NH_4, Cs$ , in cooperation with chemists from the University of Moscow. Spitsyn predicts the discovery of Pu(VIII), Am(VII), Cf(V), Cm(V), and Lr(IV).

At the intermission, Jean Fuger asked me if we could send him a few more mgs of protactinium metal (room temperature form). I gave copies of Minox pictures I took at Dubna last September to Beyer to give to Flerov and Oganessian. I gave Jose Alonso's article outline to Koch.

Georges Bouissieres (Orsay) spoke next, in French, on "Etudes physico-chimiques sur le fermium." He used  $Fm^{252}$ . He measured  $Fm^{2+} + 2e^- \rightarrow Fm(Hg)$  to be  $-1.70 \pm 0.02$  V/ECS.

Gerhard Beyer (Dubna) spoke on "Fast Methods of Isotopes Separation." They use chemistry followed by electromagnetic separation. The isotopes are produced by proton bombardment in the synchrocyclo-

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tron. They use targets of gram quantities and aim to quickly isolate carrier-free products. This is especially difficult when the target and products are both rare earths. They irradiate grams of  $(\text{NH}_4)_2(\text{RE})\text{DTPA}$  (=Diethyltriaminepentaacetic acid) with protons and separate carrier-free product REs in 12 minutes using cation exchange. The radiation damage is very low. They then put the products through electromagnetic mass separators with separation factors of  $10^2$  to  $10^3$  at individual mass numbers in a time of 3 to 5 minutes. They also use thermal column chromatography--e.g., volatile TlF from  $\text{PbF}_2$  targets, swept along by a  $\text{N}_2$  stream; here they found a new 1-minute Tl isotope. They volatilize Os, Ir, Re, Hg oxides (in stream of air) from irradiated metallic Au heated to  $1,160^\circ\text{C}$  (melting point).

Next R. Guillaumont (Fontenay-aux-Roses, France) spoke on "L'oxydation du neptunium(V) en solution nitrique et le comportement de  $^{237}\text{Np}$  dans les extractions 'purex.'"

I had lunch in Kranzler restaurant in the Congress Centre with Gunter Herrmann and Gerhard Beyer. I explored with Beyer the possibility of his coming to spend some time at LBL (perhaps a year or more) and he is very interested in doing this. He is married with a 3-year-old son. He works in the Laboratory of Nuclear Problems at Dubna of which Dshelepov is the Director. I should write to Bogolyubov, the Director of Dubna, to suggest this. We would have to pay his salary and at least part of his traveling expenses. He has been at Dubna for six years, on leave from the Rossendorf Institute of Nuclear Studies (Dresden, German Democratic Republic) of which Rudolf Münze (also a member of the GDR Academy of Sciences) is the Director.

On returning to Room 13, I talked to B. Kanellakopoulos and invited him to come and work with me at Berkeley if he could obtain a fellowship from somewhere--he is interested and will investigate the possibility of obtaining one from Greece.

Rudolf Münze served as chairman of the afternoon session on the transuranium elements and introduced M. Genet (Orsay) who spoke on "Préparation et caractérisation de  $\text{Np(VII)}$ ,  $\text{Np(VI)}$ ,  $\text{Np(V)}$  à l'échelle des indicateurs en milieux basiques."

Next, C. Musikas (Fontenay-aux-Roses, France) spoke on "Potential normal apparent de couple  $\text{Np(VII)}$ - $\text{Np(VI)}$  en milieu acide." Then L. Martinot (Liege) spoke on "Propriétés chimiques et électrochimiques des actinides dans les sels fondus." Then Y. Marcus (Jerusalem) spoke on "Thermodynamics of the synergistic extraction of uranium with tributylphosphate (TBP) and Di(2-ethylhexyl)-phosphoric acid (HDEHP)."

After the intermission, Cornelius Keller (Karlsruhe) spoke on "Synergismus bei der Extraktion von Aktiniden." Then Gregory Choppin (Tallahassee) spoke on "Exchange kinetics of trivalent actinide ions with europium-ethylenediamine tetraacetate (EDTA)." He was followed by S. H. Eberle (Karlsruhe) on "Neuere Ergebnisse über die Beziehungen zwischen der Stabilität und der Struktur von Transurankomplexen." Finally, S. Siekierski (Institute Of Nuclear Research, Warsaw)

presented his paper on "The Existence of Regularities, Tetrad or Double-Double Effect in the Changes in Unit Cell Volumes of the Compounds of the Actinides in Different Oxidation States."

At the end of the session, at 6:15 p.m., I met Steve who had spent the morning around the Congress Centre, had lunch at Restaurant Grillade, and then visited Hamburger Kunsthalle. We had dinner in the coffee shop and then took a long walk along the streets of Hamburg which gave us an excellent opportunity to talk.

Thursday, September 6, 1973 - Hamburg - Darmstadt - Mainz - Munich

Steve and I arose at 5:45 a.m., joined Herrmann and Ghiorso in a taxi to the Hamburg Airport, boarded Lufthansa Flight No. 701, then waited more than an hour for takeoff. The flight was scheduled to leave at 7:30 a.m., but left at 8:45 a.m. The reason for the delay was not clear--either the current deliberate slowdown of air traffic by the employees of Lufthansa or the generally foggy weather or both. We landed at Frankfurt Airport at 10:00 a.m. after circling in a holding pattern for about a half an hour.

We were met by two GSI drivers and rode with them to GSI headquarters in Wixhausen. Here we met Christoph Schmelzer, Peter Armbruster, Rudolph Bock, Hans Otto Schuff, Hübenthal (of the Federal Ministry of Science in Bonn), and Heinz Maier-Liebnitz (who was visiting, is now serving as head of Deutsche Forschungs Gemeinschaft, the German equivalent of NSF). We went to the same room as I met in with the group last year, just off of Schmelzer's office, where coffee and tea were served.

We then all rode in two minibuses to the construction site, about one kilometer distant, of the UNILAC. We made a tour of the UNILAC area, the huge (43 meters by 58 meters) experimental area (the SuperHILAC could almost fit it here) and the office and laboratory area. There are about 130 offices and about half that many laboratories depending on how the modular walls are placed (including about a dozen chemistry labs). We also visited the building where copper plating of the accelerator tanks takes place. [I took movies of the various buildings and the group, finishing cartridge no. 1 (the first part was taken at the Sheraton Heathrow) and cartridge no. 2 (including a few feet at the headquarters at Wixhausen).]

We then returned to the headquarters at Wixhausen, where we went into the building where development is taking place and saw the ion source work, beam diagnostic equipment, the injector high voltage setup, etc. [I took some Olympus pictures without the electronic flash, whose batteries were run down.]

We next rode in the two buses, all except Schuff, to the nearby village of Langen where we had lunch at Hotel Deutsches Haus. After lunch Steve took a picture of Schmelzer, Bock, Armbruster, Hübenthal, Maier-Liebnitz, Ghiorso, and me.

We returned to GSI headquarters, gathered again in Schmelzer's room for more conversation, coffee and tea. The conversation ranged over quasi-molecular nuclei, ion sources for heavy ion accelerators,

Wednesday, September 6, 1973 (con't)

Steve's observations on chemists in his role as a psychologist, the task of the Joint Commission on the naming of elements 104 and 105, etc. Ghiorso offered to send Birt Kortegaard to GSI to help them with their design of the Alvarez accelerator radiofrequency circuits, etc. At 3:00 p.m., Flerov arrived and, at about the same time Knut Bächmann of the Section on Inorganic and Nuclear Chemistry of Darmstadt University. Steve and I bade adieu to the group (including Ghiorso, who is flying back to San Francisco tomorrow after spending the remainder of the day at GSI and the night in Darmstadt). Bächmann drove us, and our four bags, to Darmstadt University, where we went to the office of Professor Lieser, head of the section on Inorganic and Nuclear Chemistry. Here we met Lieser, who had just arrived from Hamburg by plane, and Dr. Neidhart, a co-worker of Professor Bächmann. We walked across to the nearby building housing the nuclear chemistry program (a modest structure built at a total cost of \$250,000 a few years ago). Here we were joined by Dr. Mattschoss and made a tour of a number of labs on the second floor. We saw the apparatus, in large hoods, where the products of Cf-252 spontaneous fission and U-235 slow neutron fission are swept out and down tubes with temperature gradients for separation of the radioactive products. I was told that Hg in Al containers, or Hg in other containers but containing Al strips, gives Al-amalgam which is used to remove oxygen from streams of nitrogen to levels of  $10^{-20}$  atm. or less. They believe that the hexafluoride, or oxyfluoride, of element 106 would volatilize out of hot californium fluoride, but the diffusion time might be as long as seconds unless some special steps were taken.

After our tour, we went back to Lieser's office where plum cake, tea, coffee, and coca cola were served. Lieser, who is editor of the series in which it appears, gave me an autographed copy of Cornelius Keller's Chemistry of the Transuranium Elements. When I told him about the delay in translation of Man and Atom into German by Teichmann of Suhrkamp Co. in Frankfurt, he said he will check into it and might arrange to have Verlag Chemie publish the German translation. When I told Lieser that Fritz Weigel had offered--through Dr. Pauler of Goldman Co., Munich--to do the translation for Goldman, Lieser said he might ask Weigel to do the translation for Verlag Chemie. I also mentioned the possibility of translating Nuclear Milestones into German.

Steve took a picture in front of the nuclear chemistry building's windows of Lieser, Bächmann, Neidhard, and me. We then said goodbye to Lieser and rode with Neidhard in his car, along with Bächmann, to Mainz to catch the train to Munich. (We had decided to go by train because of the delays in air flights which seemed to be getting worse during the day.) Since we arrived in Mainz a little early, we did some sightseeing--including the Rhine River (at the bridge next to the Mainz Hilton Hotel where I stayed last year), the Marriage Tower of the Duke of Darmstadt, the artists' quarters of Darmstadt, the opera house, the Darmstadt Museum, a number of churches. [I took movies on magazine no. 3, but it wasn't operating right, apparently due to run-down batteries. This and the photoflash problems makes me think we bought defective batteries.]

When we arrived at the railroad station, Bächmann helped us purchase our tickets to Munich, and then Bächmann and Neidhard saw us off as we boarded the train--the Rembrandt of the Trans-Europe Express, which runs from Amsterdam through Europe.

The train left on schedule at 6:50 p.m. and we went immediately to the diner where we had a leisurely meal reminiscent of the days when transcontinental trains were a common means of travel in the United States. We passed through such towns as Mannheim, Heidelberg, Stuttgart, Ulm, and Augsburg, and arrived in Munich at 11:15 p.m.

We were met by Professor H. J. Born, Director of the Institute of Radiochemistry, Technical University of Munich, and Dr. Henkelman, a physicist of the Institute. Henkelman drove us in his station wagon to the Hotel Bayerischer Hof, where we checked into room 39 of a new wing. This wing is the former Montgelas Palais, formerly owned by the Bavarian State, and has been converted to a hotel wing with ornate rooms; our room had gold-plated bathroom fixtures.

Friday, September 7, 1973 - Munich - Garching - Munich

I replaced the batteries in my movie camera and fixed the placement of the batteries in the photoflash so that both seem to be working now. Steve and I had breakfast in the restaurant on the 6th floor, then were picked up by Professor Franz Lux and Fritz Weigel and driven to the Institute of Inorganic Chemistry of the University of Munich, near downtown Munich.

We went to Weigel's office where he showed me Professor W. Prandtl's rare earth collection and briefed me on his research program. Dr. W. Franke, a post-doctoral man, is looking for the superheavy element no. 114 in the flue dust from lead smelters, using mass spectrometric detection. Dr. Wishnewsky, another postdoctorate, is working on the hydrolysis of gaseous actinide halides ( $\text{Am}^{241}$ ,  $\text{Am}^{243}$ ,  $\text{Cm}^{244}$ ). Weigel and Dr. G. Hoffmann and Dr. Wishnewsky work on the vapor pressure of protactinium halides. They are working on the reaction  $\text{PaI}_5 \rightarrow \text{PaI}_3 + \text{I}_2$ . He believes  $\text{PaI}_3$  is the only solid compound of protactinium (III) prepared so far. He is working on the vapor pressure of  $\text{NpCl}_4$  and thinks he has some evidence for  $\text{NpCl}_4 + 1/2\text{Cl}_2 \rightarrow \text{NpCl}_5$  similar to  $\text{PuCl}_3 + 1/2\text{Cl}_2 \rightarrow \text{PuCl}_4$ . A graduate student, W. Schuster, is working on the vapor pressure of  $\text{AmCl}_3$  and  $\text{CmCl}_3$ . With others he has prepared a phosphate of hexavalent Am:  $\text{NH}_4\text{AmO}_2\text{PO}_4 \cdot 4\text{H}_2\text{O}$ .

We then went down to the basement to visit Weigel's laboratory where all this work is done. We met H. D. Wittmann, Dr. Gustav Nitsch, Dr. Erich Franke, and Dr. Volker Hopf; Steve took a picture of these four with Weigel and me in the room with the glove box equipment (where the decontamination was done as depicted in the pictures Weigel sent me).

We then went up and met Wolfgang Beck, the present Dean of the Chemistry faculty. Steve, Weigel and I then rode with Lux to visit President Hans Raupach (historian or economist) of the Bavarian Academy of Sciences (of which I am a corresponding member) and Vice President Georg-Maria Schwab (a physical chemist). The Academy of



Gunter Herrmann, Christoph Schmelzer, GTS, Albert Ghiorso, Heinz Maier-Liebnitz, Gunter Bock, Peter Armbruster, Hübenthal, GSI, Darmstadt, Germany, September 6, 1973.



Hans Raupach, Georg-Maria Schwab, GTS, Fritz Weigel, Franz Lux: Bavarian Academy of Sciences, Munich, Germany, September 7, 1973.

Friday, September 7, 1973 (con't)

Sciences (actually "Wissenschaften") occupies an entire wing of the residence area of the old Bavarian kings. Raupach told me that Gesellschaft Deutscher Naturforscher und Aerzte is the approximate German equivalent of the AAAS, and Wiberg (a chemist) is the President. He also mentioned the Deutscher Akademie der Naturforscher "Leopoldina," located in the German Democratic Republic (East Germany), at Halle/Saale (DDR), August-Bebel-Str. 50a. The President is Professor Kurt Mothes (a botanist).

We made a tour of the building, saw the Great Hall, the library, the lecture hall, the meeting rooms, the concert hall, and outside we could see the beautiful gardens. Steve took a picture of Raupach, Schwab, Lux, Weigel, and me in front of the huge tapestry in the Great Hall. Raupach told me there are 78 regular members (36 in the sciences and 36 in the humanities and social sciences sections) and 80-100 corresponding members of the Bavarian Academy of Sciences.

Steve and I then rode with Lux to Garching. Here there are the Physics Department (with the reactor) and the Institute of Radiochemistry (of the Department of Chemistry) of the Technical University of Munich and a number of Max Planck Institutes, including the Institute for Plasma Physics, Institute for Extraterrestrial Research, and the Low Temperature Institute of the Bavarian Academy of Sciences. The village of Garching is about 20 kilometers north of Munich. One of Lux's students, Dominik Dempf, worked with Streitwieser, Raymond, and Edelstein.

We went by H. J. Born's and Lux's offices momentarily, then went to the nearby Institute of Plasma Physics, to the central office, where we met Arnulf Schlueter, Ewald Fünfer, Karl Kompa, Gerhart von Gierke, Ernst Seidel, and Jack Peterson from LBL (on an 8-month stay as part of an exchange visit).

We walked across the little stream to the building with CTR apparatus. First, I saw ISAR (like the Scyllac experiment of LASL) which was explained to me by Professor Fünfer. (ISAR is named after the Isar river nearby.) This apparatus gives good ion densities ( $10^{16}$ ) and temperatures (10-20 Kev), but low confinement times ( $10^{-6}$  seconds).

Next we went to a neighboring building where Karl Kompa (who worked as a postdoctorate with Pimentel in 1965-67) showed me some laser experiments. Dr. Hohla showed me an iodine laser. Their objective is 100 joule in one nanosecond, which they hope to achieve in a month. They are working on combined laser implosion and magnetic confinement methods.

We then walked to another building where we saw a Tokamak about equivalent to the T-3 or T-4 machines in Moscow. This was shown to me by von Gierke. Next we went to another area of the same building where Schlueter showed me the ERA (Smoketron) research. They have not yet achieved any acceleration of any ions. Nevertheless, they are optimistic and hope to accelerate some ions within a few months because they have solved a number of instabilities. Peterson then

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showed me the apparatus upon which he is working and which is not yet in operation--it is somewhat like the LBL apparatus.

Next we walked across the grounds to another building where von Gierke showed me their stellerator-Wendelstein WIIb. Next door, I saw the large hall and equipment where they are building the large Wendelstein WVII to be completed in 1975 or 1976.

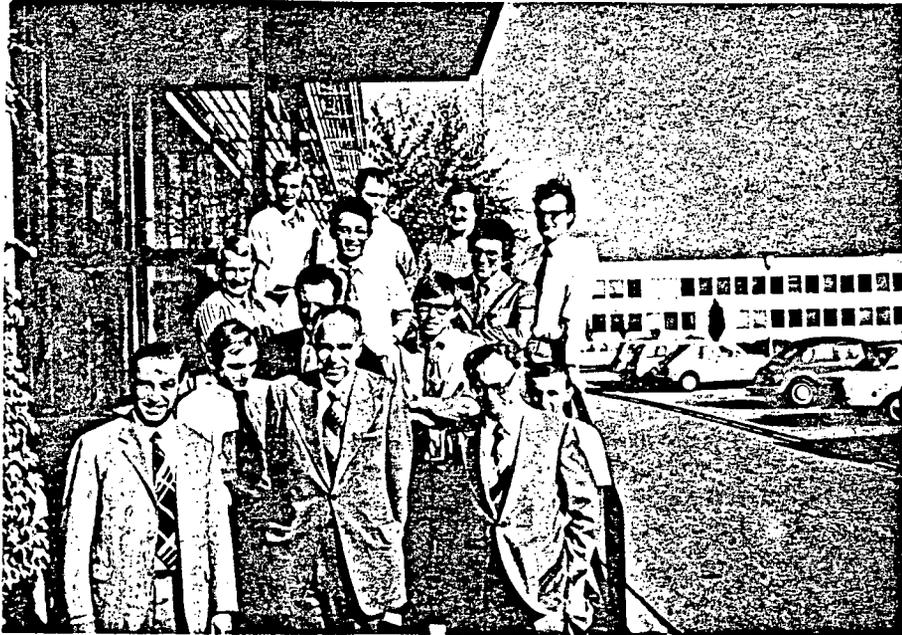
We then went to lunch in the Institute restaurant. The group consisted of Schlueter, Fünfer, Kompa, von Gierke, Seidel, Peterson, Born, Lux, Steve, and me. The talk was very general. Von Gierke believes that commercially controlled thermonuclear power cannot be achieved until after the year 2000. After lunch, we went back to Born's office at the Institute of Radiochemistry. [On the way, someone took an Olympus picture of Born, Lux, Steve, and me with the reactor in the background. I took movies of the Technical University of Munich grounds, including the reactor, and the Max Planck Institute of Plasma Physics grounds with the remainder of cartridge no. 3 and with cartridge no. 4.]

In his office, Born told me a little about the history of the Institute, which began in about 1960 or 1962; they moved into the present building in the spring of 1965. Born was with Otto Hahn in Berlin-Dahlem from 1932 to 1944 and at the end of the war was transported to the USSR, where he stayed until 1955 (where he worked in biological areas), when he returned to GDR, coming to Munich in 1957.

We went to the conference room on the next floor down, where I met a number of Institute research workers and heard descriptions of their work. Those present were Heilsinger, Jae-il Kim (who recalled my visit to Korea in 1970), H. J. Sprecht, Dieter Aumann (who had planned to come to LBL to work with me last November but could not do so due to his mother's illness), Henkelman (who had met us at the train last night), Henry Staerk, Professor Lux, and Professor Born. Aumann indicated that he might want to come to LBL to work, starting in about a year--he will get in touch with me. He will try to get a fellowship.

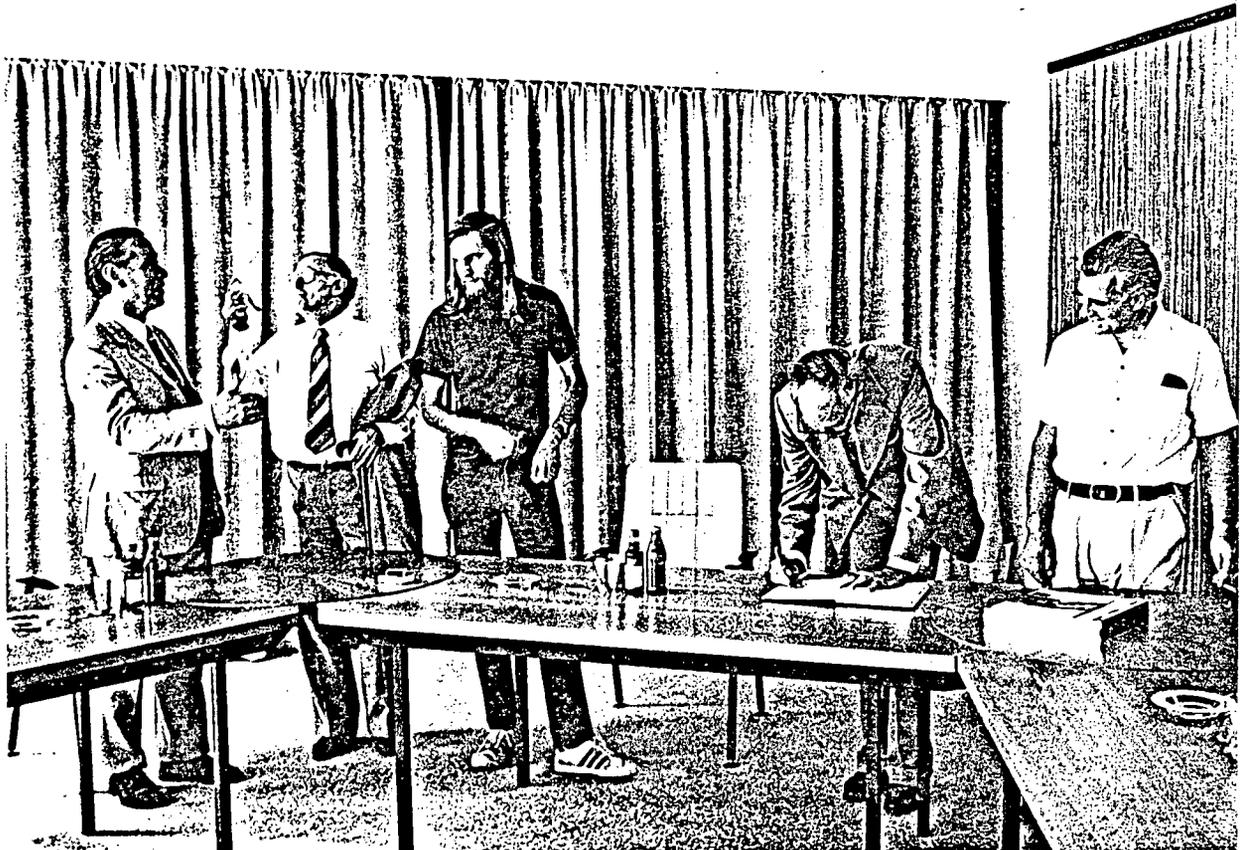
Heilsinger described his program on radiation chemistry. Professor Lux then described his work on actinide coordination chemistry. He produced  $U\text{Br}_5$  a few years ago--the first time it had been prepared. He prepared the first sandwich-type actinide compounds (before Streitwieser) namely, Bis(phthalocyaninato) uranium(IV) and thorium(IV). In the meantime, they have been preparing the Pa(IV), Np(IV), Pu(IV), Am(IV) compounds. These, of course, are nitrogen bonded to the actinides. They hope to have Joe Peterson come and work here, bringing with him some transamericium isotopes. Lux has requested from USAEC some Pu-244 for this work. The phthalocyaninato (Pc) compounds sublime at  $550^\circ\text{C}$  at  $10^{-5}$  torr. Kirin and co-workers in Leningrad made the lanthanide Pc compounds (summarized in Lux's Carefree [Arizona] Rare Earth Conference paper).

Lux and co-workers found an alpha branching of  $\text{Ac}^{224}$  ( $\text{MsTh}_2$ ) of  $10^{-8}$ . They also found the 8-minute beta-emitting  $\text{Hg}^{206}$  (the first



Front row: F. Lux, GTS, H. J. Born; 2nd row: R. Gradl, H. Staerk; 3rd row: H. Heusinger, D. Aumann; 4th row: R. Henkelmann, J. I. Kim, S. Specht; Back row: R. Dehos, R. Wick, R. Zeisler, K. O. Abt; Institute of Radiochemistry, Garching, Germany, September 7, 1973.

Franz Lux, Hans Born, Steve Seaborg, GTS, Gerhart von Gierke:  
Institute of Plasma Physics, Garching, September 7, 1973.



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natural radioactive Hg isotope) as the alpha branch daughter of  $Pb^{210}$  (the alpha branching of  $Pb^{210}$  was found by Finnish scientists). This was done by Gerhard Wolf, now at Heidelberg, whom I met at the IUPAC meeting in Hamburg.

Kim reported on some actinide solution chemistry, especially chloride complexes of Th and Pa.

Aumann then described some of his work on nuclear fission. At ANL, he studied the ratio of shielded isomers (such as Pd-111 and Cs-134) produced in charged particle bombardments. Here he has worked on the  $Pm^{148}$  isomer ratio, produced by U-235 plus neutrons. He plans to produce the same isomers from  $Th^{232}$  plus  $He^4$  using the Karlsruhe cyclotron. They will have a compact cyclotron, delivering 100 microamperes of 21 Mev deuterons, here in the Institute in about 2 months. They now have a Tandem van de Graaff delivering 28 Mev deuterons and 40 Mev helium ions. Aumann is also working on the mechanism of the helium jet method using the fission recoils from Cf-252--he thinks aerosols play an important role.

Lux will send me a summary of the work going on at the Institute.

After this session, Steve took a picture of the whole group. We then made a quick tour of a number of chemistry and instrumental laboratories, including hot labs and mechanical slave cell areas. I met some additional research people, including Reinhard Gradl, who will be coming to LBL on about October 1 to work with Edelstein; he is going to be married tomorrow.

We went outside of the building and Steve took movies and a picture of the enlarged group, including Gradl and the other new additions, with the reactor dome in the background.

At 4:00 p.m., we left--Steve, Professor Born and I--riding with Professor Lux back to Munich to the downtown campus of the Technical University of Munich. Here we attended a reception in my honor in the office of Professor Ivar Ugi, head of the Munchener Chemischer Gesellschaft and chairman of the Munich section, Gesellschaft Deutscher Chemiker. Following the reception, at 5:00 p.m., I was scheduled to give a talk in the Chemistry Building of the Technical University under the joint sponsorship of the Munchener Chemische Gesellschaft and the Munich section of the Gesellschaft Deutscher Chemiker.

At the reception, I met many of the Chemistry faculty of the Technical University of Munich and the University of Munich and many of the young chemists I had seen during the day. Professor Ivar Ugi, who spent four years on the faculty of USC (1966-1970) and returned to Germany to get better research support than he could get from the NSF in the United States, gave me an honorarium of 500 DM for my talk.

I met G. N. Schrauzer, a faculty member of the University of California, San Diego, who works in the field of bio-inorganic chemistry, who is in Munich on some sort of sabbatical.

After the reception, at 5:15 p.m., we went across the hall to the lecture hall where, after an introduction by Professor Ugi, I gave my talk, "Recent Research on the Transuranium Elements," lasting about 70 minutes, illustrated with about 80 slides, followed by a question period.

Steve and I then rode with Ugi to the Löwenbräukeller, a brewery with a restaurant attached, the brewery established in about 1100. Steve shared with Ugi a huge leg of Kalbshaxe (veal) while I had trout. The group also included Professor and Mrs. (Gisela) Franz Lux, Professor Born, T. V. Krakay (who wrote the review article on the transuranium elements with Nast, published in the Fortschritte de Chemische Forschung in about 1955), Aumann, Heilsinger, Kim, Nitsch, Franke, Hopf, and Gfaller (graduate student of Weigel).

It was a balmy, pleasant evening and we ate outdoors under some trees. The interesting conversation included accounts by Ugi of how he and his family moved from Estonia during the war and by Born concerning his adventures in Moscow where he was forced to remain after the war until 1955. Stalin's death in 1953 changed the climate and made it possible for him to leave. Riehl, also in his German group, produced the pure uranium used by the Russians for their first reactor; at one time, in 1946, he was shown a piece of pure U.S. uranium to serve as a model for what was wanted. Born said that, although Hahn's Dahlem laboratory was bombed, his part survived so his bench and equipment were saved.

After the dinner, Steve and I rode back to our hotel with Professor and Mrs. Lux, who looks much too young to be the mother of a 24-year-old son.

Saturday, September 8, 1973 - Munich

Steve and I had breakfast in the hotel restaurant on the sixth floor.

We met Franz Lux and Fritz Weigel in the hotel lobby, then started on a walking tour to see historic spots in Munich. We went first to Frauenplatz and visited the Cathedral of Our Lady at Munich. In the foyer, we saw the monument for Emperor Ludwig the Bavarian. We walked up part way, then took an elevator to the top observation level (98 meters) where we had a marvelous view of the city. I took movies which included the area of the Bavarian Academy of Sciences. We had a good view of Olympic Village (where the shootings took place last year). We went back down to ground level, visited the interior of the huge cathedral, heard the impressive music of the large organ which was being played at the time. The foundation stone for the Cathedral was laid on February 9, 1468. Although it was thoroughly bombed out during the war, the original stained glass windows were preserved and are now back in place. At a lower level, we saw the burial places of the Cathedral's priests (Archbishops and Cardinals), going back to 1271, when there was an earlier small church on the same site. Also included are the burial places of a number of kings and queens, including King Ludwig III, Queen Maria Therese, etc.

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We then went out of the Cathedral and walked down Kaufinger and Neuhauser Strasse (the main pedestrian and shopping area). I took some movies here. There is a huge subway underneath this section of Munich. We viewed the Glockenspiel on the City Hall and the monument marking the center of Munich. I took some movies of these, always including Steve, Lux and Weigel. Lux took a picture of Steve and me in front of the City Monument.

We next visited Viktudien-Markt (grocery market area) where we saw the huge May Pole and the little statues honoring Munich comedians. I took some movies here. Many people were doing their traditional Saturday morning shopping. We then visited the Hofbrauhaus Am Platzl (Beer Hall). Lux took two Olympus pictures of Steve and me inside the hall.

We walked to the Deutsches Museum, part of the way along the Isar River. I took movies as we were crossing the Isar River--these included views of the tower of the Deutsches Museum and its huge temperature indicator (it stood at 72°F). First we entered the Ehrensaal (Hall of Honor). Here there are busts of famous scientists such as Friedrich Wöhler and Justus von Liebig.

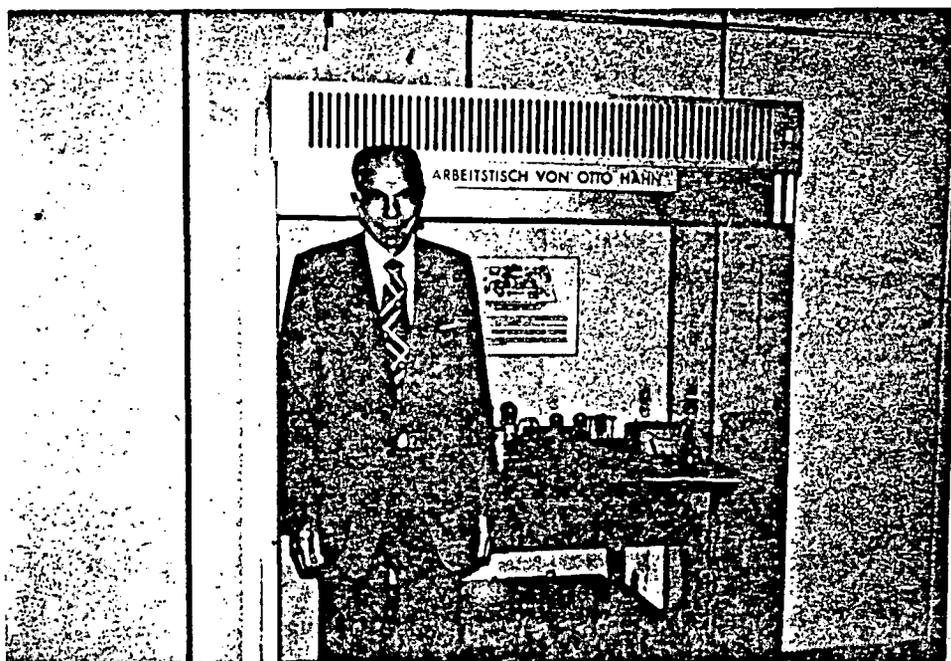
We then made a two-hour tour of a number of areas of the large museum. (A complete tour would take days.) We saw numerous demonstration experiments illustrating physical and chemical principles and a great deal of original experimental equipment with which classic historic experiments were performed. Steve took a picture of me in front of an original early set of equipment of Hans Geiger, including a Geiger counter. He also took a picture of me at a large chart showing the scientific descendants of Justus von Liebig, which includes G. N. Lewis. Lux took a picture of me and two of Steve and me in front of the original neutron irradiation setup, Geiger counters and amplifier equipment used by Hahn and Strassmann in the discovery of fission. We saw a number of early musical instruments, including a piano of Mozart, which was played for us by an attendant. We visited the underground mining area, including general mineral, salt and coal mines and their early and more modern techniques.

After our visit at the Deutsches Museum, we walked part way and took a subway part way to Marienplatz and walked to the nearby Bratwurstglockl where we had a pleasant lunch at an outdoor table adjoining the Cathedral of Our Lady of Munich. A friendly bystander took a picture with my camera of Steve, Lux, Weigel, and me at our luncheon table.

After lunch, we walked the few blocks to Residenzmuseum (Residence Museum). Here we went to the Schatzkammer (Treasury) where we saw gold, jewel-encrusted crowns of early kings and queens, many miniatures of various historic edifices, altars, bowls, chalices, chests, plates, necklaces, etc., some dating as early as 890, in the first rooms. The gold statue, set with diamonds, emeralds and sapphires, of St. George killing the dragon was especially impressive.



GTS and Steve Seaborg in front of the Patrona Bavaria in the Marienplatz München, Germany, September 8, 1973.



GTS in front of the experimental table of Otto Hahn: Deutsches Museum, Munich, Germany, September 8, 1973.

Saturday, September 8, 1973 (cont')

The central case in one of the next rooms contained the Bavarian Crown Jewels (245-251 in guidebook). In the next room, we saw many bowls, ornaments, etc., carved out of solid quartz, and the Rock Crystal Shrine of Duke Albert V (a large box). In another room, we saw the Ornate Table (no. 519 in the guidebook). In the next room, the cases contained large cups, plates, basins, etc. of Augsburg, early 17th century silver-gilt work. We proceeded through a number of additional rooms full of similar impressive displays.

After we finished our visit to the Schatzkammer, we walked on to the Altes Residenztheater (Old Opera House). The interior wall finishing and ornaments were moved out during the war and hence preserved. (We purchased a guidebook describing this Opera Theater and its history.) The main floor is filled with seats and surrounding this are the four tiers of boxes with the two-story royal box at the opposite end from the stage.

After this visit, we rode in the car of Professor Lux about 5 kilometers west to Nymphenburg Castle, the previous summer home of Grand Duke Maximilian Anuel. We visited one of the smaller castles, rococo architecture, which was used as a hunting center. The circular main room is lined along the walls with long mirrors. When we left this building and walked across the castle park grounds, we saw a number of redwood trees estimated to be about 200 years old. We came to the main esplanade leading to the central castle. Steve took movies of this castle and esplanade including Lux, Weigel and me. The grounds here were set off by expanses of water and fountains. We then walked along tree-lined paths a few hundred yards to another smaller castle, used for recreation. This contained a swimming pool, with provisions for heated water, used by royalty--they used to stand at the upper level and view nude young Bavarian girls in the pool below.

We then rested on a nearby bench, overlooking a lovely little lake, before going back to downtown Munich. We rode back to our hotel in Lux's car, arriving at 5:15 p.m.

Steve and I rested in our room until 6:30 p.m., when Professor and Mrs. Lux came by with Fritz Weigel and we rode with them to Garching to the home of Professor and Mrs. Hans Joachim Born. Here we had dinner with the Borns and their daughter Reinhild (about 28-30 years old) who works as a radiation biologist at the Gesellschaft für Strahlung Forschung in Munich. After dinner, Born gave me three pictures: (1) his Institute of Radiochemistry, (2) Otto Hahn and his students at Linden in June 1967, and (3) a group including Burriss Cunningham at the protactinium conference at Schloss Elman (Germany) in April 1969. Mrs. Born also worked in Hahn's laboratory and at one time was sprayed with radium when a co-worker had an accident opening a 300 mg. ampule. Born got his Ph.D. with Hahn in 1934 and worked with him until Hahn left Berlin for Southern Germany in 1944.

We rode back with the Luxes, dropping Weigel at the railroad station so he could take the night train back to Hamburg to pick up his family--his wife and two sons, Andreas (12) and Mathias (7). Steve and I returned to the hotel at 11:30 p.m.

Sunday, September 9, 1973 - Munich - Garmisch-Partenkirchen - Paris

Steve and I had breakfast in the hotel restaurant (6th floor of the adjoining main part of the hotel, the Bayerisches Hof itself), then checked out, finding that our hotel bill was being paid by the Munchener Chemischer Gesellschaft. We then met the Luxes, Franz and Gisela, and their boys Raimund (15) and Berthold (7). (They have three children, the other a 24-year-old son.)

We put our suitcases in the trunk of the Luxes's car and rode with them past the Oktoberfest grounds (a large area used only two weeks per year), with two main streets, one lined with about a half-dozen beer halls, the other with entertainment paraphernalia, including a roller coaster and a merry-go-round, then about 85 kilometers south to Garmisch-Partenkirchen (where the 1936 Winter Olympics were held). Here we tried to board the Kreuzeck Bahn, one of the systems for transportation up into the mountains consisting of cages suspended from a cable, but there was more than a one-hour delay due to the crowd. We then, at 11:00 a.m., used the neighboring Osterfelderbahn to go up to its highest point (altitude 2,033 meters, starting from 750 meters). We then hiked down to a level of about 1,700 meters, at which point Franz, Steve and I took off on a trail toward the mountain peak Alpspitze (altitude about 2,600 meters). The others decided it was too difficult a climb and waited for us. It turned out to be a rather difficult rock climb, so Franz and I turned back after we had climbed a few hundred meters. Steve, who was ahead of us and out of earshot, continued and, due to limited time, climbed on up to the top of Bernardeiwände (altitude 2,300 meters) rather than Alpspitze. This was a rather difficult climb, with a sign along the way admonishing hikers that the climb was to be undertaken only by experienced hikers--an appreciable part of it required the use of a hand cable much like, but more difficult than, the final part of the ascent up Half Dome in Yosemite. Steve came back down and joined us at 1:30 p.m. Meanwhile, the rest of us took some short walks in the general area.

After Steve came down, he, Franz and I hiked on along the nearby level trail to Hochalm, while Gisela and the two boys hiked back up to our point of arrival and waited for us. At the refreshment place at Hochalm, Steve, Franz and I had cold drinks and ate as our lunch some salami and bread that Franz had brought along in a knapsack. We then hiked another trail back up to our arrival point to join the others.

We took some movies and Olympus pictures at various points of these tours in the mountains. In the movies, I took some views of the valley and Garmisch-Partenkirchen below and Franz took some of Steve coming down from his climb and me going up to meet him (some of which he shot with the camera sideways). I took some views of our whole group on the bench where we waited, Franz took some of Steve and me, and I some of Steve with the valley and Garmisch-Partenkirchen in the background. I also took some views of our whole group at our Osterfelderbahn mountain top arrival and departure point and from there of Bernardeiwände with its cross on top in the distance. With my Olympus camera, I took two pictures of our whole group at the bench where we waited for Steve, Franz took a picture of Steve and me with the valley and Garmisch-Partenkirchen below in the background, and I took a

picture of Bernardeiwände and its cross from about the 1,800 meter level and another from the 2,033 meter level.

At 3:30 p.m., we rode back down as we had come up and went back to Munich in the Luxes's car, arriving at 5:30 p.m. at the Lux apartment in the Boganhausen district. I finished up cartridge no. 5 of my movies here. We had a bit of supper with the Lux family, then Franz, with the boys along, drove Steve and me to the Munich airport. As we were saying goodbye, he reiterated what he had said many times, that he hoped that we could have a program of cooperation between the Nuclear Chemistry group at LBL and the Institute of Radiochemistry of the Technical University of Munich. I also expressed the hope that I could help him procure heavy actinide isotopes from the United States should he run into trouble, in which case he will write me. He will also write and send me a summary of the work going on at the Institute as an adjunct to the information I received during my visit there Friday and information on the address of Gesellschaft Deutscher Naturforscher und Aertze.

Steve and I checked three of our bags, went through passport control, two searches of my carry-on bag, and boarded Air France Flight No. 733, which left at 8:20 p.m. and arrived in Paris (Orly Airport) at 9:40 p.m.

We were met by Paul Lochak and Roxanne Goldsmith, his administrative assistant. Paul helped us through passport control (there was a huge line-up) and helped us collect our bags, after which he drove us to the Hotel Prince de Galles, 33 Ave. George V, where we checked into rooms 121-123. En route, we drove by the lighted Arc de Triomphe. Paul, Roxanne, Steve, and I spent the next half-hour going over our schedule for the week, after which Paul and Roxanne said goodbye, and Steve and I retired for the night.

#### Monday, September 10, 1973 - Paris - Orsay - Saclay

Steve and I had breakfast in the hotel restaurant. I changed 710 DM to 1,200 francs. Steve then did some sightseeing with Catherine Pages (age 17) from about 10:00 a.m. to 6:00 p.m.

I rode with Paul Lochak on the new highway to the Orsay campus of the University of Paris, south (which specializes in science), where we were met by Marc Lefort. After Lochak left, I was taken to the Laboratoire Rene Bernas (former Laboratory of Mass Spectrometry) where I met Robert Klapisch, Claude Stephan, Marcelle Epherre (who has spent some time at Cal Tech with Wasserberg), Catharine Thibault, and Clement Fatu (whom I met in Romania in 1971 at the Atomic Institute in Bucharest).

Stephan (who is from the Laboratory of Nuclear Physics) and Mrs. Epherre showed me their work on the mass spectrographic identification of superheavy elements. Klapisch showed me the mass spectrograph being used. Stephan finds products with mass numbers around 310 (also around 294, which is 16 mass numbers less). He proves by slow and fast (Cd shield) neutron irradiation at Saclay to induce fission (with detection of tracks in pure quartz) that these are not due to uranium isotopes. He finds the tracks around mass number 310 in

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Alaskan Pt ores and manganese nodules. The yield of some 10,000 fission counts corresponds to about  $10^8$  atoms (based on estimated fission cross section). The background, using, for example, lunar samples, gives essentially zero fission tracks (after neutron irradiation) in the mass no. 310 region.

Stephan and Mrs. Epherre intend to measure the exact mass of these because it should be about 0.2 m.u. heavier than combinations of lighter elements (light uranium) with elements like oxygen. Such an observation would essentially prove their case. I suggested they also do some chemistry and told them we would be glad to make some suggestions of predicted chemical properties of superheavy elements. The tracks are actually in largest yield around mass no. 314. There is no yield at mass no. 320. They do not see any spontaneous fission tracks due to the small amount of the product. None of this work has been published yet; I suggested the Journal of Inorganic and Nuclear Chemistry.

Next we went to a neighboring room where Klapisch and Mrs. Thibault showed me the mass separator apparatus that they used in the experiment with Poskanzer at CERN to identify the neutron-rich isotope produced in the bombardment of uranium with 25 Gev protons.

We then went upstairs to a library and had tea and coffee and cookies--Klapisch, Lefort, Stephan, Mrs. Epherre, Mrs. Thibault, Dr. and Mrs. Langevin (Michel and Helen, Laboratory of Nuclear Physics), and Maurice Jean (Director of the Institute of Nuclear Physics). Lefort told me that one of his men, Joel Galin, is coming to work with Stan Thompson in January (he has worked on heavy ion fission), supported by a French fellowship. We talked about the energy crisis, the U.S. heavy isotope production program, support of research, my trip to China, etc.

We went outside the Lab and Jean took a picture and movies of me and the group.

I then walked with Lefort (he is Director of the Laboratory of Nuclear Chemistry at Orsay--this is where Bouissieres, David, Guillaumont, etc., work) to the Heavy Ion Laboratory. He showed me ALICE, the linear accelerator-one meter cyclotron combination heavy ion accelerator and its eight beam lines. He showed me the apparatus they used to look for the production of superheavy elements from thorium plus krypton. They now use this helium transport system for the search for new isotopes from rare earth plus argon--they have found alpha-emitting  $Pb^{186}$ ,  $Pb^{187}$ ,  $Pb^{188}$  (lighter than those found by Sivola),  $Bi^{188}$ ,  $Bi^{189}$ ,  $Bi^{190}$ , and  $Pt^{173}$ . This will be published in Nuclear Physics. In the case of  $Pb^{186}$  they checked the mass number with the mass separator system.

Lefort is giving up on his attempts to produce superheavy elements because all the results have been negative with no good prospects for the future. The magnet between the linac and the one-meter cyclotron was burned out in July and has not yet been repaired, so it will be 2-3 weeks before ALICE will be working again.

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They are using the cyclotron alone in the meantime. We talked to Yvon Lebeyec, in charge of development of the helium jet system, about some of his problems--he spent three months at Texas A & M in 1968 to become familiar with this technique.

We then walked to the Laboratory of Nuclear Chemistry and went to Lefort's office. He gave me a copy of the report which proposes the building in France of a two cyclotron tandem combination for the acceleration of heavy ions. An 8-meter separated 4-sector cyclotron feeds into a second 8-meter separated 4-sector cyclotron. Each machine could also be used separately. It would be built as a National Laboratory and may be located in southeast France between Grenoble and Lyons at a new industrial city. The combination will produce heavy ions with 100 Mev per nucleon up to argon and go down to 10 Mev per nucleon at uranium. The estimated cost is 150 million francs (\$30 million) and could be completed by 1980 if they get the first money by 1974. They want something quite different from GSI. The funding for the machine has been "accepted in principle."

Lefort then drove me to nearby Saclay, the CEA Laboratory. The area that I visited is the new, open (non-secret) area (called Ormedes Merisier), where research in nuclear physics, etc. is now located. We went to one of the new buildings to the office of Henrietti Faraggi (head of the Nuclear Physics Department) in the Direction de Physique. Here I met with Mrs. Faraggi, Herve Nifenecker (just returned to Saclay from Berkeley), Vincent Gillet (theoretical physicist), and Phillipe Catillon.

We went to the old Saclay Laboratory, requiring a pass to get by a fence, to have lunch with Paul Bonnet (Director of the entire Centre de Etudie Nucleare de Saclay), Mrs. Faraggi, Nifenecker, Gillet, Catillon, Netter (head of the operations of the Linear Accelerator Laboratory), Anatole Abragam, Jacques Thirion, David Hendrie (from LBL, spending two months at Saclay with Thirion), and Eugene Cotton (Director of the Tandem Accelerator).

After lunch, I went with Thirion and Hendrie to visit SATURN (like the Cosmotron), the 3.0 Gev proton synchrotron. Hendrie will use SATURN to measure the  $Pb^{207}(p,p')Pb^{207m}$  production cross section,  $Pb^{208}(p,d)Pb^{207m}$ , and things of that sort.

I met with Jean Saudinos (who spent a year with Bernard Harvey at Berkeley in 1967) who developed the "drift counters." This is the department in which Mirabelle, the bubble chamber I saw at Serpukhov in 1971, was located. Hendrie told me there was a fire in the main steering coils of SATURN just before he came, making it necessary for him to go back to LBL and return to Saclay later.

Next I rode with Thirion and Hendrie to visit the Tandem van de Graaf Accelerator. Here Cotton showed me around. I met Michel Mermaz, who is working on nuclear transfer reactions with heavy ions, much like Bernie Harvey did when he spent his sabbatical at Saclay. Mermaz described to me his work on the  $Fe^{54}(O^{16}, C^{12})Ni^{58}$  reaction and other reactions. He gave me a reprint of a summary article by

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M. C. Lemaire. The van de Graaf has a voltage of 8.5 to 9 Mev, so they can accelerate C to about 50 Mev and O to about 68 Mev.

I then rode with Cotton and Hendrie back outside the restricted, fenced area to another section of Orme des Merisier to visit the Linear Accelerator Laboratory. Here I only had time to see the 600 Mev linear electron accelerator, shown to me by Netter and Tzara (head of the experimental work at the Linear Accelerator Lab). We walked along the 185-meter long accelerator (thirty 6-meter sections) and saw the huge experimental room where electron scattering experiments are carried out (one of four experimental areas).

We were joined by Mrs. Faraggi and went outside the accelerator building, where my chauffeur (scheduled to drive me to Fontenay-aux-Roses) used my Olympus camera to take a picture of Mrs. Faraggi, Netter, Tzara, Hendrie, and me.

I then rode with the chauffeur in a Saclay Laboratory car to the Center for Nuclear Energy at Fontenay-aux-Roses, arriving at about 4:00 p.m. Here I was met by Rene Berger and M. Chauvez, Director of the CEN-FAR Laboratory. Chauvez left us and I went to a conference room in a chemistry building, where I met with Rene Berger, D. Damien, C. Madic, C. Musikas (whom I had met at Hamburg at the IUPAC meeting), Andre Chesne (who was with us at Berkeley, with Stan Thompson, for 14 months in 1957-59), and Robert Guillaumont (whom I met at Hamburg).

Berger (who was at Berkeley with Cunningham and Thompson in 1959-60) told me that his main work at CEN-FAR is the separation of  $\text{Pu}^{238}$  from  $\text{Np}^{237}$  and the encapsulation of  $\text{Cf}^{252}$  sources.

Muskas then started the session. He described his work with actinide(V) compounds. U(V) exists as other ions than  $\text{UO}_2^+$  to an extent greater than Np(V). NP(V) peroxide is like U(VI) peroxide. He also described work on NP(VII) in ionic form in solution. He thinks the formula is  $\text{NpO}_3^+$  (not  $\text{NpO}_2^{+3}$ ) over the pH range 0.0 to 3.0; the Np(VII) hydroxide precipitates above pH 3.0. Musikas observed polarographic reduction of Am(III) to Am(II) in 1969 with an oxidation potential of -2.2V. compared with a prediction by Nugent of -2.1V.; this work was done in acetonitrile or methyl cyanide ( $\text{CH}_3\text{-C}\equiv\text{N}$ ). He derived the aqueous reduction potential from this by using data on the Eu(II)Eu(III) oxidation potential obtained by the same techniques.

Madic next described his work on the extraction of plutonium into organic solvents. Damien then described his work on the properties of solid actinide compounds. He has studied the compounds of Np, Pu, Am with S, Se, Te (chalcogenides).

After these presentations, Berger showed me an example of a Pu-238 power source for a cardiac pacemaker and a complete pacemaker, including leads, taken out of a patient who had been killed in an automobile accident. They charge these with Pu-238 for Medtronic (a subsidiary of 3M in the United States) and are now producing them for use in the United States at the rate of 5 per week, projecting a total of 500 for the next two years. A total of about 400 Pu-238 fueled

Monday, September 10, 1973 (con't)

cardiac pacemakers are now in use. Berger said the recently announced battery-operated pacemakers that are recharged through the skin have the disadvantage of decreasing their voltage with each recharge and thus have a limited life. He gave me a reprint of the paper on Pu-238 pacemakers given by Michel Alais et al. at the Hamburg IUPAC meeting.

It was now a little after 5:00 p.m., and Lochak came by to pick me up for the drive back to Paris. He used my Olympus to take two pictures of me with the group that had met with me in the conference room, and he also took movies of the same group.

I then rode with Lochak to our appointment with Olivier Giscard d'Estaing, Board member of SIT and brother of Valerie Giscard d'Estaing, French Minister of Finance, at Cercle Interalliee, a private club at 33 Faubourg Saint Honore, a former Rothschild residence, located between the Japanese and British Embassies.

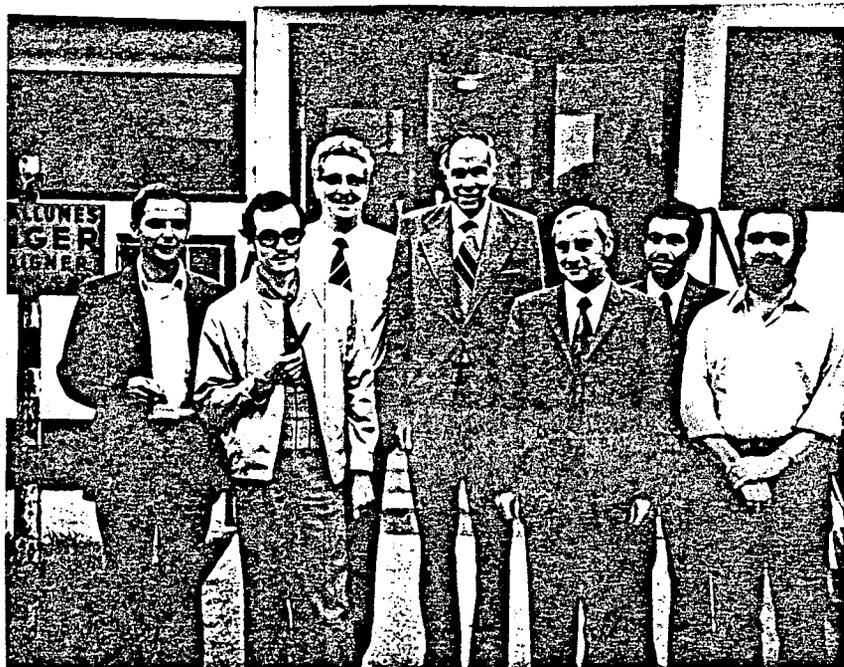
Olivier Giscard d'Estaing told me he is the originator of the idea of the international Institute of Technology in Milan, sponsored by six nations. We talked about nuclear power and the attacks on it by environmentalists and the remedies, if any, and about new ideas in education. We met from 6-7:00 p.m., then Lochak drove me back to the Hotel Prince de Galles.

Steve was already in our suite, having spent the day with Catherine Pages. They did a good deal of walking around and had a pizza lunch.

We changed our clothes, then rode with Lochak to the residence of Mr. and Mrs. Norbert Beyrard (member of the Board of SIT) for dinner. Their daughter Nicolette (age 22) was present, but was not feeling well and ate no dinner. The remainder of the dinner party consisted of Mr. and Mrs. Henri Bedie (Minister of Finance, Ivory Coast), Dr. and Mrs. Edgar Piret (U.S. Embassy), Dr. and Mrs. Marcel Bessis (he is a hematologist, Professor of Medicine at the University of Paris), Professor de Bandt (operational analysis, University of Paris), Mr. and Mrs. Boris Lochak, and Admiral and Mrs. Bloch (responsible for French Satellite program; head of Concorde program, which reports to him).

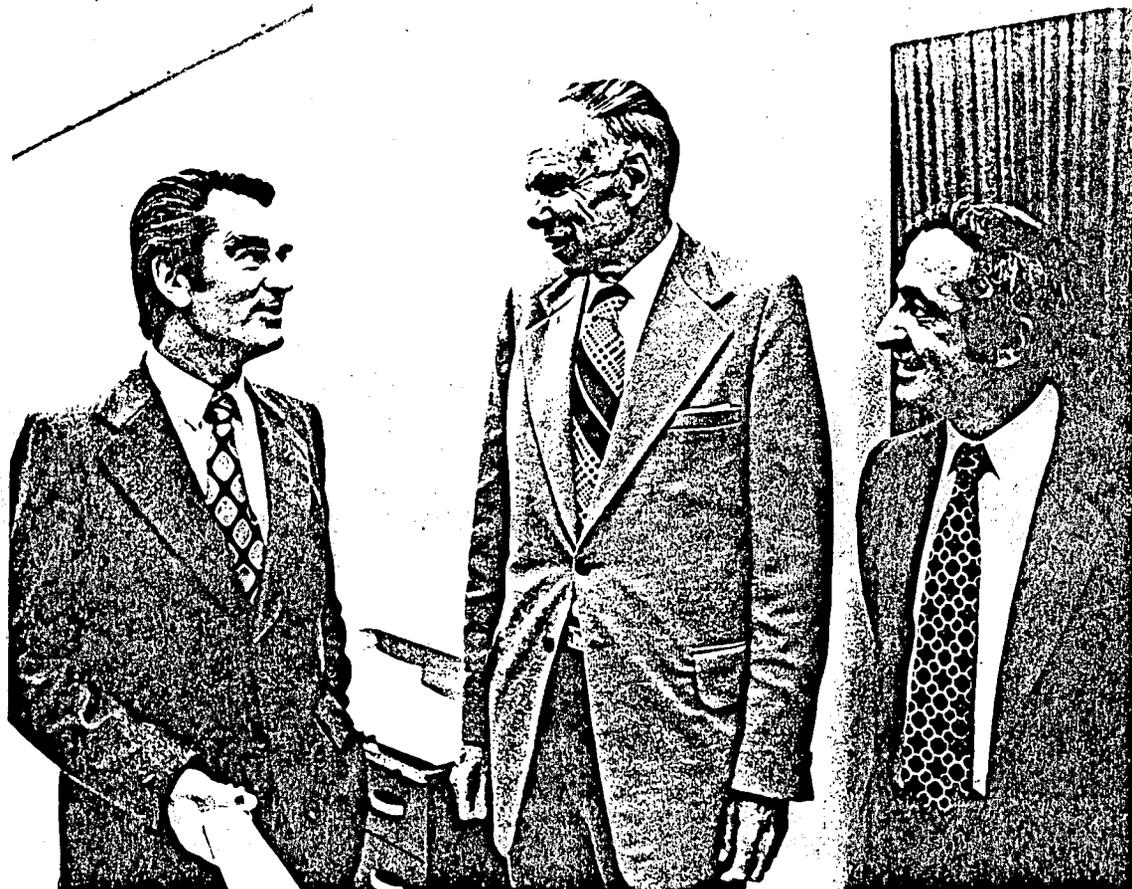
I sat next to Mrs. Beyrard, the hostess, who spoke only a little English, and Mrs. Bessis. I learned that Dr. and Mrs. Bessis spend every January in San Francisco, where he is a visiting professor at Moffett Hospital at the U.C. Medical Center. During this time, he also visits John Lawrence and Donner Laboratory. I invited him to visit me at LBL. I had a good chance to get acquainted with Boris Lochak--he was born in Russia, moved to France at the age of 17, moved to the United States with his family (wife, Paul and his younger sister who now is a divorcee living in New York City), and lived there from 1941-67 when he became a U.S. citizen and built up Gibbs and Hill.

After the dinner, Paul drove us back to the hotel and we retired a little after midnight.



GTS with Andre Chesne (3rd from left) and Rene Berger,  
D. Damien, C. Madic, GTS, C. Musikas, R. Guillaumont:  
Fontenay-aux-Roses, France, September 10, 1973.

Jean Couture, GTS, Yves Giraud: American Embassy in Paris,  
September 13, 1973.



Tuesday, September 11, 1973 - Paris - Brussels - Paris

We got up at 6:15 a.m., met Lochak, and rode with him and his friend Francine Caland in a taxi to the Railroad Station. We boarded the Trans-Europe Express (TEE) which left Paris at 7:20 a.m. and arrived in Brussels at 9:45 a.m. We had breakfast en route.

When we arrived, Steve went off with Francine on a sight-seeing tour, and Lochak and I went to the headquarters of the U.S. Mission to the European Economic Community to meet with Julius Rubin (U.S. Scientific Representative) in his office on the third floor. Here we reviewed the general situation with respect to European plans for uranium enrichment and possible U.S. involvement. The question of the choice between gaseous diffusion and gas centrifuge is still very difficult and almost impossible to resolve on the time scale required.

Rubin had to spend some time in a briefing conference for U.S. Ambassador to France John Irwin, so Bob Wilcox dropped in to talk with us. He said the Reuters' Applied Atomic Report is a good source of nuclear information.

Lochak, Wilcox and I then went up to the 7th floor to the office of Ambassador to the European Economic Community, Joseph Greenwald. We talked about the problem for meeting future uranium enrichment requirements and were soon joined by Rubin and Irwin, who was visiting Brussels. Rubin had just brought Irwin up-to-date on the uranium enrichment situation and we continued this conversation.

Lochak and I then took our leave and went by taxi to the headquarters of Electrobél (1 Place du Trône, 1000 Brussels), where we were met by Francis Louis (Director General of Electrobél Engineering Company), who took us across the street to a charming old house (built in 1640) owned by Electrobél. Here we were soon joined on the second floor by: Thys, President of Intercom (a subsidiary of Electrobél) and Administrator Delegate of Electrobél; Landsberg, President of Synatome and Administrator Delegate of Ebes (31 Rue de la Science, 1000 Brussels); Pierre Nihoul, Administrator Delegate of Intercom; Pierre Erkes, Assistant Director of the engineering Company Traction-Electricité; and van den Demme, Deputy Director of Intercom. After some drinks, we proceeded upstairs for lunch. We were joined by Andre Rolin, General Manager of Production for Intercom.

During and after lunch in the room below, I described the general uranium enrichment situation. Nihoul told me about his study of European enrichment requirements and plans to meet them through a combination of production by Urenco (the tripartite centrifuge group) and Eurodif (the French-led group of France, Italy, Spain, Belgium, Sweden gaseous diffusion project). He gave me a graph showing these projections (copy attached). Louis told me that there is general agreement that Europe must build enrichment facilities to fulfill a large part of their needs. In response to a question by Thys, I said the proper way to enlist the aid of the U.S. is to take the initiative to follow up on the USAEC announcement of July 28, 1971 offering cooperation with foreign countries in uranium enrichment. He seemed interested in participation of United States capital in financing the Eurodif project.

# UNIPEDE

## GRUPE D'INFORMATION SUR L'ENRICHISSEMENT DE L'URANIUM

ANNEXE A LA NOTE N°7 (24.08.1973)

Muts/an  
rejets à 0,275%

### EUROPE OCCIDENTALE

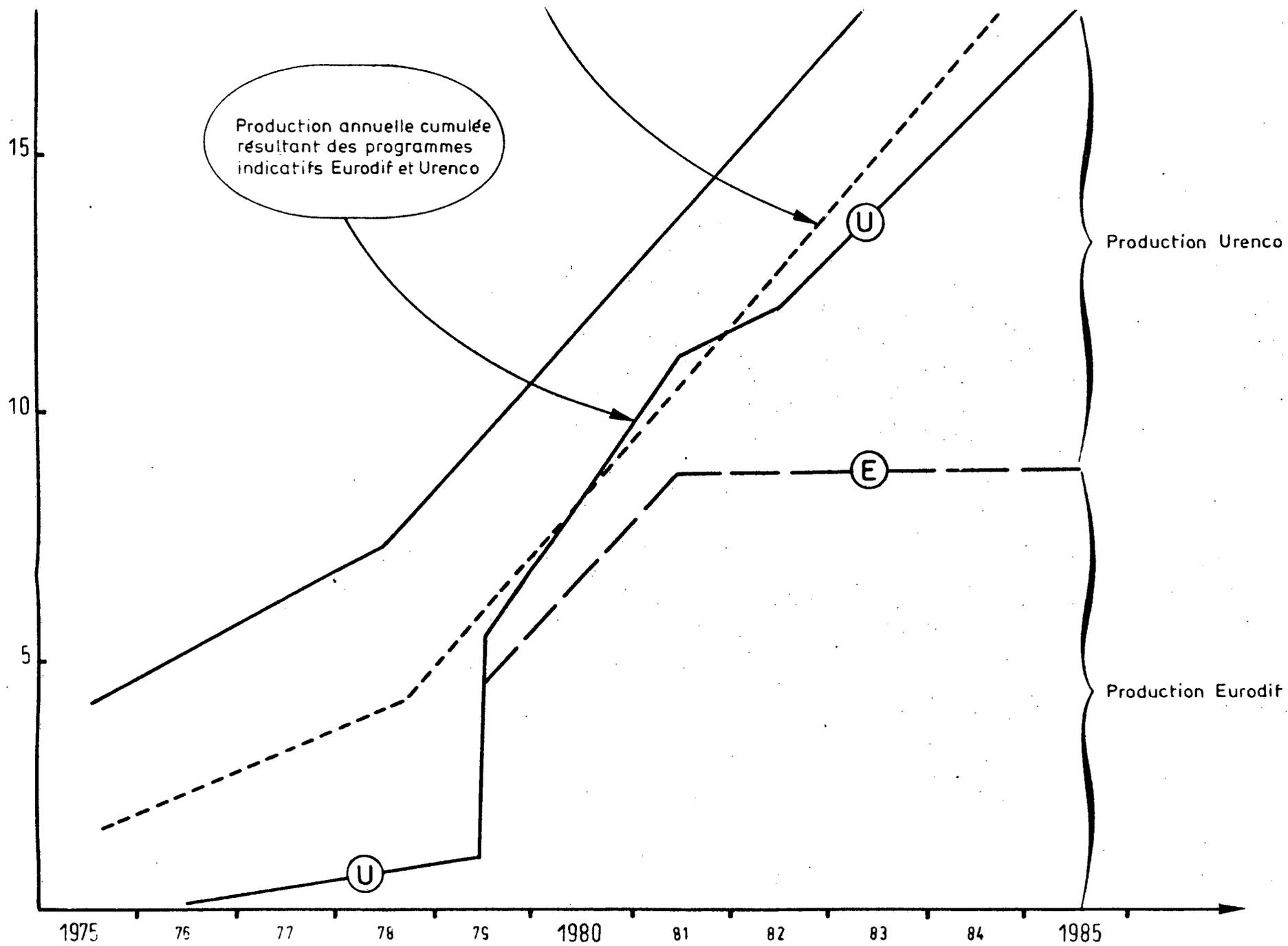
25

Besoins annuels

Besoins annuels  
non encore couverts

Besoins couverts par  
des contrats existants

Besoins restant à couvrir  
au delà des contrats  
actuels et des programmes  
Urenco et Eurodif



Following the lunch and discussion, our waiter took a picture with my camera of the entire luncheon group, after which we proceeded across the street to the Electobel building. Here, in a conference room on the second floor, I was introduced by Landsberg and gave my talk, "Energy for the Future," illustrated with about 40 slides, followed by a question-and-answer period. An abstract of my talk, in French and English, was given to each of the 100 or so members of the audience. Rubin attended, as did Fremont Felix and Louis de Heem, whom I knew as the former General Manager of MOL.

After my talk, refreshments were served. At 4:30 p.m., Paul and I were joined by Steve and Francine, who had completed their sight-seeing tour, and we rode in Francine's car to the railroad station. Here we boarded the Trans-European Express, which left Brussels at 5:20 p.m. and arrived in Paris at 7:45 p.m. We then took a taxi to Cercle Interalliee, where Steve and I attended a dinner hosted by Paul.

Present were Dr. and Mrs. Bertrand Goldschmidt, Roxanne Goldsmith, Jean Couture (Head, General Secretariat of Energy and member, Ministry for Industry and Scientific Development), Mr. and Mrs. Gordon [Olivia] Brown (U.S. Embassy, Energy Department), Mr. and Mrs. Boris Lochak, Steve, and me. We met Agnes Feray (nee d'Albes), an SIT assistant who helped arrange the dinner party; she is a descendant of the Haviland family which emigrated to France from the United States and owns the Haviland porcelain factory.

I sat next to Naomi Goldschmidt and Mrs. Boris Lochak. Bert and I discussed the latest controversy involving France in the IAEA; France is opposing a move to remove the time limits for the application of IAEA safeguards to bilateral agreements. I told Bert I think France is again on the wrong side of this issue and Jean Couture agreed with me. I learned from Gordon Brown that he is a cousin of Mrs. Glen Gordon.

After dinner, Steve and I rode back to our hotel with Paul and retired a little after midnight.

### Wednesday, September 12, 1973 - Paris

Steve and I had breakfast in the hotel restaurant. Paul Lochak came by and we conferred about my schedule in our suite. He wants me to head up a consulting group on nuclear power questions. I then rode with Paul to the headquarters of Electricite de France (32 rue Monceau) for a meeting with EDF officials. Steve stayed at the hotel, scheduled to have lunch with Dr. Pages (Monique's husband).

At EDF, Lochak and I met with Marcel Boiteux, Director General; J. Audy, Deputy Director of Equipment for Nuclear Power; and Maurice Magnien, Director of Research and Development. While waiting for the meeting to begin, Paul told me that Laurent (Charge de Mission, SEPTEN) and Jan Zaleski (a fast breeder expert who spent some time with Chauncey Starr at UCLA) of EDF are meeting with Starr at EPRI next Monday in Los Angeles as a follow-up to the contact I arranged between Starr and Lochak.

Wednesday, September 12, 1973 (con't)

During our two-hour meeting (agenda attached), from 11:00 a.m. to 1:00 p.m., we discussed: (1) uranium enrichment, (2) the fast breeder reactors, (3) safety problems in nuclear power, (4) handling of radioactive waste, (5) standardization of water reactors, and (6) U.S.-French cooperation in reactor research and development.

(1) Boiteux feels that Europe must have an enrichment capacity of its own to be absolutely assured of nuclear fuel supply. He feels that the demand justifies both the Urenco and Eurodif plants but does not feel the European market can support these and a comparable U.S. source of supply before 1985. I explained the reasons for the difficulty in choice between the gaseous diffusion and gas centrifuge approaches. I said that the United States can supply Europe and the U.S. with enrichment services until 1983 with its present capacity, augmented by CIP and CUP and pre-production, and can build, on the basis of a decision in 1974, additional capacity to handle any additional European requirements for customers who make firm commitments. Boiteux wanted to know why the United States would want to do this, and I said that this would help the U.S. balance of payments situation. He wanted to know how European customers could be guaranteed that the supply contract would be honored (he cited examples in which U.S. coal companies had reneged on contractual arrangements) and that the price would not be raised unreasonably. I said the conditions were different from the coal situation, so that contracts would be honored and the price probably would be the same as that charged U.S. customers, which would be a protection on the price. We talked also about possible U.S. financial companies helping in the financing of the European plant. I admonished them that the possibility of U.S. cooperation in such an arrangement or any more of a direct assistance arrangement cannot be taken for granted because there is always some opposition in the United States.

(2) I described the U.S. philosophy on fast breeders and the lack of need to hurry because of the greater availability of more expensive uranium which will not raise the cost of power from water reactors much and the potential role of HTGR in filling the gap before the advent of the LMFBR. The HTGR also has other advantages, such as in its smaller ECCS problem.

(3) I said the main problems of nuclear power are the big accident possibility and waste disposal, not low level radioactivity emissions from routine operation of reactors.

(4) I indicated the waste disposal problem is serious, that the disappearance of long-lived wastes by neutron irradiation is not likely, but the problem is manageable.

(5) They are studying the problem of adopting Westinghouse's recent 1,300 MW size as the standard size rather than the older, more established, 1,200 MW size.

(6) They would like more cooperation with the United States and I mentioned EEI and EPRI as the best possibilities.

✓ Topics covered

Briteau, Magnien, Clady, STS, P. 2

13 September 73 416a  
11 am - 1 pm

PROPOSED TOPICS OF DISCUSSION -- E.D.F.

- ✓ 1. Long-term electric power orientation. *SWR & BWR future outlook as compared to newer reactors*
  - a) Timing and expected reliability of fast breeder reactors.
    - U.S.
    - French
    - Role of HTGR*
- ✓ 2. E.D.F. position on long-term enriched uranium procurement. *May 1985*
  - a) U.S. sources - EDF feelings about present U.S. positions. *can't get more*
  - b) European sources - EURODIF *maximize*
  - c) E.D.F. feelings about present progress of EURODIF and how they would feel about U.S. participation in EURODIF program. *Coal contracts for 1975*
  - d) How E.D.F. feels about greater private initiatives in this area.
- ✓ 3. Research and Development cooperation between Etudes et Recherche Division of E.D.F. and U.S. R&D organizations. *EDF - EPRI*
- 4. Problems of inventorying R&D programs of organizations and nations.
  - a) Modern current methods of executing these inventories.
  - b) How and when such inventories should be carried out between E.D.F. and U.S. organizations.
- 5. Examples of programs in which E.D.F. is willing to participate now.
  - ✓ a) Reactor safety programs *ECCS problem*
  - General Examples* b) Atmospheric content of CO<sub>2</sub>: world growth and consequent world temperature rise.
  - c) *All environmental technologies*
- 6. How reactor licensing and regulations are evolving in the U.S.; possible dissolution of the A.E.C.
- 7. National energy policy and the role of Governor Love.
- ✓ 8. Orientations for handling radioactive wastes
- 9. Problems of fissile materials diversion
- ✓ 10. Standards 900-1200-1300 MW

EDF 40,000 MW \$5.5 billion budget \$100,000,000 R,D + testing (2%)

Wednesday, September 12, 1973 (con't)

I learned that EDF has a total generating capacity of 40,000 MW, a \$5.5 billion budget, of which \$100 million (2%) is devoted to research, development and testing (mostly the latter two). (A list of EDF officers is attached.)

After our meeting at EDF, I rode with Lochak to the Restaurant Laurent (41 Avenue Gabriel) for a garden luncheon hosted by Joseph Fontanet, Minister of Education. Also present were: Jacques Monod (Director of the Pasteur Institute); Bernard Gregory (former Director of CERN, now Director of the National Center for Scientific Research [CNRS], the French equivalent of NSF, with a budget of \$400,000, and reporting through another official [formerly Aigrain] to the Minister of Education; Gregory's position was formerly held by Hubert Curien); Professor Raymond Barre; Hubert Curien (Delegue General a la Recherche Scientifique); Professor Robert Chabbal, an Orsay physicist; Professor Fridel, a physicist; Professor Andre Lichnerowicz, College of France; and Jacques Casanova of the Ministry of Education.

I sat next to Monod and Olivier Giscard d'Estaing. When I told Monod of Dave's interest in Population Biology, he admonished that he be careful because this is not a real scientific discipline. He told me there will probably be a Nobel Symposium next September on the Limits of Growth. Monod suggested that I, as a member of the Soviet Academy of Sciences, write President Keldysh protesting the Soviet treatment of Sakharov.

At the end of the lunch, Fontanet made some welcoming remarks and suggested I might want to give some of my views on new trends in education. I described (1) the California tripartite higher education system, (2) Science Service and its role in the training of young scientists, (3) CHEM study project, and (4) mentioned my trip to China and the changed educational methods there.

After the luncheon, I rode with Lochak to the French National Radio and Television Center. N. Dougier, a protege of Olivier Giscard d'Estaing, who graduated from the European Institute of Business Administration (established by Olivier Giscard d'Estaing), is the editor of the magazine European Business. Dougier asked that I be interviewed by Edward Collins, the English Editor of the Office of Radio-diffusion and Television of France (ORTF), so we went to his office at the Center and he interviewed me on tape on the energy crisis for broadcast chiefly in developing countries, but also for use in European Business.

Lochak then drove me back to my hotel where I met Steve, who had returned from his lunch with Dr. Pages in the cafeteria of the IBM building where Pages work. Pages wanted to talk to Steve about the use of computers in personality assessment, etc.

Steve and I walked to the Eiffel Tower and walked up the steps to the second level (115 meters). On the way to the tower, I took movies and an Olympus picture of Steve on a foot bridge over the Seine, with the tower in the background; and on the second level, I took movies and a picture of Steve with the Arc de Triomphe area in the background

# Direction

417a

**MM.**

Direction Générale	<b>Marcel Boiteux</b>	Directeur Général
	<b>Charles Chevrier</b>	Directeur Général Adjoint
	<b>Jean Guilhamon</b>	Directeur Général Adjoint
	<b>Alexis Déjou</b>	Délégué Général pour les Orientations à long terme
	<b>Albert Robin</b>	Directeur

**MM.**

Directions	<b>Henry d'Ormesson</b>	Directeur Général des Services Financiers et Juridiques
	<b>Jean Villemain</b>	Directeur du Personnel
	<b>Jacques Bour</b>	Directeur des Affaires Générales
	<b>Jean Cabanius</b>	Directeur des Affaires Extérieures et de la Coopération
	<b>Maurice Magnien</b>	Directeur des Etudes et Recherches
	<b>Michel Hug</b>	Directeur de l'Équipement
	<b>Pierre Wyart</b>	Directeur de la Production et du Transport
	<b>Roger Courbey</b>	Directeur de la Distribution

# Conseil d'Administration

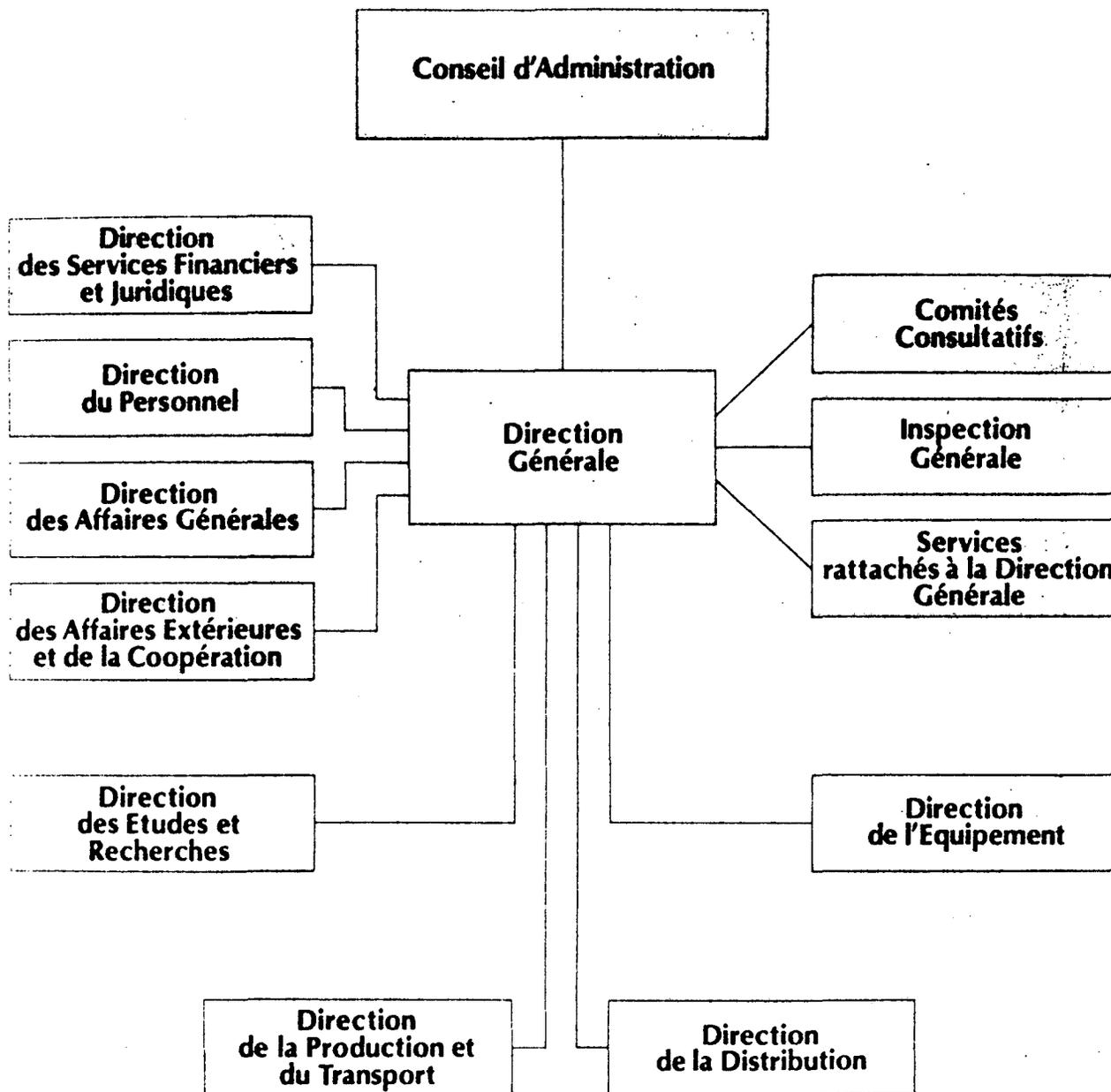
Composition au 31 décembre 1972

417b

**MM.**

<b>Paul Delouvrier</b>	Inspecteur Général des Finances Président du Conseil d'Administration
<b>François Blaizot</b>	Directeur de l'Aménagement Rural et des Structures au Ministère de l'Agriculture
<b>Etienne Delaporte</b>	Directeur adjoint à la Direction du Trésor au Ministère de l'Economie et des Finances
<b>Pierre Futin</b>	Maire d'Orgelet
<b>Renaud de La Genière</b>	Directeur du Budget au Ministère de l'Economie et des Finances
<b>Georges Gilberton</b>	Ingénieur
<b>André Giraud</b>	Administrateur Général Délégué du Commissariat à l'Energie Atomique
<b>Jacques Lacarin</b>	Maire de Vichy
<b>Henri Lenourichel</b>	Ingénieur
<b>Maurice Luneau</b>	Ingénieur
<b>Roger Martin</b>	Ingénieur en Chef des Mines
<b>René Montjoie</b>	Commissaire Général du Plan d'Equipement et de la Productivité
<b>Roger Pauwels</b>	Employé
<b>Claude Tougeron</b>	Ingénieur
<b>Charles Werbrouck</b>	Chef de Section
Commissaire du Gouvernement	
<b>Ivan Chéret</b>	Directeur du Gaz, de l'Electricité et du Charbon au Ministère du Développement Industriel et Scientifique
Commissaire Adjoint du Gouvernement	
<b>Michel Laurent</b>	Ingénieur en Chef des Ponts et Chaussées
Mission de Contrôle Economique et Financier	
<b>Jacques Cruchon</b>	Chef de la Mission
<b>Maurice Lardi</b>	Contrôleur d'Etat
<b>Maurice Vion</b>	Contrôleur d'Etat

# Structure générale



and the same with the park-like area in the background, finishing cartridge no. 6.

We then walked back to the hotel, where Steve was soon picked up by Roxanne to meet a couple of girls and boys to have dinner together at Le Procope in the Latin Quarter of the Left Bank, a restaurant where Rousseau and Voltaire dined. The girls were Susan Raw, an English girl who works at SIT, and her friend Henrietta. I called Sheila at the office in Berkeley. Things were quiet and in good order.

Lochak came by to drive me to dinner at the home of Olivier Giscard d'Estaing. Present were Jurasynski (Chairman of the Phillips Company of France), Mr. and Mrs. Maurice Levy (scientific attache in the French Embassy, Washington, D.C. from 1968 to 1971, now at the University of Paris and Ministry of Industry and Scientific Development), Mr. and Mrs. Yves Girard (Ministry of Industry and Scientific Development), Mr. and Mrs. Michel Hug (Director of Equipment, EDF). I sat next to Mrs. Girard and the hostess, Mrs. Giscard d'Estaing, a pretty and charming woman. They have four children, the oldest a boy of 16, then a boy, a girl, and a boy.

I talked to Maurice Levy about my idea of an International Association for the Advancement of Science and learned he likes it. He will try to promote it in France, including talking to Kastler, the French Nobel Prize winner, about it. The first step would be to revive the nearly defunct French Association for the Advancement of Science.

I talked to Girard about the Phenix reactor. He said it cost only \$120 million, only one-fifth of the projected cost of the U.S. fast breeder prototype--this presents a real mystery. I emphasized that their fast breeder must be competitive with U.S. water-cooled reactors from the date of its first introduction in order to enter the nuclear power reactor market. He realizes this.

I rode back to the hotel with Lochak, arriving a few minutes after midnight. Steve returned a few moments after I did. He saw a demonstration directed toward the Allende overthrow in Chile yesterday on his way back to the hotel.

Thursday, September 13, 1973 - Paris

Steve and I had breakfast in the hotel restaurant. He was scheduled to go sightseeing with Roxanne today. He had lunch with Roxanne and Henrietta and visited Napoleon's Chateau.

I rode with Lochak to the offices of the Ministry of Industry and Scientific Development (101 rue de Grenelle). Here we met with: Jean Couture (Secretary General for Energy) who served as chairman of the meeting; Jean Servant (head, Division of Nuclear Safety for France); Maurice Levy; Olivier Giscard d'Estaing (who left after about an hour); Gerard Piketty (technical advisor to Minister Charbonnel on energy and heavy industry); Vaillaud (head of oil division); Pheline (advisor for environmental problems); Teste De Bailler (advisor for safety problems); Noel (gas and coal); Lovet (technical advisor on

Thursday, September 13, 1973 (con't)

foreign affairs to Minister Charbonnel); Jean-Pierre Giraud (member of Direction of Technology, Environmental and Mining); Claude Destival (Planning Commission on Energy); and Yves Girard (technical advisor to Jean Couture on nuclear problems).

We followed the agenda on the enclosed list, with comments by me on all items, followed by questions. I described the detailed history of the U.S. fast breeder program and why there is now no need to hurry. When asked by Servant if the five times higher cost (than Phenix) of the U.S. prototype breeder was due to greater safety provisions in the latter, I said I didn't know because I didn't know anything about Phenix beyond its name. I said there is great dissatisfaction in the United States over the lack of French cooperation in the U.S.-French fast breeder exchange agreement; I added that the French are shortsighted in this in view of the long time scale involved before licenseable commercial fast breeders will be available. I described my projection for the future important role of the HTGR. I said that the fast breeder, slow as it is, still will beat the fusion time scale.

In connection with our discussion of possible cooperation between the U.S. and France on gaseous diffusion, Lochak and I described the concept of exploring the feasibility of this with the help of private individuals in the United States.

With respect to my proposal for the creation of an International Association for the Advancement of Science, Couture said he will bring this to the attention of Minister Charbonnel, CNRS, and the Director General of RST.

After our meeting, Lochak and I drove to the George V Hotel where we had lunch in the open area in the outer court. Lochak spoke to me about my possible participation in the financial return from a successful putting together of an American financial investment in a European enrichment plant.

I returned to our suite for a few minutes, then rode with Lochak to the CEA headquarters (29 rue de la Federation). Here, we went to the office of Michel Pecqueur, head of Eurodif. We met with Pecqueur and were soon joined by Bert Goldschmidt. Lochak presented his plan to have a group of U.S. private citizens (led by Sol Linowitz) investigate in the United States the feasibility of U.S. cooperation with Eurodif in the gaseous diffusion process. Goldschmidt was very negative in his response and this led Pecqueur to be equally negative (even though he had shown interest in previous private meetings with Lochak).

Goldschmidt cited the then onerous conditions laid down by the United States in the November 1971 meeting which was supposed to offer U.S. diffusion technology to cooperating foreign countries. The United States demanded that a U.S. firm examine French and U.S. technology and make the decision on which is better. The new contractual conditions of the United States, 18 years lead time, and the back-away from the position that the price of enriching to U.S. and European

REUNION AU MINISTERE DE DEVELOPPEMENT INDUSTRIEL  
ET SCIENTIFIQUE AVEC LE PROFESSEUR GLENN T. SEABORG

13 SEPTEMBER 1973

PROPOSED TOPICS OF DISCUSSION  
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- I. Questions and answers explaining U.S. science policy and technological priorities of the past decade, concerning matters such as :
  1. Reactor research and development
    - a) high temperature gas cooled
    - b) fast breeder *Prob. with U.S.-France exchange agreement*
    - c) fusion and solar energy development programs
    - d) licensing and regulations
    - e) safety
    - f) intervenors and environmentalists
  
- II. Cooperation between U.S. and Europe regarding diffusion plants.
  1. 1971 negotiations
  2. Western world requirements in enriched uranium and attitude regarding possible renewal of cooperation in this area.  
*attempt by private individuals to effect cooperation*
  
- III. Cooperation between U.S. and France on research and development.
  1. Energy
  
- IV. Cooperation in promoting an International Association for the Advancement of Science. *Lecture with inform Minister Charbonnel and CNRS and Director General RST*
  
- V. Examples :
  1. Storage of radioactive wastes in the future.
  2. Fissionable material diversion.
  
- IV. U.S. national energy policy.
  1. How is it formulated
  2. Who formulates it
  3. Present status
  4. Role of Governor Love

Thursday, September 13, 1973 (con't)

customers will be equal are also onerous conditions and played into the hands of those who favor European independence in this field. Goldschmidt also said they (Andre Giraud) would want to deal directly with AEC Chairman Ray and not with a committee involving SIT.

I mentioned the need to avoid wasteful competition between U.S. and European diffusion plants, but this made little impression. Goldschmidt said the main roadblock is U.S. secrecy: the U.S. should declassify economic data so that open comparisons could be made of the relative costs of U.S. and French pumps, barriers, etc. in the gaseous diffusion process.

All in all, the results of the meeting make Lochak's proposal quite untenable. I rode with Lochak to the U.S. Embassy. We were met by Gordon Brown and went to the office of Galen Stone (DCM) to talk with him a while.

We then went to the auditorium in the neighboring building. Here I met Steve; also present were Catherine (17) and Sylvie (18) Pages. I was introduced by Stone and gave my talk, "Energy Sources for the Future," illustrated with about 40 slides, followed by a question-and-answer period. About 180 people were present, much more than the expected 80. Attached is a list of those who accepted the invitation to attend, representing a fraction of those that attended (not all on this list attended).

I met many old friends, including Barnett Anderson, who was a reporter in Stockholm at the time of my 1951 Nobel Prize visit there. After the talk, SIT had a reception at which I met many more people. I took a picture of Steve, Catherine and Sylvie, but the photo-flash batteries were run down and the indoor light may have been insufficient.

Steve left at 8:30 p.m. to go out with Nicolette. I joined Paul Lochak and rode with him to his parents' home to have dinner. Present were Mr. and Mrs. Olivier Giscard d'Estaing, Mr. and Mrs. Beyrard, Mr. and Mrs. M. Gaussot (Director of SEPTEN at EDF), the Boris Lochaks, Paul, and me. There was much conversation about Science Service and its Science Fairs and National Science Talent Search. Boris said that maybe on my visit next September I should visit Gibbs and Hill projects in Spain and Italy.

As we were departing, Mrs. Lochak gave me a gift, a scarf for Helen. I returned to our hotel in Paul's car at about midnight. Steve returned at 2:00 a.m., having had dinner at a Left Bank restaurant with Nicolette and toured parts of the Left Bank on foot with the a lady friend of Colette's as a guide.

Friday, September 14, 1973 - Paris - Stockholm

Steve and I had breakfast in the hotel restaurant. We checked out of the hotel and stored our bags there. Steve set off by himself to visit the Louvre and Notre Dame Cathedral.

Lecture given by Dr. Glenn Seaborg, Nobel Prize  
on September 13, 1974 in the Embassy Auditorium

List of personalities who have accepted invitation :

M. Léon Abouharham	Directeur de la Division de la Réalisation Framatome
M. Audy	Direction de l'Equipement, EDF
H. F. Ambassador Mordechai Avida (& his son)	Permanent Delegate of Israel, UNESCO
M. Balligand	Comité de REnergie Atomique
M. Andrieux	
M. Bernard	EDF
M. Nico de Boer	OECD Nuclear Energy Agency
M. Bolko	Dept. of Research in Technology, UNESCO
M. Leslie Boxer	OECD Nuclear Energy Agency
M. Alain Brion	Direction des Carburants
M. Briland	Sico France
General Albert Buchalet	will be represented
M. Bois de la Tour	ORTF, TV 1ère chaine
<del>M. le Ministre Jean Charbonnel</del>	Min. Développement Industriel & Scientifique
M. Chauvez	Director, Centre d'Etudes Nucléaires
(with M. Devic)	
M. Jean-Hubert Coates	Eurodif
M. Costaz	EDF
M. Michel Coudray	Framatome
M. Jean Couture	Ministère du Développement Industriel & Scientifique
M. David	Institut de Physique Nucléaire, Saclay
M. Daures	EDF
M. Devilliers	C. E. A.
M. Gabriel Drihlon	Science Directorate, OECD
Mr. Thomas Eckerred	Swedish Mission to OECD
M. Alain Dumait	France-Soir
M. Fremont Felix	
M. Feron	EDF
M. Jean-François Finelli	Phillips Petroleum International France
Mme Funck	Institut Français du Pétrole
M. Jean Gérard	Gas de France
<del>M. André GIFAUD</del>	C. E. A.
M. Goldschmidt	C. E. A.
M. de Hempiane	UNESCO
Dr. James Harrison	UNESCO
M. David Hendrie	CEA
M. Janin	EDF
Dr. Jean	U. de Paris-Sud

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M. Koechlin

Mr. Kristian Laading

M. Lebarbier

M. Mascarello

M. Jacques Mauduit

M. Henry Mayslick

M. Jack Mueller

M. Navarre

M. Nouschi

Dr. Rueiger Permice

Dr. Michael Pesci

M. Gérard Piketty

M. Ploton

M. Rastoin

Dr. André Richard

Mme Marie-Madeleine Robilliard

Dr. Berol Robinson

Mr. Stephen Rogers

Mr. Johny Rosen

M. Raymond Roux

Dr. Elnard Saeland

M. Robert Schasseur

Dr. Hans Schneider

M. Siliby

Dr. Klaus Standke

Mr. William Steif

M. Toromanon

M. Teste du Bailler

Mr. Pierre Vitry

Dr. Ian Williams

Dr. Adam Wysocki

M. Audy

M. Claude Benech

Mr. Browne

Miss Calhoun

M. Françoise Degas

ME. Jacques Lucas

M. de Richemont

M. Denis de Cazotte

M. Michel Gregus

Mlle Plantefol

Mlle Pantin

Mission Protection et Sûreté Nucléaire,  
C. E. A.

Industry &amp; Energy Directorate, OECD

EDS

EDF

Westinghouse

ESSO France

Institut Français du Pétrole

Pétrole Information

Scientific Counsellor, UNESCO

Division of Scientific Policy, UNESCO

Conseiller Technique, Min. du

Développement Industriel et Scientifique

ELF

C. E. A.

Kodak Pathé

Technip

UNESCO

US mission to OECD

OECD Nuclear Energy Agency

OECD Nuclear Energy Agency

Westinghouse

Office of the Secretary General, OECD

ERIMA

Scripps Howard Newspapers

EGF

Ministère du Développement Industriel  
et Scientifique

OECD Nuclear Energy Agency

Scientific &amp; Technological Information

UNESCO

EDF

Bulletin Inter-Press

Westinghouse Broadcasting Company

The Chase Manhattan Bank

First National City Bank

Mobil France

Banque de Paris et des Pays-Bas

Czechoslovak Ambassador to UNESCO

Industrie du Pétrole

- 3 -

Mme Ulla Jeanneney  
Mr. Eaton Hart  
M. Ouart  
M. Laading  
M. Villegas  
M. Hemily

"Les Informations"  
Sté ALCOA  
Comité de l'Energie Atomique  
"  
UNESCO

Friday, September 14, 1973 (con't)

I rode with Lochak to the headquarters of SIT to meet with the Board of Directors. Present were Board members Paul Lochak, Boris Lochak, Olivier Giscard d'Estaing, Norbert Beyrard, and Leo Giuliani (also President of Coyne et Bellier, a firm that specializes in reinforced concrete pressure vessels).

I began our meeting by giving my general evaluation of the people I have met at Electrobél, EDF, etc. I have found them knowledgeable with a good view of the future of nuclear power in Europe. They then gave me some history of SIT--this name was adopted 1-1/2 years ago and they now have about 15 employees.

There was then some discussion of future projects that SIT might undertake. Beyrard suggested an in-depth evaluation of the uranium enrichment situation in Europe might be one possibility. Boris Lochak suggested an evaluation of boiling water reactors might be undertaken with the collaboration of NUS (in Washington, D.C.) and I indicated that I would be glad to contact Fred Warren or other officers of NUS should they request me to do so.

Boris indicated that he felt that further exploration of the concept of a citizens group (i.e., the Sol Linowitz project) that would evaluate the prospects for U.S.-French collaboration in uranium enrichment didn't seem to be very profitable in view of Goldschmidt's attitude yesterday. There seemed to be general agreement on this, although Olivier said he would have a meeting with Goldschmidt to explore this further. I indicated that I didn't want to become involved in any USAEC-French CEA relationships in this connection, and they all agreed with me on this. There was also general agreement that French-led Eurodif is under the domination of CEA.

Giscard d'Estaing and Beyrard said they will explore with Simon Nora (General Manager of the French publishing firm Hachette) the possibility of their publishing a French edition of my book Man and Atom. Hachette also has branches in Italy, Spain and Argentina, so they will also explore the possibility of Italian and Spanish editions.

Regarding my idea for an International Association for the Advancement of Science, they feel it is best to create an entirely new Association for the Advancement of Science in France, enlisting the aid of university people, and Beyrard said they will have this done by the time of my visit next year.

They all invited me to become a member of the Board of SIT. I didn't give them an answer--this is something I should make an early decision on.

We also talked about Electrobél's interest in a collaboration with GEOMET. Beyrard also indicated an interest in GEOMET's uranium ore exploration capability in connection with France's uranium activities in Nigeria and will talk to George Milly about this when George visits France and Belgium to talk to Electrobél people. I should inform Milly of this.

Friday, September 14, 1973 (con't)

Following our meeting, I had lunch with Paul, Boris, Roxanne, and Susan Raw. We ate at Relais du Bois (Relay Station in the woods) across the street from the Bois de Boulogne (a main, centrally located park in Paris). I learned that the Beyrard's have a chalet in the Swiss Alps at Gystaad (an area frequented by John Kenneth Galbraith) and that Beyrard has invited Helen, me and our kids to vacation there sometime if we wish.

After lunch, we returned to the SIT offices. Here I was interviewed on tape by Ulla Jeanneney and Mr. Roume of Informations (a magazine like Business Week) on the safety and economic aspects of nuclear power. Ulla Jeanneney had heard my talk last night and is a friend of some of the people at SIT. Paul, Boris, Roxanne, Norbert, and Susan were present during the interview.

I saw the latest edition of Nucleonics Week on Paul's desk and read it, commenting on the delay in seeing the copy at LBL, whereupon Paul indicated he will mail me copies of those they receive.

Boris and Norbert then left to head for their weekend homes. I rode with Paul to the headquarters of SEPTEN (Service Etudes et Projets Thermiques et Nucleaires), a part of EDF, at 92 Courbevoie, Quartier Alsace. Here we met in office with Gaussot, Director of SEPTEN, whom I had met at dinner last night, and Laurent, Executive Assistant to Gaussot, who explained to me the function and mission of SEPTEN; it is essentially an organization for advanced engineering design of nuclear power reactors (chart attached).

Soon we were joined by Gallioz, Chief of the Material Department; Weber, Chief of the Projects Department; and Noc, Chief of the Theory Department. Noc and Weber briefed me on the responsibilities and activities of their Departments.

We then went to a lounge room nearby where cold drinks were served. Here we discussed the forthcoming visit of Laurent and Zaleski to see Chauncey Starr, President of EPRI, in Los Angeles next Monday. I warned Laurent that he should be prepared to discuss only concrete and serious proposals for EDF collaboration with EPRI when he talks to Starr--proposals in which EDF is willing to pay its full share for what it gets in return.

After this meeting, I rode with Paul back to the Hotel Prince de Galles to meet Steve and to pick up our luggage. Paul gave me a scarf as a present for Helen. Roxanne came by the hotel to say goodbye. We piled our luggage tightly in the car's trunk, then, at 5:40 p.m., left with Paul for the Orly Airport on the south side of Paris. The traffic was very heavy and only as the result of Paul's weaving through traffic on and off the Expressway did we manage to arrive at the airport as early as 6:35 p.m. Here we found, to our horror, that our flight, Scandinavian Airlines Flight No. 468, leaves from de Bourget Airport, clear across town on the north side of Paris. Since our plane was scheduled to leave at 7:35 p.m., and the traffic was heavy, there seemed to be scant chance of catching our flight. Since the next flight to Stockholm wasn't until 8:00 a.m. the next day, it

9/14/73

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looked as though we were destined to miss the elaborate schedule that had been set up to meet our relatives at Stora Skedvi.

Paul immediately started back through heavy traffic to the new Beltway circling Paris (the last link of which was put into operation about 6 months ago) and made the decision to take the route to the right along the Beltway. We had to go half-way around so either direction was about equidistant. Here he wove his way, changing lanes and using the emergency outer lane, with great skill. When he finally reached the turnoff to Le Bourget Airport, he continued to weave his way through traffic, then drove the last few miles, where the traffic had lessened slightly, at very high speed--about 140 kilometers per hour--still weaving through traffic. He ran some red lights as we approached the airport. We arrived at 7:22 p.m. and Paul ran ahead into the airport to find the SAS gate area. The SAS check-in desk was already closed and unoccupied. We had trouble convincing them to let us through at passport control, carrying all our bags at this point. A very helpful SAS attendant ran to phone the SAS manager and came back in 2 minutes with his okay, which made it possible to proceed, still carrying all our bags. We arrived at the bus, where closed doors were opened for us and rode with all our bags, some of which were carried by SAS attendants, to the airplane. There were a couple of other people on the bus, apparently also late arrivals, but not as late as we--but for this there would not have been any bus available. We arrived at the airplane at 7:33 p.m., and a couple of attendants took our two large suitcases and put them in the still open baggage compartment under the plane--no baggage claim checks were placed on them. We boarded the plane and found two seats at the back of the plane--one of them the stewardess's. The doors were closed at exactly 7:35 p.m. and we taxied out on the field for takeoff immediately.

It is clear that, had we arrived 30 seconds later, we would not have made it and that Paul's skill and daring driving performance was the key to our success in catching the plane. I should write and compliment him on this.

We arrived in Stockholm, after a stop in Copenhagen, at 10:50 p.m. When we went through passport control, the officer questioned Steve with some apparent suspicion in his manner.

We were met by Olaf Bloom, who gave us the bad news that Britta Adolfsson had died on September 5. Olaf drove in his Volvo station wagon to the Grand Hotel with a tour of some parts of Stockholm on the way. At the hotel, Steve and I checked into room 536. We retired at about 12:45 a.m.

Saturday, September 15, 1973 - Stockholm - Stora Skedvi

We rose at 6:45 a.m. [I took some movies of the King's Castle across the Malaren and surrounding area, starting cartridge no. 7.] Steve and I then had a buffet breakfast in the Veranda Room. We checked out with no charge--the pre-paid \$51 covered it.

We met Olaf in the lobby, put our luggage in the back of his Volvo, then rode with him to Avesta, in Dalarna, about 170 km from Stockholm, arriving a little after 11:00 a.m. Here we went to the

Saturday, September 15, 1973 (con't)

home of Carl Tersmeden and his family. Here we met Carl, his wife Monica, and their children Christina (8), Victoria (6), and Anna (4). We took some movies (finishing cartridge no. 7 and starting no. 8) and pictures of the Tersmedens, including views of Dalalven (the Dalarna River) and the back of their house. The back of their yard reaches to Dalalven, and they have a boat landing there.

We then went into the house. They have large pictures of Carl's grandparents, Baron Herman Tersmeden and his wife Hedvig (Sjöberg) Tersmeden, perhaps in their 80's. He lived to be about 90, she about 85, and she suffered from pernicious anemia during her last years. They were married in Chicago in 1877, then moved back to Sweden.

We toured the house, which they purchased a little more than a year ago. It is a rather large place, and Carl has done much to improve the basement level, putting in a shower room, etc.--it includes a recreation room and a sauna bath.

Monica then served us sandwiches, cake, coffee, and tea. Carl told us he is no longer a surgeon but a general practitioner working for the state; he has a clinic in Åvesta. Monica teaches Swedish and World History in the local high school. She said that academically trained people, such as psychologists, are having great trouble finding relevant employment in Sweden and are forced to work as taxicab drivers, etc. If they moved from Åvesta, she would find it difficult or impossible to find another position. After our refreshments, Carl showed some super-8 movies of one of our reunions at Laxbrostugan in Skansen.

We then bade them adieu temporarily at 12:15 p.m.--they all planned to join us at Stora Skedvi--and continued on to Stora Skedvi to the Lindås home, where the reunion of relatives was scheduled to take place. We arrived at Stora Skedvi at 1:00 p.m. at the Lindås farm, which is called Hasmats. (The Lindåses moved to Hasmats, which is located on the Dalalven, in 1927. They previously had lived on the other side of the river, in a red house called Lindås, which we saw in the distance. Gunhild and Maja rowed across the river to school at that time. When they moved in 1927, they changed their name from Eriksson to Lindås. One of my grandfather's [Adolf Eriksson] sisters married an Eriksson.)

At Hasmats we saw many cars parked, indicating the presence of many relatives. Steve, Olaf and I went inside the house and met the following people: Hilding Carlsson, Ruth Brolin, and Anette Hjelm (10), daughter of Ruth Brolin, who live together at Litens in Säter; Gösta and Irene Adolfsson and their daughter Lena; Karin and Per Möller and their son Göran; Joseph and Anna Wallin and Joseph's sister Ester Karlstrom (or Karstrom) from Örebro (the Wallins returned from Florida this June, having lived in the United States since 1922, when they moved from Sweden and were married soon thereafter in the United States; their only son, Major Bertil W. Wallin, lives in New Mexico and has three sons); Olaf's daughter Anita Gustafsson, his son Anders, and his son Per with his fiancée Ulla Karlstrom; Sven and Ulla Britt Österberg from Alvsjö; Gun Grill, daughter Helen, and son Jimmy;

Saturday, September 15, 1973 (con't)

Tora and Eric Bäcklin; Tyra Segerstrom from Tagerska, son Åke From Våsterås, and daughter Birgitta Lundgren from Sollentuna; Karl-Erik, Göran, and Dan Eriksson from Stora Skedvi, whose home is called Erikslund (Dan is the son of Albert Eriksson's daughter Anna Lisa, who lives in Hedemora, and is not a son of Albert Eriksson, as I recorded in last September's journal); Sven and Birgitta Spaak and their sons, Sverker, Anders, and Thorbjorn, from Mariestad (they also have a three-month old son, Henrik); Arne and Barbro Ahlsotröm and their fifteen-month old son, Lars Albert; Greta Forsner (nee Lindås) and her son Lars (who took pictures of us all); Gunhild, Maja and Nils Lindås, and Per Lindås and his five-year old daughter Sara; host and hostess Sven and Karin Lindås and daughter Gunvor (their daughter Kersten, not present, was in the hospital recovering from an operation, and their son Lars, also not present, was in school in Alvdalen); and Karl and Monica Tersmeden and their daughters Christina, Victoria, and Anna.

After Steve and I had been introduced to everyone present, we were served sandwiches, cake, tea, and coffee at the dining room table with Olaf and two or three others. We went outside and Olaf and I took movies and pictures. Lars Forsner took pictures of the whole group, some with a professional camera with plates--he will send us copies.

Most of us then boarded a large bus for a tour of part of the Dalarna region. We passed Lake Runn, rode on to Falun, where we visited the historic Falun Copper Mine. Gustav Eriksson and his son Per-Erik joined us here. We went down into the mine in groups, using an elevator that took us down to the 55 meter level. Here Steve and I took the tour with a part of our group led by a female guide. We visited the Creutz Shaft, then the General Peace Chamber, walked down 13 meters to the level of the Christmas Gift Chamber (where we saw the inscribed names of visiting royalty on the walls), continued on to view other sections, then proceeded back to our starting point and took the elevator back up to the surface. It began to feel rather cold toward the end of our tour. We were told during the tour that this mine began operating about 1100 A.D., that vein ore as well as copper ore was one of its products, and that it has been in operation since opening (with operations now down to the 3-400-meter level), the longest period of continuous operation of a mine in history. It has always been privately owned.

Steve and I were then given permission to make a quick tour of Stora Kopparberg Museum (which was closed because it was past closing time). We found that this museum has many historic tools and equipment, many ore and mineral samples, etc. I took movies in the museum and mine shaft building and also of the nearby Great Pit (325 feet deep, 1,000-1,300 feet wide, made originally by a large cave-in on June 25, 1687), finishing cartridge no. 8.

We then all boarded the bus and rode back to Hasmats. From here we soon proceeded in our separate cars to the Stora Skedvi Vårdshus in the small business district of Stora Skedvi. Here we were joined by Mona (the Möllers' daughter) and Bo Forssling and their children Carina (14) and Birgitta (12). Olaf and I took movies and pictures of

Gösta, Irene and Lena Adolfsson; Per and Karin Möller; Mona, Bo, Carina, and Birgitta Forssling; Steve, Olaf, and me. Irene gave me some color snapshots of my visit to Eskilstuna last year, the Karl Adolfssons, Lena, and their elder girl Eva's confirmation.

We entered Vårdshus and our reunion group sat at five large tables. Steve and I sat at a table with Olaf, Joseph and Anna Wallin, Ester Karlstrom, Albert, Maria and Dan Eriksson, Göran Möller, Sven and Karin Lindås, Gunhild Lindås (although the latter three did some table changing during the evening). The Adolfssons and Forsslings sat at a table next to us. I took Olympus photo-flash pictures of each of the five tables and their occupants. Albert Eriksson gave me a large Dalahäst and gave Steve and me a roll-up scenic picture which Albert said came from Lena.

Sven Lindås gave a welcoming speech at the beginning of the dinner, Gunhild showed a picture of me with four Lucia girls (December 1951) in a Nobel book, and I responded to give thanks near the end of the dinner. Speaking in English, I reminisced about our 1951 visit to receive the Nobel prize, said I will visit Sweden again next summer, perhaps with Helen, described the present activities of our six children, and thanked all the Lindåses for their hospitality and great effort to arrange for the large reunion today and the dinner tonight--Göran served very efficiently as my interpreter. Gunvor served as one of the waitresses for the dinner--she works at Vårdshus regularly on Saturdays and Sundays.

After dinner, I showed some slides of my trip to China--some 50 or 60 in all. I spoke generally in Swedish with some help from Olaf. Lars Forsner took some pictures for local newspapers of me (with the Dalahest), Steve, Olaf, Karin Möller, and Sven and Karin Lindås.

As we were leaving Vårdshus, we learned that King Gustaf Adolf had just died, at about 8:30 p.m. Steve and I then rode with Olaf back to Hasmats and spent the night there in an upstairs bedroom; Olaf was in an adjoining bedroom.

Sunday, September 16, 1973 - Stora Skedvi - Oslo

Steve and I joined Olaf, Maja, Sven, Karin, and Gunvor Lindås for breakfast in the dining area. I distributed gifts from Helen--Mao pin and Mexican bookmark to Sven; stockings and a Chinese print to Karin; a Chinese print to Maja; a Chinese three-way pen and stockings to Gunvor; and left a Chinese print for Gunhild and a Mexican bookmark for Nils. Karin gave Steve a cloth flower picture.

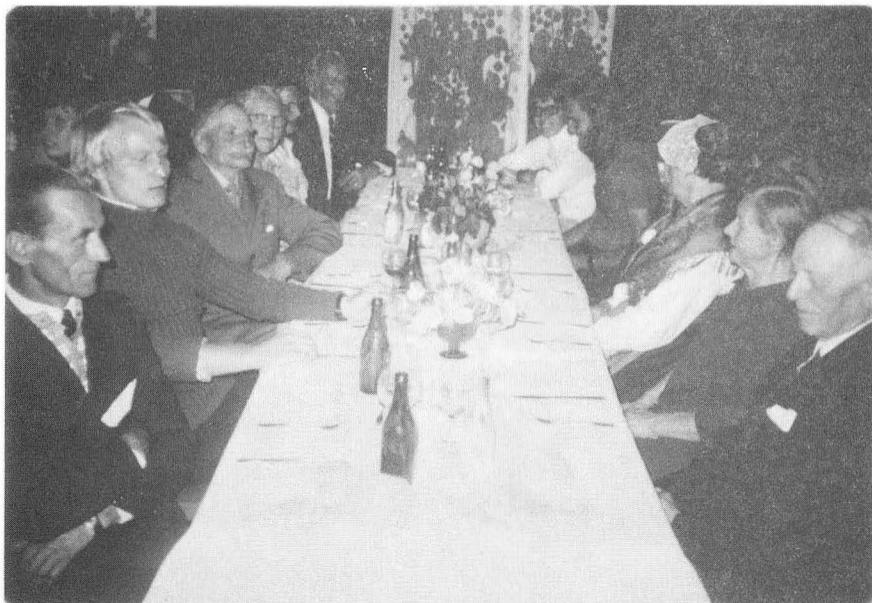
Steve, Maja, Gunvor, and I rode to the old church--Kyrkoherde Nils Olov Emneus St. Skedvi (Stora Skedvi Kyrka)--in Stora Skedvi, where we joined Gunhild, the Wallins and Ester Karlstrom. Here the Reverend Emneus showed us around in the church and described its history. (We were given a descriptive brochure written by Gunnar Ekström.) The church was founded around 1100 A.D. and has been expanded many times during the intervening years. It is an impressive structure. We saw a large bible dating from 1720.



Front: Christina, Anna and Victoria Tersmeden;  
Back: Carl Tersmeden, Steve Seaborg, GTS, Monica  
 Tersmeden: Åvesta, Sweden, September 15, 1973.



Front: Carina and Birgitta Forsling, Lena Adolfsson;  
Middle: Mona and Bo Forsling, Irene Adolfsson, Göran  
 and Karin Möller; Back: Per Möller, Gösta Adolfsson,  
 GTS, Steve Seaborg, Stora Skedvi, Sweden, 9/15/73.



Lt to rt: Karl-Erik, Daniel and Albert Eriksson,  
Ester Karlstrom, Anna and Joseph Wallin, Göran  
Möller, Steve Seaborg, Gunhild Lindås, Maria  
Eriksson, Nils Lindås: Stora Skedvi, 9/15/73.

Göran Möller, Steve Seaborg, Gunvor Lindås, GTS: Stora Skedvi  
Vårdhus, September 15, 1973.





Steve Seaborg, GTS, Karin, Sven and Maja Lindås:  
Stora Skedvi, Sweden, September 16, 1973.

Front: Steve Seaborg and GTS; middle: Karin Möller, Karin  
and Maja Lindås; back: Per Möller, Gunhild Lindås, Olaf  
Bloom, Sven Lindås: Stora Skedvi Vårdhus, 9/15/73.





Lt to rt: Olaf Bloom, Karin, Per and Göran Möller,  
Karl Adolfsson, GTS, Jenny Adolfsson, Borlänge,  
Sweden, September 16, 1973.



GTS, Jenny and Karl Adolfsson, Steve Seaborg:  
Borlänge, Sweden, September 16, 1973.

Sunday, September 16, 1973 (con't)

Outside, near the front of the church, we saw a large ground level covering which is believed to cover the graves of our forebears Otto Henrik Lybecker, who died in 1631, and his wife Catarina Cronberg, who died in 1627. [We had learned last night from Albert Eriksson that he has a copy of their epitaph, which had been legible at a different grave site at an earlier time, and Dan, later in the afternoon, gave us a copy of this.] The Lybeckers came to Sweden from Germany shortly before this time. I took movies of the grave marker and church and of Maja, Olaf, Steve, and Gunvor and a picture of the church.

We rode back to Hasmats, dropping Gunvor off at Vårdshus, put our luggage back into Olaf's Volvo, and bade adieu to the Lindåses. Sven invited us to have a reunion at Hasmats again next year when I come to Sweden, hopefully including Helen at that time. We matched thumbs together (a Swedish custom) to make it a binding promise. He said he will again have a bus available, this time to take us to Grangesberg. We took movies and pictures of the group and grounds.

Steve and I then rode about 30 kilometers with Olaf to the home of the Möllers near Borlänge (which I visited last September). Here we met my Uncle Karl and Aunt Jenny Adolfsson, Per, Karin and Göran Möller. Karl and Jenny seemed to be in good health but quite broken up over Britta's death--this is the reason they (and Bengt) didn't go to Stora Skedvi. I distributed the gifts from Helen--a Mexican bark picture, a flower planting set, a Chinese print, and a book of paper prints to Karl and Jenny; a Mao pin to Karl; stockings to Jenny and for her to give to Irene and Mona; a combination knife to Göran; Chinese stamps to be given to Bengt; four paperback books to Karin; Mexican book marks for Karl, Jenny, Karin, and Göran. I gave Chinese three-way pens to Olaf for himself and Eivor.

Steve and I received a number of gifts from Karl, Jenny and Karin. Karin gave me a record by Lars Roos, the Swedish concert pianist who had phoned me during his visit to San Francisco earlier this year. Jenny gave us two jars of lingonberries. Karl gave me a family genealogy chart upon which he had done careful work in transcribing it. Jenny gave me a wrapped gift for Dianne. Göran gave Steve a little copper ladle, and Karl and Jenny gave him a thermometer mounted on a plaque.

We had lunch here in their dining area--the area where we have seen pictures of family groups--it was a typically fine Swedish meal. Steve and I took photo-flash pictures of the group. I gave a copy of my China journal to Karl. After lunch, we went out in the backyard and Olaf and I took movies and several pictures of the group. [I finished movie cartridge no. 9 and started no. 10.]

We then all rode in two cars to the Möllers' new house under construction in a new section of town (where we took movies and pictures), then continued on to the Albert Eriksson home, Erikslund, on Dalalven in Stora Skedvi. Here we saw Albert, Maria, Göran, Stig (whom we had not seen yesterday), Dan, Karl-Erik, Lena, and her six-month old daughter Ulrika. We took movies and several pictures,

including one of me holding Ulrika and one of Steve holding Ulrika next to me.

We then visited inside the house, including upstairs, where much has been done in fixing it up. I gave a Mao pin and a Mexican bookmark to Albert and a Mexican bookmark to Lena. While upstairs, Stig played the accordion, including such nostalgic pieces as "Barn-dumshemet" and "Hälsa Dem Där Hemma." I invited Dan, who is studying ethnology at Lund University and speaks English quite well, to visit us in California.

We then bid adieu to all. Göran rode as far as Uppsala with us, where we dropped him off at the hospital--he was going in for a check-up, mostly for his eyes, for a driver's license. Steve and I continued on to the Årlanda Airport with Olaf. Today was National Election Day in Sweden, and everyone was quite interested to see if Olof Palme could win re-election.

We arrived at Årlanda Airport a little after 7:00 p.m., checked in our luggage (excess weight charge of 31.50 kroner, about \$6), said goodbye to Olaf, passed through Passport Control, had a bite to eat, and boarded SAS Flight No, 489, which left at 8:05 p.m., precisely on time. At the airport, Olaf gave me "Pastolalsvit Op 19 by Lars-Erik Larsson" and Steve "Hugo Alfven - Symfoni No. 3 Dalarapsodi"--both records.

We arrived at Oslo Airport at 8:45 p.m., about 15 minutes early. We went through the most cursory Passport Control on our trip and ran into Per Antinsen, who was at the airport to meet Tinbergen and said we had been expected at 9:00 this morning (next time we'll write 2100 hours). I changed 600 Swedish kroner to 774.90 Norwegian crowns, then Antinsen helped us find a taxi which we took to the Hotel Continental, where we checked into room 815.

Monday, September 17, 1973 - Oslo

Steve and I had breakfast in the Caroline Room on the Mezzanine floor. Dick Gardner, whom I knew as a fellow participant on the Committee of Principals, and a member of the Columbia Law School faculty, joined us. He became quite interested in my idea for an International Association for the Advancement of Science when I described it to him. He is interested in the international aspects of environmental protection--for example, international environmental impact statements--and the cooperation between lawyers and scientists in achieving such goals. He is a colleague of John Palfrey, who, he said, is doing fine, but Clochette is in very poor health. Adriano Buzzati-Traverso, whom I met at the Washington AAAS meeting last December, dropped by our table to say hello.

Steve and I then walked with Stig Ramel (Executive Director of the Nobel Foundation), Carl-Göran Heden (Professor, Carolina Institute, Stockholm), and Nils K. Stähle (former Executive Director of the Nobel Foundation) to the Nobel Institute (Drammensveien 19). Here we went to the conference room on the second floor, where we met many of the participants in Nobel Symposium 26, "Coordination in the Field of Science and Technology--The Role of the Specialized Agencies of UN."

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Present for the opening session were Hans Blix (Councillor, Ministry of Foreign Affairs), Norman E. Borlaug (Director, International Maize and Wheat Improvement Center, Mexico), Adriano Buzzati-Traverso (Professor, Lungotevere Mellini, Rome), Helmer Dahl (Director of Research, Christian Michelsen Institute, Bergen, Norway), J. E. S. Fawcett (London), Richard Gardner (Professor, Columbia University, New York), Jean Gottmann (Professor, Oxford University, Oxford), Guy B. Gresford (Director for Science and Technology, United Nations, New York), Edvard Hambro (Ambassador, Delegation de Norvege, Geneva), Carl-Göran Heden (Professor, Carolina Institute, Stockholm), Alexander King (Director for Scientific Research, OECD, Paris), Thorkil Kristensen (Professor, Institute for Development Research, Copenhagen), Koichi Mera (The International Development Center of Japan, Tokyo), Sam Nilsson (Nobel House, Stockholm), Gunnar Randers (Assistant Secretary-General, Division of Scientific Affairs, NATO, Brussels), John Sannes (Professor, Norwegian Institute of International Affairs, Oslo), August Schou (Director, Norwegian Nobel Institute, Oslo), Finn Sollie (Director, The Fridtjof Nansen Foundation Polhøgda, Lysaker, Norway), Nils K. Ståhle (Nobel House, Stockholm), and Jan Tinbergen (Professor, Erasmus University of Rotterdam). A newspaper photographer took a picture of me, Randers, Borlaug, Schou, and two others.

I took my designated place at the four-sided set-up of narrow, long tables between Ståhle and Gardner, where I sat during the opening remarks of August Schou, Director of the Norwegian Nobel Institute (peace) and Chairman of the Organizing Committee for Nobel Symposium 26.

Following his opening remarks, Schou called on me to act as chairman of the opening session. I made a few opening remarks, then called on the first speaker, Jean Gottmann of Oxford University, who spoke on "The Need for an International Policy for the Sciences." After this, I introduced Finn Sollie, Director of the Nansen Foundation, who spoke on "Problems of Coordination." We then took a short intermission, during which Steve left to do some sightseeing around Oslo.

When I called the meeting back to order, I called for discussion on Gottmann's and Sollie's papers, and this was opened with a statement by Gardner. Following this, there were comments by Heden, Buzzati-Traverso (who referred to a AAAS committee report, Margaret Mead, Chairman, defending secrecy, published late in 1971 or early in 1972--I should look this up), Tinbergen, Hambro (who said that Sir Oliver Lodge already in 1922 warned of the potential war dangers of atomic energy), Blix, King (who used the failure to anticipate the current need to gasify and liquify coal as an example of the lack of planning for the future which is often seen in the scientific and technological area as part of a general absence of national policies, thus making the achievement of international policy in science and technology even more difficult--he stressed the role of non-governmental organizations consisting of people who have the confidence of governmental officials).

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I brought the first session to a close at 1:00 p.m. I then walked back to the Hotel Continental with Nilsson, had a bite to eat in my room, and went over my remarks to be given at the Symposium session tomorrow morning.

I then walked back to the Nobel Institute to attend the second session of the Nobel Symposium. I ran into Stig Ramel along the way. We saw large advertisements for Graham Greene's latest book (The Honorary Consul) in a bookstore window, which led Ramel to say he has heard much talk that Greene may receive the next Nobel Prize for Literature--as Executive Director of The Nobel Foundation, he should be in a position to know. I told him that W. O. Milligan may want to attend the Nobel Ceremony in Stockholm next December 10 in order to get some ideas of how the ceremony for the Welch Award should be conducted. Ramel said this should present no problem, and he has taken note of my mention of this should Milligan write him to make this request. Ramel told me he had only three hours of sleep last night because he listened on the radio for election returns from Sweden--apparently Palme is now ahead in the vote tally by about two votes in Parliament, so close that it may change after more votes, including mail ballots, are counted. I was given 1,600 Norwegian crowns for expense money.

Hambro presided over the afternoon session and called first on Jan Tinbergen, who spoke on "Some Principles of an Efficient Division of Labour in Research." After this talk, Hambro called on Sam Nilsson, who spoke on "Are Scientists and Technologists Prepared for International Coordination?" (He said that the present university system in the west will not be able to respond adequately to meet the emerging needs of coping with society's problems and described the aims and organization of IFIAS.)

After a short intermission, Hambro presided over a discussion period. Comments were made by Fawcett (who mentioned the division of opinion among British scientists over the Sakharov problem), Kristensen (who said that the Meadows model of exponential growth was applied too indiscriminately to areas where the growth is not exponential), Dahl (who deplored the present practice of promising great practical results in order to get research grants and also used the example of atomic energy as showing great promise but not living up to this promise now, 30 years later), Borlaug (who deplored the oversophistication of the approach attempted in applying the technology of developed countries to developing countries, and also the lack of worldwide planning with respect to food reserves to be ready for crisis situations, which were barely averted in Russia, China and India last year--he also said that much progress has been made in the last 25 years in eliminating secrecy in agricultural sciences in fields of international cooperation), Mera (who said that there are better indicators of national welfare than the Gross National Product and mentioned the concept of Net National Welfare, and emphasized the power of scientists in influencing politicians as exemplified by the increased regard for the environment that has arisen during the last three or four years), Randers (who indicated that scientists are tied to national governments by their need for

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money to support their work, very little of which is available from international organizations--he reiterated that it is only through the availability of money that international science can progress and be coordinated, which will be available only from contributions from individual national sources), Heden (who said there has long been auto-coordination among scientists on an international scale), and King (who expressed some doubt that working through IFIAS, i.e., Institutes for Advance Study, is necessarily the best approach to international cooperation). At this point Hambro called on Tinbergen and Nilsson to respond briefly to any of the points raised that they wished, and they both spoke briefly about a few of these points.

The session was adjourned a little after 6:00 p.m. I walked back to the Hotel Continental with Gresford--we talked about the last time we saw each other at the 4th Geneva Conference on the Peaceful Uses of Atomic Energy in September 1971.

When I reached our room, Steve had already returned from his visit, via ferry boat, to the Norwegian Folk Museum (where he had lunch), the Viking Ship Museum, and the Kon-Tiki Museum.

At 8:00 p.m., we went down to the third floor to the Symposium dinner. Present were the Symposium Participants and Dr. Otto Bastiansen (Rector, University of Oslo), Mr. Björn Haug (Barrister of the Crown), Dr. Jan Jansen (Professor of Medicine, University of Oslo, and President, Fridtjof Nansen Foundation at Polhögda), Mrs. Aase Lionaes (President of the Pagting and Chairman of the Nobel Committee of the Norwegian Parliament), Miss Elisabeth Mellbye (Chief Librarian, Nobel Institute), Mr. Torkel Opsahl (Professor of Law, University of Oslo, and Advisor to the Nobel Institute), Mr. Stig Ramel (Executive Director, The Nobel Foundation, Stockholm), Mrs. Harriet Schou, Mr. Sverre Svanes (Secretary, the Nobel Institute), Mr. Jakob Sverdrup (University lecturer in history and Advisor to the Nobel Institute), and Mr. Olav Trovik (Director, University of Oslo).

I sat between Dr. Otto Bastiansen and Stig Ramel and across from our hostess, Mrs. Harriet Schou. I learned that Sikkeland was a student of Bastiansen and that Bastiansen is a friend of Bill Gwinn, whose family visited him last summer. Mrs. Schou reminded me that we had met at Nobel Symposium 14 in September 1969. Ramel reminded me we had met during my 1962 visit to Sweden, during which he served as my host and accompanied me by car to Studsvik.

Schou, as host, gave the traditional opening toast and Kristensen, sitting to the left of Mrs. Schou, gave the response for the guests near the end of the meal. I was afraid for a while that I might have this responsibility, for I sat directly across from Mrs. Schou at the middle of the table, and Mr. Schou sat at the end.

Steve sat next to John Sannes, a member of the Organizing Committee, and had quite a discussion with him on some aspects of psychology. After dinner, Steve had a chance to talk to and get acquainted with Norman Borlaug--the discussion included a description by Norman of some of the assets of DDT.

We learned that the Swedish election returns now indicate exactly equal numbers of seats for each competing group--175 seats each for the incumbent Socialists and for the non-Socialists. Steve and I left the dinner party shortly before 11:30 p.m., went to our room, and soon retired for the night.

Meanwhile, back in Berkeley, Sheila called Joe Katz at Argonne to find out if he had any particulars on the Jones Hall explosion at the University of Chicago. Katz said he didn't have many details about the blast but knew there was a tremendous explosion which did about \$1 million worth of damage. The historical material escaped unscathed. The damage was mostly confined to the basements of Jones and Kent Halls, and equipment was lost in both these buildings. There was much structural damage done to the basement. Apparently, the explosion occurred in the vault where noxious chemicals were stored, caused by an accumulation of an explosive combination--a couple of explosions occurred. The upper stories in Jones Hall were not affected by the explosions or the resulting fires, and Room 405 was left intact.

Tuesday, September 18, 1973 - Oslo

Steve and I had breakfast in the Caroline Room. We then walked together to the Nobel Institute, where Steve left me to go on to visit Vigeland Park and other areas. Randers extended an invitation from Viking Eriksen, Chairman of the Norwegian Atomic Energy Commission, to Steve and me to have dinner with him tonight (Randers will also be present)--I accepted.

Stähle acted as chairman of this morning's session, and he called on Guy Gresford, who spoke on "The Role of the UN Family in Furthering Science and Technology Through International Cooperation." His remarks included comments on the difference in science and technology between developed and developing countries. He called for establishment of some framework of international science policy.

Stähle then called on Buzzati-Traverso, who spoke on "Science for Development." He emphasized that the benefits from science and technology for developing countries have fallen short of the expectations which appeared soon after the war. He summarized the 21 points emphasized in the Report issued last May by the UN Committee for Development Planning, operating under the Economic and Social Council--the chairman of the Committee is Correa of Sri Lanka (Tinbergen used to be chairman). [We should get a copy of this Report from Mr. O. Talwar, United Nations; the title is something like "Towards New Priorities in Development."] He expressed optimism about the future development of a "science for development" on a global basis. He thinks that, of the 2,000,000 scientists and engineers in the world, only about 1,000 know of the existence of these problems.

Stähle then called on me, and I spoke on "New Directions in Development." He then called on Gardner to make some remarks. He emphasized the duality of the present situation--individual nations are becoming more nationalistic at the same time that many scientists and professionals are working successfully for international cooperation through many mechanisms. He raised the question of providing a

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means for insuring that the views of the scientists would be heeded by the politicians. He gave examples of how national policies have been influenced by working through the UN. Another path is through the international analog of an environmental impact statement (SST, Aswan-type dams, diversion of Arctic rivers, etc.). A third opportunity is the World Population Conference coming up at Bucharest--the process of forcing countries to set population growth targets will have a great effect. A fourth point is his proposal of three years ago to establish a Commission on the Future.

Stähle then opened the discussion period. Comments were made by Tinbergen, Blix (who suggested that the discussion focus more on individual topics, one at a time, such as on the gaps in research and development, and on the role of non-governmental agencies and industries), Buzzati-Traverso (who indicated there is much written material to help answer such questions), Blix (who reiterated that he was merely suggesting a method of proceeding with the discussion here), Fawcett (who spoke on science and human rights as affected by such things as electric surveillance and the general public disinterest in this), King (who spoke on the negative attitude of governments toward the role of science and technology in foreign aid programs), Buzzati-Traverso (who emphasized that the action should come from the scientists themselves), Heden (who emphasized the role of transnational activities to do what the national governments won't do, emphasized my comments about the effectiveness of WHO, and suggested that means are needed to kill organizations which are unsuccessful or have outlived their usefulness), Sollie (who said he feels depressed as the result of remarks like those of Fawcett and mentioned my suggestion for an International Association for the Advancement of Science as a step toward a sort of international science consumerism), Dahl (who said we should distinguish more between science and technology), Buzzati-Traverso (who replied to Sollie, saying that there are optimistic signs that much is being done, such as the establishment of the Council for Science and Society in England and many activities in developing countries), Randers (who said he thinks we are ranging too widely in our discussions and gave some examples of some more limited aspects of science policy), and Hambro (who agreed with Randers that the discussion was too diffuse and emphasized the global nature of a number of problems).

After the morning session, I was interviewed by Mr. Sinding Larssen, Senior editor of Oslo "Aftenposten" and whom I had met before--I believe in Geneva--on my proposal for an International Association for the Advancement of Science, the problems of waste disposal and plutonium diversion in the nuclear power area, and the time scale for commercial controlled thermonuclear fusion.

The entire symposium group then rode by bus to the Fridtjof Nansen Foundation at Polhøgda, the former home of the Norwegian Polar explorer, Fridtjof Nansen. Others, including staff of the Foundation, were also present. I took some movies (and Randers took some including me) in the garden and back porch, including many of the people, and several pictures, including one with Randers, Borlaug, Stähle, and Mera (of Japan).

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At lunch, I sat at a table next to Mrs. Aase Lionaes, President of the Lagting, Chairman of the Nobel Committee of the Norwegian Parliament, and with Sollie, Heden, Nilsson, Dahl, and King. Mrs. Lionaes told me that her position on the Norwegian Parliament is a fulltime job with time off only for the summer vacation. She explained to me the Swedish electoral system and the import of the present 175-175 tie in the Swedish Parliament, which may be broken when the mail ballots are counted.

After lunch, Sollie described the house we were in, which now is the headquarters for the Fridtjof Nansen Foundation. Nansen lived here until his death, on the balcony above the living room, on May 13, 1930, at the age of about 68. We then went up to the Tower Room, which still remains as it was during Nansen's lifetime, full of pictures, instruments, a complete set of his voluminous writings, his slide rule, two packages of early Kodak film, typewriter, voice recording machine, desk, chairs, reprints, League of Nations reports, etc. He did his exploring in the 1890s and early 1900s, was Norway's first Ambassador to the United Kingdom in 1905, worked on aid to Armenia and other countries on League of Nations Commissions, and originated the famous "Nansen Passport," good in some forty countries for use by people who had lost their national affiliation during the war. As we were leaving, I took some movies of the front of the Foundation (finishing cartridge no. 10).

I sat next to Gottmann and Hambro on the bus ride back to the Nobel Institute. They want to work with me on the preparation of a summary report, for public issue, on our Symposium 26. They were both anxious to learn of my role in the decision to give the Fermi Award to Oppenheimer and said many people throughout the world appreciate what I did on this.

When we returned to the Nobel Institute, I gave a copy of my talk, "New Directions in Development," to the woman in the secretariat, Laila (Mrs. Finn) Sollie.

Tinbergen presided over the afternoon session. Sollie asked Gardner, Nilsson and Gresford to act as a committee to suggest specific topics to be discussed tomorrow. Tinbergen then called on the first speaker, Alexander King, who spoke on "Cooperation in Science and Technology--The OECD Approach," and next called on Gunnar Randers, who spoke on "Scientific Cooperation in NATO."

After a short intermission, Tinbergen suggested that, after a discussion of the papers by King and Randers, he will ask Heden to give his paper this afternoon. Fawcett said he will withdraw his paper for oral presentation in the interest of saving time. This will make it possible to devote tomorrow's session to discussion and to the task of drawing up conclusions from Symposium 26.

Abdus Salam, Professor, International Center for Theoretical Physics in Trieste, joined us at this point. The discussion period generated many critical questions about the NATO science program to which Randers responded.

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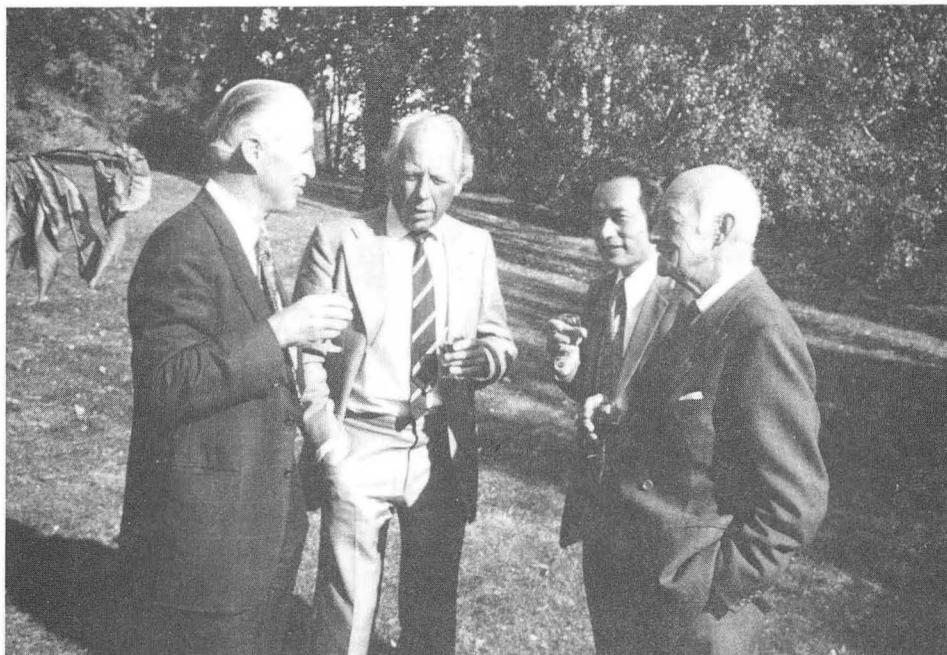
Tinbergen then called on Heden, who spoke on "An International Research Corporation--An Approach to the Financing of the 'Fourth World.'" He suggested the formation of an International Research Corporation based on patents of participating scientists. Because so many of the present and future problems are in the biological area, biologists should be allowed to assume positions as influential as have been assumed by physicists. This brought the afternoon session to an end at about 6:00 p.m.

I then got together with Gottmann and Hambro to write a draft summary report of our deliberations and conclusions for public release after Symposium 26. We drafted a concise statement mentioning the concept of a global non-exploitive civilization, to be attained by solving problems of food shortage, water supply, energy requirements, environmental protection, health improvement, urban development and general improved quality of life, provided large numbers of individual scientists understand and turn their attention to the international scene along with political leaders. I gave them each a copy of my talk.

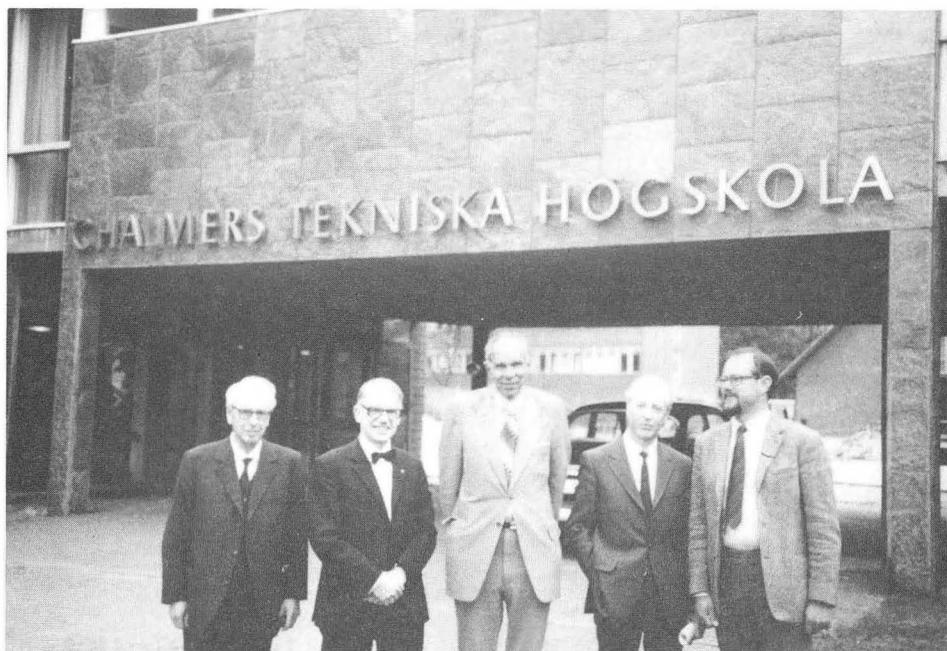
I then walked back to the Continental Hotel, picked up Steve, and went on to the nearby Grand Hotel, where we had dinner in the Grill with Gunnar Randers and Viking Olver Eriksen, Chairman of the Norwegian Atomic Energy Institute (the changed name of the Norwegian Atomic Energy Commission). Eriksen is worried about the growing resistance to nuclear power in Norway. There is a plan to have a 4-5,000 megawatt nuclear power station somewhere on the 70-mile long narrow fjord into Oslo. The opposition is so great that all candidates for top national offices have opposed it. The nuclear power plants can be put underground at about 15-20% greater cost and an additional year's construction time, with some uncertainty as to the feasibility. Norway has plenty of gas from the ocean off the coast, but the problem of piping it in has not been entirely solved and the pipeline could not be completed before about 1978 at best. Eriksen asked about the situation in the United States, and I said that nuclear power plants are being built on a large scale despite the opposition. He would like to talk to someone in connection with a general evaluation report which he must submit to the Norwegian government by March 1, 1974, and I suggested he talk to Commissioner Doub or Commissioner Larson. For a general evaluation of the state of the opposition in the United States, I suggested he talk to Chairman Ray and Ralph Lapp. Randers is finishing his assignment with NATO and will visit the United States (Woods Hole and elsewhere) later this fall, at which time he too may talk to some of these people.

As we were leaving, he invited Steve to come back to Oslo again sometime and go skiing at his place in the nearby hills.

Steve and I returned to our room in the Hotel Continental at 9:00 p.m. He had spent the day visiting the Gustav Vigeland Park, which impressed him very much, and the Vigeland Park Museum, which used to be Vigeland's studio.



Norman Borlaug, Gunnar Randers, Koichi Mera, Nils Stahle: Nobel Symposium, Oslo, Norway, 9/18/73.



Nils Gralen, Jan Rydberg, GTS, Hammar, Jol Liljenzin: Chalmers Tekniska Högskola, Gothenberg, Sweden: September 19, 1973.

Wednesday, September 19, 1973 - Oslo - Gothenberg

Steve and I had breakfast in the Caroline Room, checked out of the Hotel (total bill, including meals, 955.55 Norwegian crowns), and took a taxi to the airport (30 Norwegian crowns).

At the airport, we met Professor Lindqvist of Uppsala University (whom I had met before), who had just returned from the northernmost university in the world, which is situated in Norway. I bought a little furry seal for Dianne and a fur covered coin purse for Helen. Passport Control made almost no check of our passports.

We boarded SAS Flight No. 461, which left at 8:50 a.m. and arrived in Gothenberg at 9:20 a.m. We went through Passport Control, where there was only a cursory check. We were met by Jan Rydberg. I changed 1,100 Norwegian crowns to 813.45 Swedish crowns.

Jan told me he thought the mail ballots will not break the 175-175 tie that now exists in the Swedish Parliament. He drove us to the Park Avenue Hotel where we checked into room 107. He told me the reason the Volvo people postponed my visit is that they thought it would be mistakenly related by the press to Volvo's recent decision to start manufacturing Volvos in the United States (at Chesapeake, MD).

Rydberg drove us directly to the Chalmers University of Technology, where we went down to the auditorium of the chemistry building. Since I was scheduled to talk at 10:15 a.m., Rydberg introduced me immediately, following his presentation to me of the "Chalmers Student Award," a ceramic figure of a student carrying a book, and I gave my talk, "The Discovery of New Elements." This was illustrated with the same slides as my Hamburg lecture except for the elimination of the slide on organometallic compounds and the tables of calculated electronic structures of the superheavy elements. I talked until about 11:00 a.m., and the audience of a hundred or so, including many fourth year chemical and engineering students and some faculty, seemed to enjoy it. My old friend, Lars Melander, was present and talked to me; he used to be at the Nobel Institute for Physics and is now an organic chemist at Chalmers. Jol Liljenzin was present, and I acknowledged his presence and emphasized his contribution to the chemical identifications following the bombardments of uranium with argon and krypton ions in the SuperHILAC.

Following my talk, we went across to the Physics Building which contains some of the laboratories of the Institute of Nuclear Chemistry, including Liljenzin's office. I met Sven Andersson, who had recently returned from a two-year stay at Waterloo University, southwest of Toronto, where Hari Sharma is situated; he and his Swedish wife have two children.

We saw the apparatus for continuous separation of elements by the AKUFVE [Anordning för Kontinuerlig Undersökning av vid Fördelningsfaktor Vätske Extraktien] (centrifuge equipment) technique and the work in general on solvent extraction separations.

We then went to the small library of the neighboring building which houses the main, older laboratories and offices of the Institute

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(or Department) of Nuclear Chemistry. Here we met Per Olaf Aronsson and Gunnar Skarnemark, two of Rydberg's students.

Jan described his research program, which consists of studies of: (1) actinide chemistry, including complex ion formation, solvent extraction distribution, structural chemistry, and Pa(IV) chemistry; (2) short-lived isotopes studied by the AKUFVE (centrifuge technique); and (3) solvent extraction studies in general with a tie-in with industry, including Stora Kopparberg Company's steel mill at Soderfors, 60 miles east of Falun--they have developed means of cleaning up the waste that used to go into Dalalven.

Aronsson described their work on identification of short-lived isotopes by SISAK-Technique (Short-lived Isotopes Studied by AKUFVE Technique). He gave me a reprint by himself and Skarnemark for use by our Table of Isotopes group (Lederer and Hollander). This is a continuous solvent extraction method. They use the 14 Mev neutrons from the accelerator at the University of Oslo.

Steve and I then went with Rydberg to the Administration Building, where I received an honorarium (1,162 Swedish crowns) for my two talks today. We went to the office of Nils Gralen, Rector of Chalmers University of Technology and professor of textile chemistry. He gave me a little cloth table with the lettering "Chalmers Tekniska Högskola--Göteborg." After talking a while, Steve, Jan and I rode with Gralen in his Saab to the Sjöfarten Hus, which is the Royal Bachelors Club, where we had lunch.

After lunch, we talked for about hour about the Swedish language, Swedish affairs, nuclear power in Sweden, my Swedish forebears, etc. As we left the club, I took some movies (starting movie cartridge no. 11). I learned that my old friend Curt Mielikowsky, formerly of the Nobel Institute of Physics, is now the President of the Saab Company.

We rode back to the Administration Building where I was scheduled to give my talk, "Energy Sources for the Future," at 3:15 p.m. Before my talk, I met with Ulf Norhausmer of the Swedish Steam Users Association, the Energy Committee of the Association of Swedish Industries, and member of two committees of the Royal Swedish Engineering Society for study of energy problems.

I was introduced by Rector Gralen and gave my talk from 3:05-4:00 p.m., using the same slides as in my Paris talk. Several hundred people were present, including Liljenzin and some people from the Volvo Company. There were a few questions following my talk, which were surprisingly mild considering the strong feeling against nuclear power in Sweden that Rydberg and Gralen had told me about. In my talk, I indicated that commercial nuclear fusion won't be available before 2000, which runs strongly counter to what Hannes Alven has been saying in Sweden. His strong opposition to fission nuclear power has played a strong role in producing the present anti-nuclear climate in Sweden.

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After my talk, Steve took two pictures of Rydberg, Rector Gralen, Professor Hammar (retired professor of steam technology), and me in front of the sign designating the entrance to Chalmers Tekniska Högskola. Chalmers and the University of Gothenberg are on the same campus and share the same chemistry and physics buildings.

Rydberg then drove us back to our hotel. We went shopping down the street for a number of gifts to bring back to family, friends, etc.--some Dalahests, ornamental spoons, iron ornaments, playing cards, and a key ring with a wooden fob.

We were picked up at the hotel at 7:15 p.m. by David and Margaritha Dyrssen (he was a docent with Lar Gunnar Sillen and has relatives in the United States with the name translated to Dirksen). We rode with them to the home of Jan and Birgitta Rydberg at the extreme west end of Gothenburg on the hill adjoining, with a magnificent view of the harbor, a district called Långedrag. Here we attended a dinner party hosted by the Rydbergs, along with the Rydberg children [Kristina (17), Ingrid (20), Gunilla (10)], Professor and Mrs. Lars Melander (he has been a professor at Chalmers Tekniska Högskola since 1963), Rector Nils and Mrs. (Mildred) Gralen of Chalmers University of Technology, Rector and Mrs. George Lundgren (a chemist who worked with Sillen), Professor and Mrs. McHugh (an Englishman, long a resident of Sweden, who works in reactor physics), Mr. and Mrs. Jol Liljenzin, and Mr. and Mrs. John Malm. John Malm worked in my section at the wartime Metallurgical Laboratory of the University of Chicago beginning in 1943. He is on his way to the Saclay Laboratory in France to spend a year's sabbatical from the Argonne National Laboratory, where he has worked ever since World War II. They were just passing through Gothenberg to pick up their Volvo, which they did this afternoon.

Steve and I sat at a table with Birgitta Rydberg, Professor McHugh, Mrs. Lundgren, Mrs. Liljenzin, Mrs. Dyrssen, and Lars Melander. I sat next to Mrs. Dyrssen, a charming and pretty woman. They have five children--first two girls, then a boy (through school and working), a girl, and a ten-year-old boy. She told me she has a recent grandchild just under a year old. They visited the United States in 1948 on an American Scandinavian Foundation fellowship and visited Berkeley, including the Radiation Laboratory, at that time. They are friends of the Connicks, who spent some time in Sweden about ten years ago.

The Liljenzins returned to Gothenberg just five days ago and are still suffering from the time difference. Mrs. Liljenzin liked Berkeley very much. Their oldest child speaks English quite well. Liljenzin gave me a draft copy of the article by Kratz, Liljenzin and Seaborg describing the chemical procedures used in our heavy ion bombardment work--he has made some changes in it; I'll read it on my way home across the Atlantic, then give it back to Kratz for further polishing. We will also prepare an article on the results--the distribution of yields of products. Both will be submitted to the Journal of Inorganic and Nuclear Chemistry for publication.

After dinner, we went downstairs where Jan showed a number of slides taken at various scientific meetings and his various visits abroad. These included many scientific personalities. He had some particularly good pictures of the people at the meeting observing the anniversary of Madame Curie's birth in Warsaw in 1967, and I may want to get copies of these sometime. He also had a couple of excellent pictures taken at the Perlman-Seaborg-Alexander swimming pool about 15 years ago showing me, Earl Hyde, Steve, Eric, Lynne, Dave, and others.

Steve and I left the party with the Dyrssens and returned to our hotel a little before midnight.

Thursday, September 20, 1973 - Gothenberg - London - Washington

Steve and I rose at 6:30 a.m. to a dark, rainy day, the first day of bad weather we have had on our entire trip. This was not too much of an inconvenience since this was our last day. We had breakfast in a restaurant area just down the hall from our room. We then checked out (the bill was paid by Chalmers University of Technology) and took a taxi (35 Swedish crowns) to the Torslande Airport. Here I changed my Swedish money, 1,800 crowns, to U.S. money, \$421.

We saw the Volvo factory near the airport. I recalled that Ramel had told me that he is a good friend of Per Gyllenhammar, the 38-year-old lawyer-President of Volvo.

We checked three of our bags through to Washington, D.C., went through Passport Control (very cursory), then through baggage search, where my carry-on bag and our airlines bag, full of gifts, were checked carefully and we were personally searched, including the opening of my pen.

The departure of the plane was delayed by technical difficulties, and we finally took off at 9:20 a.m. on SAS Flight No. 521. From Svenska Dagbladet I learned that the count of seats in the Swedish Parliament still stands at 175-175. We arrived at London's Heathrow Airport at 11:15 a.m. and had a bite to eat in the transit quarters. I bought a key ring for Pete and Steve bought a paperback, I'm OK, You're OK, by Thomas A. Harris.

We boarded BOAC Flight No. 521, which left at 1:45 p.m. and arrived at Washington (Dulles) Airport at 5:15 p.m. We were met by Paul Lochak, who had just arrived on a flight from Paris, and we rode with him in a taxi to Harrison Street. He told me that, in the meeting of Laurent with Chauncey Starr in Los Angeles on Monday, Starr offered complete cooperation and exchange of information but said he didn't want to accept any financial contribution to their research program from EDF; presumably use of EDF laboratories and equipment and the loan of their personnel to U.S. operations would be contemplated. I loaned Lochak my slides for my Paris talk, "Energy Sources of the Future," so he can reproduce them tomorrow (when he will return them to Harrison Street) for distribution of the copies to a number of people who heard my talk and requested them. Lochak is scheduled to meet Linowitz tomorrow and give him a complete report of our meetings with Goldschmidt and others concerning the idea of a study by U.S. private individuals of U.S.-French collaboration in uranium

enrichment by gaseous diffusion. Lochak continued in the taxi to the Mayflower Hotel where he will be staying. He will be in the United States until the middle or end of next week.

Steve and I found no one at home at Harrison Street. We went in, I changed my clothes, then we walked down Nebraska Avenue to its end at Rock Creek Park. Here we took the short loop hike, which I took so many times while we lived in Washington, passing the police headquarters near the end.

We walked back and found Pete and Jane at home. Jane is working ten-hour days at PI at present, and Pete had picked her up to drive her home. Pete has only afternoon classes at Georgetown Law School, so he stays up most of the night, doing some studying during that time. We gave Pete and Jane our gifts--the Dalahest and the key rings from Sweden and England. We had dinner with them and told them a little about our trip to Europe, especially about our visit with relatives in Sweden. Pete has replaced the locks on the doors of the house and gave me a ring of six keys for these locks.

After dinner, we watched on TV the Billie Jean King-Bobby Riggs tennis match from Houston. King won 6-4, 6-3, 6-3. There were two mailings (dated September 14 and September 17) from Sheila waiting for me which brought me up-to-date with happenings at the office.

Friday, September 21, 1973 - Washington, D.C.

I had breakfast at home, then took a taxi to the headquarters of AAAS, where I was scheduled to preside over a meeting of the Executive Committee of the Board of Directors (agenda and minutes attached). The meeting started at 9:00 a.m. in the Board Room. Present were Rieser, Bolt, Haskins, Bevan, Borrás, and Trumbull. Revelle was present from 9:45-10:45 a.m.

We discussed the need for an increase of dues and of subscriptions to Science (for non-members). A current and projected deficit seems to make this mandatory. I appointed a committee to come up with a five-year plan, consisting of Bevan, Golden, Abelson, Rieser, Revelle, and perhaps one additional financial expert to be suggested by Golden. Bevan will arrange for meetings of this committee and will also present alternative financial models at the next meeting of the Board.

On Council meetings, we voted for an average of 1-1/2 meetings per year. On the building situation, Bevan reported that negotiations with Brookings Institution have failed and have been terminated. Bevan described a plan whereby a private developer might build the AAAS building on AAAS-owned land without any AAAS capital outlay. I reported on my efforts and it was agreed that I should continue these as planned.

We agreed with Bevan's recommendation that AAAS meetings yet to be scheduled be, in general, rotated between Washington, Chicago, and San Francisco. We agreed to the contribution of \$1,000 toward the cost of the installation of Albert Michelson in the Hall of Fame for Great Americans. With respect to the IEEE Task Force on Energy, Bevan

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE  
1515 Massachusetts Avenue, N.W.  
Washington, D. C., 20005

Agenda

Meeting of the AAAS Executive Committee  
September 21, 1973  
AAAS Board Room  
9:00 A.M.

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1. Dues Increase. At its June 1973 meeting, the Board approved an increase of \$2 in membership dues, effective in May 1973, and an increase of \$1 in each of the two following years. The Executive Officer will discuss this action in the context of this year's budget preparation.
2. Council Meeting Costs. The Central Office has assumed that the Association will reimburse the expenses of elected members of the new Council in attending Council meetings, but the Board has not yet explicitly authorized inclusion of such an item in the budget. The Executive Officer recommends that the 1974 budget include provision for two Council meetings, at an estimated cost of \$15,000 each, including travel, hotel, and meals for 74 members. (The Board should remember that Council will be larger in future years, as more AAAS members enroll in electorates.)
3. Building Situation. The Executive Officer will report.
4. Annual Meeting Sites. At its June 1973 meeting, the Board selected Washington, D. C., as the site of the 1978 annual meeting, but a shortage of time precluded consideration of sites for meetings beyond that year or the Executive Officer's recommendation that, in the future, the regular annual meetings be rotated among Washington, D. C., Chicago, and San Francisco. The Executive Officer now recommends that that policy be adopted, and that the 1979 meeting be held in Chicago, the 1980 meeting in San Francisco, and the 1981 meeting in Washington, D. C.
5. Albert A. Michelson Fund. Dr. Michelson was the first American scientist to receive a Nobel Prize. He was honored by his scientific colleagues with many medals and high offices, including the presidency of the AAAS in 1910. His classical experiments on the speed of light and on ether drift were among the most fundamentally significant in the history of physics.

In 1965 and again in 1970, the AAAS Board supported the nomination of Dr. Michelson for election to the Hall of Fame for Great Americans. Favorable action was taken on the 1970 nomination. A distinguished committee, chaired by Melville B. Grosvenor, is now raising funds for the installation ceremony on October 21 and for preparation of an appropriate bust and plaque to be placed in the Hall of Fame.

In view of the Association's role in support of Dr. Michelson's nomination, the Executive Officer recommends authorization of a contribution of \$1,000 toward the cost of the October ceremonies and bust.

6. IEEE Task Force on Energy. Following are a letter from Bruce B. Barrow, Vice Chairman of the IEEE Technical Activities Board, to Glenn Seaborg and IEEE's statement of the scope of activities of the Task Force on Energy of the Coordinating Committee of Engineering-Scientific Society Presidents:

I am writing to enlist the participation of the American Association for the Advancement of Science in an inter-society Task Force on Energy. I have had informal conversations with Richard Bolt and William Bevan concerning this task force and both have encouraged me to present this formal request to the Association.

A draft of our current scope is enclosed. This will be reviewed at an organizational meeting to be held in Washington on August 3rd, at which time we will be discussing our method of attack and laying plans for specific action.

About ten scientific and engineering societies have thus far indicated their intention to attend. Because of the outstanding activity of AAAS in this area in recent years, we have invited Dick Scribner of your Washington office to attend and we have asked Allen Hammond to give us a short talk based on his investigations. They will be able to brief you on our meeting.

I am optimistic that we will succeed in putting together a worthwhile plan for the Task Force and I hope that AAAS will play a significant part.

.....

The CCESSP Task Force on Energy is called upon to address the technical aspects of the complex problems commonly referred to as "the energy crisis," and to assess the technical (and economic) feasibility of alternative solutions and their potential impact upon the environment.

The assessment report, to be prepared within 18 months, will include an evaluation of U.S. energy demand predictions to the year 2000 and an analysis of the implied supply problems. It will report upon the currently evolving systems (and technologically feasible alternatives) for generating and distributing the needed energy.

It will report upon the likely impact of the energy crisis upon such economic areas as environmental control systems, private

transportation, manufacturing processes, household appliances, building construction, public transportation, communications systems, leisure equipment, etc.

The principal goal of the assessment is to inform the public plus state and Federal agencies of the major interfaces of the energy problem with other facets of the domestic economy.

The task force will be formed by subpanels representing all societies wishing to join.

The Executive Officer now presents IEEE's invitation to AAAS for the Board's formal consideration.

7. U.S. Bicentennial. The Board will recall that the Association's 1976 annual meeting will be held in Boston from April 26 through May 1. Does the Board wish to plan some special observance, in Boston or elsewhere, commemorating the nation's bicentennial? If so, does it wish to appoint a special committee of the Board or handle the matter in some other way?
8. Role of BA in U.S. Bicentennial. During the recent British Association meetings in Canterbury, the Executive Officer was informed by Sir Eric Mensforth, the General Treasurer, that the British Foreign Office had set up a committee on the bicentennial observance and that the British Government was prepared to commit a large sum of money (what constitutes a large sum was not specified) to the committee's effort. Sir Eric stated that he believed that he had made a convincing case to the committee that the best contribution would involve an exchange of people. He further proposed that there be a BA-AAAS joint program, perhaps at the Boston meeting, to be funded by a Foreign Office grant. The BA leadership is eager to have the Association's reaction. The Executive Officer informed them that he would present the question to the Executive Committee and that he would recommend (1) that an ad hoc committee be appointed to undertake immediate planning, and (2) that one or two representatives of the AAAS meet with their BA counterparts in London next spring for the purpose of intensive planning.
9. Child-Care Facilities at Annual Meetings. This item was on the agenda for the June 1973 meeting, but consideration of it was postponed at the request of Janet Brown, Director of the Office of Opportunities in Science. Since then, Dr. Brown has studied the matter and now concurs with the recommendation of the Executive Officer, based on advice from the Meetings Office and from legal counsel, that AAAS publish information about local child-care centers but not attempt to provide child-care facilities itself.
10. Review of the Association's Work, 1970-73. The Executive Officer will report on AAAS administration, programs, and finances during the past three years.
11. Executive Session.

William Bevan

September 6, 1973

TimetableMeeting of the Executive CommitteeSeptember 21, 1973

9:00	-	9:30	Item 1.	Dues Increase
9:30	-	9:45	Item 2.	Council Meeting Costs
9:45	-	10:00	Item 3.	Building Situation
10:00	-	10:15	Item 4.	Annual Meeting Sites
10:15	-	10:30	Item 5.	Albert A. Michelson Fund
10:30	-	11:00	Item 6.	IEEE Task Force on Energy
11:00	-	11:15	Item 7.	U.S. Bicentennial
11:15	-	11:30	Item 8.	Role of BA in U.S. Bicentennial
11:30	-	11:35	Item 9.	Child-Care Facilities at Annual Meeting
11:35	-	12:00	New Business.	Sakharov affair
12:00	-	1:00	LUNCH	
1:00	-	4:00	Item 10.	Review of the Association's Work, 1970-73
				and
			Item 11.	Executive Session

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE  
 1515 Massachusetts Avenue, N.W.  
 Washington, D. C., 20005

Minutes of the Meeting of the  
 Executive Committee  
 AAAS Board Room  
 September 21, 1973

*1873-1973*  
*10/15/73*

Present: Glenn T. Seaborg, Chairman, William Bevan, Richard H. Bolt,  
 Caryl P. Haskins, Roger Revelle, and Leonard M. Rieser;  
 from the staff, Richard Trumbull and Catherine Borrás

Absent: Lewis M. Branscomb

MINUTES

1. Agenda Item 1. Dues Increase. The Executive Officer distributed the attached documents, which had been prepared in connection with the 1974 budget exercise. He then reviewed projections to 1976 based on holding all programs constant and proposing only increases in costs associated with merit salary increases and anticipated operating increases due to inflation in the general economy. Given these assumptions, it was estimated that the Association could face a deficit of as much as \$1 million in that year.

Next he presented an analysis of income and costs extending back to 1956. This analysis revealed a serious "organic" problem resulting from a failure of the Association to plan dues increases to keep pace with the consumer price index. From 1957 to 1967, dues were held at \$8.50 and no differential was made between subscriber and member rates, although the CPI went up 55 percent and the size of Science magazine was doubled in the same period. The Executive Officer's 1967 recommendation of an increase to \$12 was approved, but members were given the option to renew for up to three years at \$8.50. Thus in 1971 when the cost of producing Science alone was approximately \$24, we were just getting out from under the \$8.50 policy. This financial lag of income behind costs is further complicated by the fact that all dues and subscriptions are treated as deferred income and a period of approximately 24 months must lapse between the institution of a dues increase and the time when its full effect is experienced.

He pointed out that the dues increase of \$1 scheduled to go into effect in May 1974 would not be sufficient to offset the increased expenses anticipated, and requested tentative approval of a \$3 increase in dues (to \$21) and a \$10 increase in the Science subscription rate (to \$40). If the Association grants an average of 5.5 percent salary increase, carries out the second phase of the salary equalization program, and makes a few staff additions needed to accommodate the programmed growth of activities now under way, and the general effects of inflation are included, the Association would incur a deficit of \$475,000 in 1974, even with these increases.

If no salary increases were made, equalization postponed, and no provision allowed for program growth, this deficit could be held to \$110,000.

Dr. Seaborg suggested that a model of the 1974 budget be prepared on the basis of a \$4 increase in dues, and that the Executive Officer explain the need for the increase in an editorial in Science. Dr. Rieser suggested that a budget model for a five-year period be prepared with continuing dues increases built into it.

The Executive Officer requested that the Chairman appoint a subcommittee of the Board to study and bring expertise to the Association's long-range financial planning problem. Dr. Seaborg appointed Messrs. Rieser, Revelle, Bevan, Golden, and Abelson and asked Dr. Bevan to arrange a meeting.

2. Agenda Item 2. Council Meeting Costs. The Executive Officer presented a recommendation that the 1974 budget include provision for as many as two Council meetings, at an estimated cost of \$15,000 each, including travel, hotel, and meals for 74 members. Because the frequency of Council meetings is uncertain at this time, it was agreed to budget \$22,500 for this item in 1974.

3. Agenda Item 3. Building Situation. The Executive Officer reported that since the purchase of 1785 Massachusetts Avenue is no longer actively under consideration, the staff is looking for an alternative site and an alternative way of financing a new building, in the event the fund-raising campaign is unsuccessful. He read a memorandum from Dr. Nussbaum describing one such alternative: AAAS would buy a plot of land and lease it to a developer; the developer in turn would construct the building, lease it to AAAS, and eventually sell it to AAAS, after he had had full advantage of the tax write-off.

Dr. Seaborg reported that he had already approached the ~~Johnson~~ <sup>Jonsson & Kresge</sup> Foundation and had made appointments to visit officials at ~~nine~~ <sup>seven</sup> other foundations to seek contributions to the building fund.

4. Agenda Item 4. Annual Meeting Sites. The Executive Committee approved annual meeting sites for 1979 (Chicago), 1980 (San Francisco), and 1981 (Washington, D. C.). In principle, a four-year cycle was approved for annual meetings beyond 1981, with the site to rotate among Chicago, San Francisco, Washington, D. C., and one other city, to be chosen by the Board at four-year intervals.

5. Agenda Item 5. Albert A. Michelson Fund. The Executive Committee authorized a contribution of \$1,000 toward the cost of a bust of Albert A. Michelson and a plaque in his honor to be placed in the Hall of Fame for Great Americans on October 21.

6. Agenda Item 6. IEEE Task Force on Energy. Upon review of a letter from Bruce R. Barrow, Vice Chairman of the IEEE Technical Activities Board, inviting the participation of the AAAS in an inter-society Task Force on Energy, the Executive Committee took the view that the invitation

should be discussed by the full Board, on the basis of more information than was contained in Mr. Barrow's letter, but that if a decision was called for before the November 30-December 1 and 2 meeting, the Committee should be contacted by telephone. The Executive Officer said that he would ask Mr. Barrow for clarification of the role AAAS was being requested to play and would find out the date by which IEEE needed to have AAAS's reply.

7. Agenda Item 7. U.S. Bicentennial. The Executive Committee agreed that AAAS's major activity in connection with the bicentennial should be the presentation of one or two programs at its 1976 annual meeting in Boston, and that such programs should be developed cooperatively with the British Association. (See Minute 8.)

8. Agenda Item 8. Role of BA in U.S. Bicentennial. The Executive Officer reported that during the recent British Association meetings in Canterbury, he had been informed by Sir Eric Mensforth, the General Treasurer, that the British Foreign Office had set up a committee on the bicentennial observance and that the British Government was prepared to commit "a large sum of money" to the committee's effort. Sir Eric said he had proposed to the committee that the best contribution would involve an exchange of people, and had recommended that there be a BA-AAAS joint program, perhaps at the Boston meeting.

The Executive Officer recommended that a small ad hoc committee be appointed to undertake immediate planning and that one or two representatives of the AAAS meet with their BA counterparts in London next spring for the purpose of intensive planning.

The Executive Committee agreed that such planning should be pursued with the British Association. Dr. Seaborg asked the Executive Officer to contact him about appointing a committee for this purpose.

9. Agenda Item 9. Child-Care Facilities at Annual Meetings. The Executive Officer reported the concurrence of Dr. Janet Brown, Director of the AAAS Office of Opportunities in Science, in his recommendation that AAAS publish information about local child-care centers but not attempt to provide child-care facilities itself at the San Francisco meeting.

The Executive Committee accepted that recommendation.

10. Agenda Items 10 and 11. Review of the Association's Work, 1970-73; Executive Session. The enclosed statements concerning AAAS programs and projects were distributed. Discussion took place during the executive session.

11. New Business.

(a) Date of next meeting. The Board's fall meeting was set for November 30, December 1, and December 2 (Friday, Saturday, and Sunday). *- morning*

(b) Committee appointments. The Chairman appointed Messrs. Bevan,

David, Golden, Haskins, and Rieser as a subcommittee to review nominations of persons to replace retiring committee members and to present recommendations to the full Board at its next meeting.

(c) Mexico City meeting. The Executive Officer reported that the staff has not yet received an accurate count of the Mexico City meeting registration, but estimates the number of registrants to be about 5,500 and the gross income from registration to be about \$40,000, two thirds of which will revert to the AAAS. The staff estimates that it will have held the Association's Mexico City costs to within the \$231,000 budget approved last October by the Board and will have some \$7,000 unexpended. More money was raised than was needed for the symposia on education and on population, and in these cases some money may have to be returned to the grantors.

VIA, the agency which arranged most of the travel and hotel accommodations for the meeting, has filed for bankruptcy, but the staff's accounting records to date indicate that AAAS is not likely to lose any money as a result. (The Executive Officer will prepare a special memo for the Board in the VIA matter.)

(d) Relations with the executive branch of the federal government. The Chairman reported that on July 24, Messrs. Bevan, Bolt, and Golden and he had paid a visit to Mr. John Sawhill, Associate Director for Natural Resources, Energy, and Science, Executive Office of the President, to discuss possible roles the AAAS might play in advising the executive branch concerning matters of program and science policy.

The Executive Officer reported that on September 20, Dr. Abelson and he had paid a second visit to Mr. Sawhill. At this time the latter indicated his strong and continuing interest in possible roles that AAAS might take. He felt that AAAS could be particularly helpful in evaluating national priorities and reviewing program design. Drs. Abelson and Bevan mentioned the large collection of member talent available to AAAS, particularly through its referee and committee systems, but stressed that such inputs should be informal.

Mr. Sawhill expressed interest in having AAAS appoint small ad hoc panels to react to questions of policy in the early stages of evaluation. He seemed particularly interested in the fields of agriculture and energy, and invited Drs. Abelson and Bevan to see whether or not the Association could assume an evaluative role in connection with the energy recommendations which AEC must present to the government on December 1. They replied that they did not want to intrude but that there might be some virtue in writing Dr. Dixy Lee Ray and offering to provide her with outside consultants.

Dr. Seaborg requested that the Executive Officer be in touch with him concerning appointment of the committees suggested by Mr. Sawhill.

Dr. Rieser reported on the October 10 visit of presidents of several associations to Dr. Guy Stever, Director of the National Science

- 5 -

Foundation, which the latter had called for the purpose of ascertaining what each association was doing in the area of public policy and manpower. Dr. Stever expressed interest in further communication with, and feedback from, the various scientific and engineering associations represented at the meeting.

(e) Andrei Sakharov. The Executive Committee was provided with copies of communications to Dr. Mstislav V. Keldysh, President of the Academy of Sciences of the U.S.S.R., from Dr. Philip Handler, on behalf of the Council of the National Academy of Sciences, and from Dr. Harvey Brooks, on behalf of the Council of the American Academy of Arts and Sciences, together with a copy of a statement from the Federation of American Scientists, all expressing concern for the welfare of Dr. Andrei Sakharov and pleading the cause of intellectual freedom. Copies are enclosed.

After a full discussion concerning whether or not it was appropriate and desirable for AAAS to take a position regarding the repression of intellectual freedom in the U.S.S.R. and the effect of such repression on Soviet relations with the American scientific community, it was agreed that the Executive Officer should simultaneously (1) request Dr. Revelle (who was not present for this part of the discussion) to draft a statement for review by the entire Board before its next meeting; (2) write to the presidents of the affiliated societies, informing them that the Board is considering making a statement and asking (a) whether they have taken or plan to take similar action and, if so, the nature of that action and (b) whether or not they would be willing to support a statement by AAAS.

William Bevan

October 9, 1973

Friday, September 21, 1973 (con't)

will obtain more information before discussing it at our next Board meeting or earlier by phone if necessary.

In the course of our discussion of a possible program of AAAS in connection with the U.S. Bicentennial, I learned that Clarence Ohlke has left NSF upon retirement. I agreed to set up a committee to consider ways the AAAS can observe the Bicentennial. I also agreed to appoint a committee to meet with British Association representatives to plan a joint program to observe the U.S. Bicentennial at the AAAS meeting in Boston (April 26-May 1, 1976). Bevan will be in touch with me about both of these items.

With respect to child-care facilities at Annual Meetings, we agreed with Bevan's recommendation that the AAAS limit its activities to publishing information about local child-care centers.

We took a break for lunch, with sandwiches served in the Board Room. Bevan showed me a letter of September 15, 1973, which he has received from Carlos Perez Martinez, Foreign Secretary of Asociacion Columbiana para el Avance de la Ciencia, inviting me to attend the meeting of the Asociacion in Bogota (October 31, November 1-3); he wants me to serve as Chairman of the "International Committee for Science Meetings and Communication," a follow-up to our Normandie summit meeting in Mexico City last June. I told Bevan to send my regrets on the basis that my schedule will not permit me to attend.

Bevan told me that he has had to relieve Howard Greyber of his duties. Harve Carlson has taken over as AAAS Meetings Director. Carlson and Rieser will attend the October 12 meeting of the Advisory Committee in Berkeley. Trumbull will come out in November for a meeting with us to plan the San Francisco meeting floor management, security arrangements, etc.

When we resumed our meeting after lunch, I appointed a committee consisting of Rieser, Bevan, Golden, Haskins, and David to meet on Thursday, November 29, to help pick committee members, etc., preparatory to the Board meeting on Friday, November 30, through Sunday, December 2. Bevan made a report on the wind-up activities for the Mexico City meeting.

We then went into Executive Session--Rieser, Bolt, Haskins, Bevan, and I. Bevan presented to us a summary of the accomplishments during his tenure as Executive Director and gave us a document, "AAAS Programs and Projects, 1970-73," and a summary of future plans in a document, "AAAS Programs and Projects, 1974."

Revelle joined us again at about 1:15 p.m., so we interrupted Bevan's report to discuss the Sakharov affair, rejoined by Trumbull and Borrás. On the basis of this discussion, and after Revelle left, we decided (1) to have Bevan write the presidents of all the affiliated societies of AAAS, asking what they are doing about the Sakharov affair, and (2) to have Revelle draft a statement that the Board might make, possibly in the form of a letter to Keldysh.

Friday, September 21, 1973 (con't)

Bevan reported on the meeting that he and Abelson had with John Sawhill a few days ago. Sawhill said they are most interested in priorities. (He also mentioned that Guy Stever has met with the heads of many scientific societies, including Abelson [Geophysical Society], Rieser [AAAS], Joe Mayer [American Physical Society], Alan Nixon [ACS], etc., in the NSF Board Room.) They decided that I should set up a small AAAS committee (which Bevan and I will discuss) that could meet with Sawhill on sensitive issues that might come up in the next six months, e.g., agriculture and agriculture research. It was also suggested that AAAS might offer its aid to Dr. Ray in connection with the AEC energy study for the White House--Bevan will write Dr. Ray and include a copy of Hammond's AAAS book on energy.

We then went back into Executive Session (now with only Rieser, Trumbull, Bevan, and me) and Bevan continued his report. He reported on personnel. Trumbull has been doing a good job with a few limitations, as in writing reports. Hans Nussbaum has good technical competence but does not exercise adequate administrative control, especially on such matters as cost of meetings; he is 65, will retire in three years. Bill Chapman, our new young controller, does fairly well, lacks some confidence, but will probably be all right. Bill Engleman, our new young personnel officer, handles personnel well, recruits well, but procrastinates too much if not watched. Borrás is very good, supervises the office girls very well, and gets a large work output from them. Bob Ormes, the Managing Editor of Science, does a good job. Howard Greyber has been a failure and has been replaced by Harve Carlson. Jim Butler has good creative ideas, is well liked by his staff, but is not a good administrator. Bob Potter has good journalistic skills, but is a poor manager. Norman Metzger, a very good acquisition from ACS, is in charge of audiotapes. Graham Chedd, former science editor of New Scientist, is lining up scientists to write newspaper columns, but hasn't produced much yet. Dick Scribner carries a very heavy load and does a good job, but is a bit compulsive on details. John Mayor runs a trouble-free department of Science Education--he will probably retire next March and hasn't come out with imaginative programs; John Livermore, a potential replacement for Mayor, is probably not the man for the job. Foncannon does a good job and is near retirement. The problem is to find a replacement for Mayor if this program is to be continued.

Finally, Bevan talked about his own future. He is now starting his fourth year as Executive Officer and thinks four years is long enough for such a position. He is getting further away from science and wants to get back to it. Therefore, he is planning to terminate next fall, so the Board should now begin to think of a successor. He recommended that this be announced publicly, by telling the AAAS staff, at about the time of the San Francisco meeting. Trumbull will leave at the same time as Bevan or slightly later. I appointed a committee of Rieser, Revelle and me to begin the search for the new Executive Officer. The committee will meet at 4:00 p.m. on October 10 at AAAS headquarters to discuss this. Rieser will notify Revelle of this appointment and meeting. The next President-elect (Calvin or Mead) will replace me on this search committee on January 1, 1974. We adjourned at 4:30 p.m.

After this meeting, I walked to the headquarters of Science Service. When I arrived at 4:45 p.m., Dorothy Schriver greeted me with the good news that Sheila had just called 15 minutes ago with the news that Andy Sessler was appointed Director of LBL at the Regents meeting today. Thus, this represents the successful culmination of a long, hard fight. Andy was one of the 40 Science Talent Search winners of 1945.

I presided over the meeting of the Board of Trustees of Science Service. Present were Allen V. Astin, Joseph W. Berg, Jr., Bowen C. Dees, Julius Duscha, O. W. Riegel, Edward W. Scripps, II, John Troan, and Deborah P. Wolfe; and staff members E. G. Sherburne (Director), Donald Harless (Business Manger), Kendrick Frazier (Editor of Science News), and Dorothy Schriver.

We followed the agenda as presented (copy attached). It was agreed that I will write a letter to Mrs. Leonard Carmichael, expressing our sympathy over Leonard's death; Sherburne will draft it. The next meeting of the Board was tentatively set for 5:00 p.m. on Friday, November 30.

After the Board meeting, a number of us had a buffet dinner in Ted's office, where the Board meetings take place. I then rode home with Allen Astin, who dropped me off on his way to his Bethesda home. He asked me to appoint Julius Duscha in his place as chairman of the Science News Advisory Committee; he is lightening his load as the result of his recent slight heart attack.

I called Helen, and she told me about the gasoline crisis in the Bay Area; I also talked to Sheila who was having dinner with Helen, Eric, Ruthie Olson, and Bill Sprotte (Eric's roommate).

Dorothy Schriver called to tell me that Paul McDaniel has been appointed Director of Associated Argonne Universities with offices in Washington, D.C.; he is looking for an assistant director, office staff, etc.

During the day, Steve visited the Washington Zoo with Jeff Cooper.

Saturday, September 22, 1973 - Washington - Lafayette

Steve and I had breakfast at home. Pete and Jane joined us just before it was time to leave. Mrs. Washington drove by, sent her greetings to Helen, and said she hopes to visit us next summer. I took some movies, finishing cartridge no. 11, of the neighborhood and of Pete and Steve, with Jane, loading our suitcases into their Mazda and a picture of the house and two pictures of Pete, Jane and Steve with the camera--all with insufficient light due to the heavy over-cast.

Pete then drove Steve and me to Dulles Airport in the Mazda. We talked about his Law School program. He is taking afternoon courses in Civil Procedure, Criminal Justice, Property, Torts, Contracts, and also has a Law Club session. He thinks that the only examination in each of these courses except Property will be the final next June.

AGENDA

## MEETING OF THE BOARD OF TRUSTEES OF SCIENCE SERVICE

Friday, September 21, 1973, 5:00 p.m.

Science Service Building

1. Approval of Previous Minutes
2. Report of the Committee on Science Service Mission
3. Final Report on National Science Foundation Grant
4. Report of Financial Advisory Committee
5. Nominations for Additional Member of Financial Advisory Committee
6. Report on the Status of the Sale of Buildings
7. New Business
8. Date for Next Meeting of Board of Trustees
9. Executive Session

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As we were checking in at the airport, we met Mr. Pulley, our Lafayette neighbor across the street, who was returning from a week-long business trip to Washington; he said he has business in Washington, where he has a number of projects under way, every few weeks.

On the airplane lounge, Steve and I met Peter Goldschmidt, University of California representative in Washington, and David Birnbaum, a San Francisco attorney. Goldschmidt and Birnbaum (who was editor of the Daily Californian) were classmates and friends of Pakistani Prime Minister Bhutto at Berkeley in the late 1940's and are on their way to act as hosts during his visit to the Bay Area this weekend; they intend to escort Bhutto to the California-Illinois football game in the University of California Memorial Stadium today. We also met former California Senator George Murphy, who was sitting nearby.

Our flight, TWA Flight No. 67, left at 9:15 a.m., a half-hour late for no apparent reason. Soon after takeoff, our pilot announced that we would be about 20 minutes late in our arrival in San Francisco due to "head winds." Some day it will occur to airlines management that, if they have on-time departure, the chances for on-time arrival will be greatly improved. Reflecting on our trip as we approached San Francisco, I felt that it had been very satisfactory and was made all the more pleasant by having Steve as a traveling companion. The foreign part of our trip consumed three weeks, during which we visited six countries--England, Germany, France, Belgium, Sweden, and Norway. We indulged in a variety of activities, and I believe that this experience contributed much to Steve's maturation process.

We arrived at San Francisco Airport at 11:30 a.m., twenty minutes late. Helen met us and drove us home in the Bonneville. The musical instruments finally arrived at the office, and Sheila brought them out to the house. They were in perfect condition--one is a lute-like stringed instrument and the other is a woodwind with rows of pipes (Sheila's acknowledgement of their receipt is attached).

I took Olympus pictures of Eric, Ruthie, Dianne, and Bill Sprotte, of Eric and Ruthie, and of Steve and Eric on our tennis court, of the new oak trees on our field, and of our house and front yard.

I read the papers that had accumulated during my absence. Suki and I took a hike to the water tank. I spent an hour hoeing weeds in our field. Bill and Ruthie spent the night here.

Sunday, September 23, 1973 - Lafayette

I spent a good part of the day reading accumulated papers. I spent about an hour hoeing weeds in the field. Helen drove Eric, Steve, Ruthie, and Bill to Davis in the afternoon. The fall quarter starts tomorrow. Eric will be living at Hammarskjold House, Steve at his same rented house.

September 19, 1973

Mrs. Kathleen D. Schwartz  
American Consul General (Bucharest)  
APO New York, New York 09757

Dear Mrs. Schwartz:

I am delighted to report that the crate containing the two Romanian folk art instruments has arrived and the contents are in perfect shape.

In behalf of Dr. Seaborg, enclosed are fifty airmail stamps to replenish Mr. Bramante's supply.

Dr. Seaborg is in Europe at the moment, but will return next week. I know that he will be very pleased to see the instruments and of course will write Ioan Ursu (whose letter was enclosed in the package). In the meantime, thank you so much for your persistent and valiant efforts to get the package delivered!

Cordially yours,

Mrs. Sheila M. Saxby  
Administrative Assistant  
to Dr. Seaborg

/sms

Enclosure

Monday, September 24, 1973 - Berkeley

I went over my accumulated mail with Sheila and responded to a number of letters, invitations, etc.

I conferred with Earl Hyde about accumulated Nuclear Chemistry Division business and future plans and had lunch with him in my office to continue the discussion.

I visited Norman Edelstein in his office to greet him upon his return from his sabbatical year at Oxford University and Harwell Laboratory in England.

I greeted Len Nugent, who had arrived during my absence, and began to plan with him the revision of Chemistry of the Actinide Elements. He feels we need an additional collaborator to handle the individual chapters on each element in the first half of the book. He will handle the correlative chapters in the second half of the book. I called Joe Katz and Bob Penneman, who agreed to the addition of such a collaborator--we are considering Jack Ryan of Battelle Pacific Northwest Laboratory and Russ Baybarz of ORNL (Katz also mentioned Bill Carnall).

Consul General Hans Skold called me from the Swedish Consulate in San Francisco. He and Mrs. Skold are planning a reception in connection with Nobel Day on December 10 (late afternoon or early evening); I indicated that I could probably attend, although it is a working day. He also invited me to attend a memorial service for King Gustav tomorrow afternoon at the Ebenezer Lutheran Church in San Francisco, which I can't attend.

Allan Zalkin came by and asked if he could name me as a reference on his application for a Guggenheim Fellowship; I said that I would be glad to support his application.

I saw Norman Edelstein shortly after 3:00 p.m. and told him to get in touch with Fuger about the few milligrams of protactinium metal that Fuger wants us to send him in order to find out what the problem was with the protactinium that Edelstein sent before, so that we won't repeat the previous mistake.

Fritz Schaefer came in at 4:00 p.m. and described a problem he is having with the patent office at University Hall. I thereupon called Josephine Opalka, Assistant Patent Administrator in the General Counsel's office. I indicated that the jurisdictional dispute between the University and IBM has now held up his work for eight months and that I hoped this could be immediately resolved. I noted that his project is an esoteric one, on the calculation of the properties of the noble gases, which could have no potential patent value for IBM. She said that Mark Owens has been trying to negotiate with IBM for several months about their ironclad proviso that they hold patent rights out of IBM-funded projects in the University. The dilemma is that the University is being criticized for "giving away" patents; they fear that to make an exception in Schaefer's case will open up a Pandora's box and such action would have to go through the Regents. In the meantime, the University is trying to get IBM to strike the

patent clause where inventions are out of the picture. I disagreed with her that the University was being equitable in this situation. She asked me to write IBM about it, which I declined to do; she suggested that I talk with Mark Owens to discuss it further (which I didn't do).

Andrew Sessler's memorandum to the LBL staff, upon his selection as Director of the Lawrence Berkeley Laboratory, was widely distributed today (copy attached).

I spent an hour hoeing weeds in our field. I watched part of the Dallas-New Orleans football game on TV. Dallas won, 40-3.

Tuesday, September 25, 1973 - Berkeley

During breakfast, I watched on TV Howard Hunt appearing as a witness at the Watergate hearings.

As soon as I arrived in my office at the Lab, I called Lew Keller at Oak Ridge. I told him that Spitsyn says that it is not possible for him to arrange Penneman's stay at Dmitrograd (Melekess) because this is not a Soviet Academy of Sciences laboratory. Therefore, we are reverting to the original plan of having Mikheev visit Berkeley a year from now, and Penneman or someone else might visit a Soviet Academy of Science lab, such as the Institute of Physical Chemistry, the Institute of Geochemistry and Analytical Chemistry, and so forth. I said that I would not take any further steps but wait for the initiative from Spitsyn. Keller said that he will call Mel Abrahams to convey this information to him.

I told him about Nugent's suggestion that another person be added for the rewriting of Chemistry of the Actinide Elements. I mentioned Jack Ryan as a possibility, and Keller said he is a good writer and recommended him. When I mentioned Russ Baybarz as an alternate possibility, Keller indicated that he, Don Ferguson (Director), and Ray Wymer (Associate Director) of the Division of Chemical Technology where Baybarz works would probably be unhappy with this, but would certainly consider it if we wanted to move in that direction.

Keller then went on to talk about the new program direction at Oak Ridge and his talk with John Teem during his visit. Keller suggested a program of research on actinide chemistry to be connected with the waste disposal aspects of the nuclear power program, and I indicated that we had made the same suggestion to Teem in one of our written project proposals. (Keller told me that he has had such a large demand for my China Journal that he would like additional copies; I said I would send him three copies, including one for Weinberg. He has shown about 30 pages covering my visits to laboratories, institutes, and so forth to Acting Director Floyd Culler who was so impressed that he has reproduced the pages for distribution to about 85 middle management people.)

Abe Fischler's secretary at Nova University called to discuss with me the possibility of my visiting them in Fort Lauderdale on my way back from Puerto Rico in January, since I won't be able to attend the National Advisory Board meeting there on February 25. I indicated

September 24, 1973

## MEMORANDUM

TO: The staff of LBL

FROM: Andrew M. Sessler

To be selected as the Director of the Lawrence Berkeley Laboratory, following two of the great pioneers of American nuclear science, Ernest O. Lawrence and Edwin M. McMillan, is both a great honor and a formidable challenge. I accept the honor with humility and gratitude; I anticipate the challenge with enthusiasm and optimism.

This laboratory has been a unique research organization, combining its own great technical and intellectual strength with the breadth and academic excellence of the University of California. It was at LBL in the 1930's that American nuclear science had its birth, a birth resulting from the labor of Ernest Lawrence in building the first cyclotrons and linear accelerators. Just before World War II the first transuranium elements, neptunium and plutonium, were discovered at LBL by McMillan, Glenn T. Seaborg, and colleagues; plutonium was destined to play a leading role both in the war effort and in the new technology of nuclear energy. After participating actively in the war effort, the Laboratory contributed to the nation's nuclear defense in the postwar years by spawning the great Livermore laboratory.

The years following World War II have been called a golden age of American science, and in no small measure the research activities of LBL added lustre and brilliance to that era, with the first synthesis of anti-matter by Segre, Chamberlain and colleagues; with the synthesis and characterization of an entire series of transuranium elements by Seaborg and colleagues; with the unfolding of the secrets of natural photosynthesis by Calvin and colleagues; with the conception, design and use of powerful particle accelerators and detection equipment for the elucidation of elementary-particle spectra by Lawrence, McMillan, Alvarez, Glaser, and colleagues.

Undoubtedly, this roster of Nobel laureates, which cannot be matched by any other laboratory in the world, is impressive testimony to the strength of LBL. Furthermore, the outstanding scientific work of many other Laboratory staff members has been recognized: for example, among the recipients of E. O. Lawrence Awards are Leo Brewer, Geoffrey Chew, Isadore Perlman, John Rasmussen, David Shirley, and Cornelius Tobias. These notable achievements, representative of the excellence of the LBL scientific staff, have for the past 15 years been accomplished under the wise and beneficent leadership of its retiring Director, Edwin McMillan.

The capabilities of the Laboratory are deep and broad. Its scientific output, which has had resounding impact in the basic sciences, has also had, through applications, great influence in

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the fields of applied energy, medicine, materials, and engineering. The Laboratory has also played a major role in the University's educational program: many of the staff hold parallel faculty appointments, and thousands of advanced degrees have been granted by the University to students who carried out their research work at the Laboratory.

Nevertheless, the Laboratory finds itself today at a critical juncture in its history. The nation-wide seven year decline in support of basic science, simultaneous with the shift of much of the frontier work in high-energy physics to other laboratories, has severely threatened the vitality and health of LBL.

Yet the Laboratory is ready and capable of facing the challenges associated with new national problems, as it is also capable of performing new and exciting work in the basic sciences. We are already responding to the challenge of the energy crisis and associated environmental problems by embarking, with interdisciplinary teams from LBL and the University's Berkeley campus, upon a variety of new programs. Among these programs is a multidisciplinary effort in the development of hot brine sources of geothermal energy, and a variety of approaches to the utilization of solar energy ranging from photothermal and direct conversion techniques to longer range methods, modeled on the photosynthesis process, for fuel production by photolysis. There are also new programs aimed at a better understanding of coal chemistry, and the development of processes for the synthesis of fuels from waste materials, as well as diverse studies of materials addressed to the problems of novel energy sources.

In the area of environmental studies the Laboratory is fortunate to have developed, during the last few years, a variety of new ideas; major new programs are underway in development of environmental instrumentation, in studies of environmental systems such as the chemistry of the stratosphere and of urban particulate pollution, and in seismic research. Programs ready for implementation include studies of the relation between cancer and aerosols, and investigations of the dynamics of pollution of coastal waters. Such new and imaginative programs have stimulated the ingenuity and creativity of scores of our scientists, engineers, and technicians; hence they hold the promise of providing new vitality to the Laboratory.

Clearly, if LBL is to remain the unique national asset that it has been, it must, while executing socially significant research programs, maintain its strong fundamental research base. To accomplish this will require critical examination of existing programs as well as the development of new programs. Already, a number of exciting new activities are underway. These activities include work by physicists, chemists and biologists at the new heavy-ion facilities at the Super-Hilac and the Bevalac; novel developments in electron spectroscopy; the increased use by high-energy experimental physicists of the capabilities of the machines at the Stanford Linear Accelerator Center (SLAC) and at

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the National Accelerator Laboratory, and plans, presently under development, for a novel SLAC-LBL high-energy facility. Also, I wish to point to the frontier investigations of the dynamics and regulation of energy and informational transfer in living cells; the increasingly quantitative techniques of nuclear medicine, which are providing insight into the mechanisms of fundamental biological processes; and the wealth of new technical approaches that are being employed to ascertain the fundamental factors determining the properties of materials. I believe that these and similar activities, spearheaded by our outstanding scientific staff, supported by an excellent and dedicated technical and administrative team, and augmented with additional collaborative ties with the U.C. campuses, will give LBL and the entire University new strength and a renewed sense of direction.

A great deal of the work at the Laboratory goes on behind the scenes, dedicated but unheralded. This vital contribution will be needed to a greater degree than ever before. The spirit of teamwork is one of the Laboratory's greatest strengths.

In the Lawrence Berkeley Laboratory the nation has a unique asset, an institution that embodies excellence and dynamism, one that is sensitive to the needs of society. But it is an asset that is presently underutilized. Surely all of us can accept as a major goal for the Laboratory that it be employed to its fullest in the service of society, both on problems requiring near-term solution and on fundamental research that will contribute, both in specific ways and, in the longer term, in ways that we cannot now fathom. I look forward confidently to our achieving this goal, a goal that holds much promise for the Laboratory, for the University, and for society.

I shall dedicate myself as fully as I am able to this challenging task, and I ask, from all the members of the Laboratory family, for a spirit of dedication, enthusiasm, and cooperation. With renewed vigor and hard work, let us pursue unsurpassed scientific excellence and achievement for our Laboratory, which proudly bears the name of Ernest O. Lawrence.

*Andrew M.essler*

Tuesday, September 25, 1973 (con't)

that I probably would not be able to do this unless it was in connection with a Board meeting.

At 10:00 a.m., I went over to the Conference Room and met with Hyde, Harvey, Shirley, Cerny, Zalkin, Diamond, and Rasmussen to go over names for our Visiting Review Committee and came up with the following: Gerhart Friedlander, Chairman (3 years); J. C. D. Milton (3 years), Stanley S. Hanna (2 years), John S. Blair (1 year), Jacob Bigeleisen (1 year), and Jack Winchester (2 years). I will contact these people after clearing the roster with the Program Committee at Thursday's meeting.

Norman Edelstein came in at 10:30 a.m. and we talked about our research program. He gave me copies of his letters to Wolf Wagner (a prospective postdoctorate from Karlsruhe who would come with outside support) and Dr. Basil Kanellakopoulos who might come for a shorter visit. He is thinking of working with actinide complexes with actinide linkages to four sulfur atoms. He is also finishing the work he did with David Brown of Harwell last year on compounds of the type  $\text{PaX}_6$  where  $X = \text{F}, \text{Cl}, \text{Br}, \text{I}$ , and also compounds of the type  $\text{PaX}_4 \cdot 2 \text{TPPO}$ . He said that Bartlett's postdoctorate, Zemva, is leaving and that there is some possibility that Kevin Leary, a graduate student, will carry on the work to look for  $\text{NpOF}_5$  with Bartlett. Bartlett is taking a six-month sabbatical leave starting in January. I told him that I favored more work with simple inorganic actinide compounds and that I hope eventually to replace Burris Cunningham with a first-class actinide chemist. (I also told him that I want him to drop in any time, as I want to see him more often to keep in touch.)

I called Anne Keatley at 10:55 a.m. to review the draft of my letter to Kuo Mo-jo, inviting the People's Republic of China to send a delegation to our San Francisco AAAS meeting. She made a number of suggestions which I incorporated into my draft.

I then called Jack Ryan at Battelle as a follow-up to Len Nugent's conversation with him, to inquire about the possibility of his joining us as an author in the revision of Chemistry of the Actinide Elements, particularly the part in which we treat the chemistry of the individual elements chapter by chapter. He agreed that a good job would require a full year's work. He indicated that he is interested in doing this, but will need to talk to his management. Harold H. Van Tuyl is the department manager, and his immediate manager is Richard E. Nightingale. (Edward L. Alpen replaced Fred Albaugh as Laboratory Director.) I pointed out that Battelle would need to make the contribution of his time and salary, as Oak Ridge is doing in Nugent's case. I supposed that he would do the work there and that Len would have to get the relevant files to him (possibly by his making a trip down here). We discussed several general aspects of the revision. He thinks the systematics, trends and properties as a group have to be treated, and I indicated that Nugent wants to treat this. He doesn't think that everything needs to be cross-referenced, as in the Gmelin volumes. He indicated that he doesn't have any strong feelings about our using the IUPAC convention on oxidation potentials.

Tuesday, September 25, 1973 (con't)

Clark Kerr's office called to say that he will be unable to participate in the Co-Chairmen's Symposium as the speaker on the future of education in the Bay Area in February.

I dropped by to see John Huizenga in his office in Room 128, Building 70. He just arrived yesterday to work with Stan Thompson and Luciano Moretto on various aspects of their SuperHILAC program.

I had lunch at the table outside the lower level of the cafeteria with Hyde, Poskanzer, Swiatecki, Kratz, Norris, Bucher, Nugent, Edelstein, and Grosse (working with the Diamond-Stephens group). We talked about my general observations on my recent European trip and the recent discouraging Dubna work on the unsuccessful attempt to synthesize superheavy elements by heavy ion bombardment.

At 1:00 p.m., I met with Jens Kratz, Ted Norris and Irwin Binder in their office to discuss our future research program. We agreed that Kratz and Norris will work on the chemical identification of the products produced in the bombardment of uranium by a range of heavy projectiles such as argon, krypton, xenon, and heavier. They will also collaborate with Silva and Trautman before, during and after their visits to LBL on the determination of the chemical properties of element 105. They may also be involved in the proposed experiments for the chemical identification of element 106. Binder, for a thesis problem, will work on the characterization of the rabbit ears produced in heavy ion bombardments. He will use uranium as a target with a number of projectiles such as argon, krypton, xenon, and heavier, and will also investigate such products from the bombardment of nonfissionable gold with similar projectiles. Kratz raised the question of whether we might buy a larger germanium detector costing perhaps \$6,000--he will investigate the cost more carefully. He said that Hans Kading, the co-worker with Hahn on the isolation of protactinium and a member of the GSI Advisory Board, will visit LBL to see the SuperHILAC within the next week or so.

I called President Charles Hitch at 3:35 p.m. I congratulated him on his success in securing Andrew Sessler as the new Director of the Laboratory. He indicated that the Regents' vote was overwhelmingly in favor but that the opposition got uglier and uglier and continued right up to the end. The opposition came only from Lawrence and his close associates.

I then invited Hitch to speak on the future of education in the Bay Area in the 1990's at the Co-Chairmen's Symposium for the AAAS 1974 Annual Meeting. I described the symposium to him, including the stellar aggregation of other speakers. I indicated that he could give his emphasis to higher education if he wished, perhaps broadening that somewhat. I suggested that the time would most likely be around February 27. He will call me back with his reply shortly.

I spent about an hour before dinner hoeing weeds in our field. Vice President Agnew today asked the House of Representatives to judge his case.

Wednesday, September 26, 1973 - Berkeley

Sam Wyly called me from Dallas at 9:00 a.m. to bring me up-to-date on financing of DATRAN. The \$25 million investment which has been recently secured will finance DATRAN's activities through about the first half of next year. (Bechtel furnished \$5 million; Haefner, \$20 million.) We will still need \$54 million more--\$12 million of which will be supplied by vendor guarantees, leaving a balance of \$42 million required. Bank credit will supply part but not all of that. Sam reported that Walter Haefner has said he will put in another \$10 million but still wants to see some other American investors involved; this is the next thing Sam will work on. Wyly expects that DATRAN will be far enough along for customers to use the branch from Dallas to Houston to St. Louis; the construction on that is on schedule. It will start to operate about January 1. They will test the computer service in November and December. The point service is operating, but the switching service won't operate until the first of 1975. He indicated that, now that the freeze is off, Penisten will be able to hire another 20-30 people. They are offering salaried positions rather than commissioned jobs and are looking for a high degree of professionalism in computers. He indicated that most of the applicants are local people and are screened carefully. He said they are getting a lot of applicants; DATRAN seems to be perceived as an exciting place to work.

When I mentioned to him my recent visit to Dallas with Philip Jonsson to solicit funds for the new AAAS building, he mentioned another of the four founders of Texas Instruments as a possible source of funds. This is Cecil Green, who is worth a few hundred million dollars and gives money for buildings on campuses, and Sam said he would be happy to introduce me to him. He also mentioned Pat Hagarty, another of the four founders, who has given a lot of money to the University of Dallas. The fourth founder (the third being Erik Jonsson) died recently, leaving a widow who is also in a position to help with such projects.

President Hitch called me at 9:30 a.m. and asked me to speak at a dinner which he and Nancy are giving in honor of Ed McMillan on October 18. He would like me to reminisce about the Lab and McMillan's role in it and to pay tribute to him as a scientist--which I said I would be happy to do.

I dictated to Sheila the summary of my talk for the Dorado Beach, Puerto Rico meeting of business executives arranged by Business International.

At noon, I conferred with Margie Hollander about our project to reconstruct my Chancellor's files to have a set in my office for future use in autobiographical writing.

I had lunch at the table outside the lower level of the cafeteria with Vic Viola (whom I was seeing for the first time since his arrival for a year's sabbatical at LBL), John Huizenga, Jens Kratz, Ted Norris, Art Poskanzer, Jerry Bucher, and Eckhart Grosse.

Wednesday, September 26, 1973 (con't)

After lunch, I walked back with Viola to his office off of Room 4445 (Hyde's office) in Building 70A. We talked about his research program. He plans to work with Huizenga at the SuperHILAC, using angular correlation techniques to determine whether fission occurs through a compound nucleus mechanism when uranium is bombarded with heavy ions such as krypton. I indicated to him the close relationship of this to the work of Kratz, Norris and Binder.

I then went by to see Stan Thompson. He told me about Jaime Merino's project for which he apparently has ample funding from the Mexican government to build a huge combination nuclear electric and desalting plant in Baja California. Part of the electricity would be marketed in Southern California in collaboration with the Southern California Edison Company. Jaime would like to involve me as an advisor and will soon be in touch.

I then went up to the HILAC. I talked to Bob Main, who indicated that the SuperHILAC would be operating again with Tank #8 added (so as to get up to 8.5 Mev per nucleon) by the end of next week and that the SuperHILAC should be operating as a component of the BEVALAC by delivering a beam to the Bevatron by the middle of December.

Harold Fidler called me to arrange an appointment for me with Hans Kading, Chairman of the Advisory Board of GSI. Jack Cope, Kading's friend, is arranging the visit. They will be here on Friday.

I had long telephone conversations with Sue Watson and George Cardinet in order to be brought up-to-date on happenings in the Citizens Task Force and EBRPD during my absence. I learned to my delight that our Trails Subcommittee report of August 24, 1973, was adopted with the exception of the suggested 15% allocation of funds to be devoted to trails; George made the presentation at the meeting on September 12. I learned that I have been appointed as a member of an editorial committee of the Citizens Task Force to prepare the final wording of the Citizens Task Force recommendations. The other Task Force members are Bernice May, Bill Dickinson, and Sally Germain; and the staff people are Bill Horne, Bill Travis, and Jerry Kent. Our report is due by October 16. I asked Sue whether she would try to get Supervisor Moriarty's endorsement for the Lafayette Open Space Bond issue and she said she would.

I sent copies of my China Journal to John Teem, Ben Loeb and Howard Brown. I wrote Boris Pregel (copy attached) in response to his invitation for me to speak at the Second International Conference on Environment and Society in Transition in May 1974. Since I can't attend, I suggested others he might consider. I also wrote W. O. Milligan (copy attached) in connection with his attending the Nobel Awards ceremony in Stockholm on December 10.

At 4:30 p.m., I conferred with Hyde about the division of the Nuclear Chemistry Division's research program between AEC's Nuclear Sciences and the Atomic Molecular and Applied Sciences branches. We also conferred about the mechanics of operation of the visiting committee that we are setting up.

September 26, 1973

Dr. Boris Pregel  
Office of the Secretariat  
Center for Integrative Studies  
State University of New York  
Binghamton, New York 13901

Dear Dr. Pregel:

This is in reply to your letter of August 29, 1973, which was waiting for me upon my return from a trip.

Thank you for your nice invitation to speak at the Second International Conference on Environment and Society in Transition, to be held in New York City during May 6-11, 1974. Unfortunately, my schedule precludes my attending at that time.

As other participants, you might wish to consider any one of the following: Dr. Jack M. Hollander (Director, Energy and Environment Programs, Lawrence Berkeley Laboratory), Dr. John Holdren (Assistant Professor, Energy and Resources Interdisciplinary Program, University of California, Berkeley), Dr. John Harte (Research Physicist, Energy and Environment Programs, Lawrence Berkeley Laboratory), and/or Dr. Robert Budnitz (also a Research Physicist in the LBL Energy and Environment Programs).

With best regards,

Cordially,

Glenn T. Seaborg

GTS/sms

Enclosure: questionnaire

September 26, 1973

Dr. W. O. Milligan  
Director of Research  
The Robert A. Welch Foundation  
2010 Bank of the Southwest Building  
Houston, Texas 77002

Dear W. O.:

I believe that I took care of your request of September 18, 1973, during my recent visit to Oslo. While there, to attend a Nobel Symposium, I mentioned your and Mrs. Milligan's desire to attend the Nobel awards ceremony this fall to Baron Stig Ramel, President of The Nobel Foundation (Sturegatan 14, S-114 36 Stockholm, Sweden). He said that this should present no problem. I believe that all you have to do is write him, indicating your desires and perhaps mentioning that you have talked with me about it in order to jog his memory.

The Nobel ceremony is always held in Stockholm on December 10, but it is very worthwhile to be there a few days earlier--perhaps as much as four or five days or a week earlier. I am sure that Ramel will tell you about the various other functions that might be interesting to you.

With best regards,

Cordially,

Glenn T. Seaborg

GTS/sms

At 5:00 p.m., I visited Nurmia at the HILAC Building. He has bombarded dysprosium fluoride with  $O^{18}$  to form 20-day  $W^{178}$  to see if this can be removed by heating as a volatile fluoride. He has had partial success. Our new postdoctorate from Finland, Taisto Raunemaa, is helping him on this.

At 7:30 p.m., I attended a meeting of the Citizens Task Force in the Vista Room of the Oakland Garden Center. It lasted until midnight. This was scheduled to be the last meeting of the Task Force. The agenda (copy attached) was followed, with some changing in order. An attempt to raise the allocation for trails above the 5% suggested in the letter of September 16 from Joe Bort to Bill Dickinson and Bernice May was unsuccessful. I moved that the Citizens Task Force adopt in principle the recommendations listed in the CUWA document of August 25, with the exception of recommendation #7, and this carried unanimously. Joe Engbeck introduced the attached resolution concerning a broad policy statement to be issued by EBRPD and this carried.

In the course of consideration of specific site recommendations, the Task Force voted to recommend the plan, "The Joint Recommendations on the EBRPD Master Plan of the Five Cities" (Clayton, Concord, Lafayette, Pleasant Hill, and Walnut Creek). Sue Watson's report on "Open Space Role" was adopted. An attempt to defeat the concept that there be one park for off-road vehicles failed.

Thursday, September 27, 1973 - Berkeley

After driving Dianne to Acalanes High School (as she does every day), Helen drove me to work in the station wagon because she needs it today, and Dave will use the Bonneville to visit the Berkeley Department of Zoology at the Davis campus today; he will stay in Davis overnight.

Taisto Raunemaa, with Matti Nurmia, dropped in to see me at 10:00 a.m. He is working with Nurmia on the 106 problem. His wife has a Kellogg Foundation fellowship in Economics on the campus; they will stay a year or longer. Matti knew Taisto when Taisto was a student at Helsinki University and Matti was an instructor.

I met with Andy Sessler to talk in general about his plans as he starts his regime as Director of LBL. He has just returned from Washington AEC, where, as part of a group, he discussed with John Teem the AEC research program, especially in the area of energy and the environment. He has an appointment to meet with Chancellor Bowker and about seven of his staff next Tuesday morning, and we discussed who might accompany him.

The Nuclear Chemistry Division Program Committee had a bag-lunch meeting in my office from 12:00-1:15 p.m. (announcement attached). Present were Joe Cerny, Norman Edelstein, Norman Glendenning, Bernard Harvey, Jack Hollander, Earl Hyde, Arthur Poskanzer, John Rasmussen, David Shirley, Kenneth Street, and Stanley Thompson. (Absent were Richard Diamond, Albert Ghiorso, and David Thompson.)

Earl reviewed plans for the LBL Open House to be held this Sunday, September 30. He notified the committee that Andrew Sessler



# EAST BAY REGIONAL PARK DISTRICT

11500 SKYLINE BOULEVARD/OAKLAND, CALIFORNIA 94619/TELEPHONE (415) 531-9300

BOARD OF DIRECTORS: MARLIN W. HALEY, President; HOWARD L. COGSWELL, Vice President; FRED C. BLUMBERG, Secretary  
PAUL J. BADGER, Treasurer; MARY LEE JEFFERDS, JOHN J. LEAVITT, CLYDE R. WOOLRIDGE □ RICHARD C. TRUDEAU, General Manager

## CITIZENS TASK FORCE

825 9/25/73

### MEETING AGENDA

- Date: Wednesday, September 26, 1973 - 7:30 p.m.
- Place: Vista Room of the Oakland Garden Center at Lake Merritt -  
666 Bellevue Avenue, Oakland
1. Allocation of Funds - Geographic and/or functional -  
Report by Finance and Criteria Sub-committees
  2. Decisions Relative to non-park open space
  3. Sub-committee Reports
    - a. Finance
    - b. Shoreline
    - c. Internal Transportation
  4. Specific Site Recommendations (additions and/or deletions)
  5. General Discussion from the floor

### SPECIAL NOTE

For those of you who are interested in visiting the Browns-Winters Island area of the Delta, Jane Helrich, Science Instructor and consultant of the Mt. Diablo Unified School District, will be conducting a tour on Saturday, October 13. This is not a scheduled Task Force trip; however, since the Browns-Winters Island is an Overview site, perhaps some of you would like to visit the area.

There will be a fee of \$1.50 per person for boat service. Bring rubber boots since islands are not maintained by levees. Dress for wind and bring a lunch. For details and reservations, call Molly Reeves - 254-1428.

Bill D. Horne  
September 19, 1973

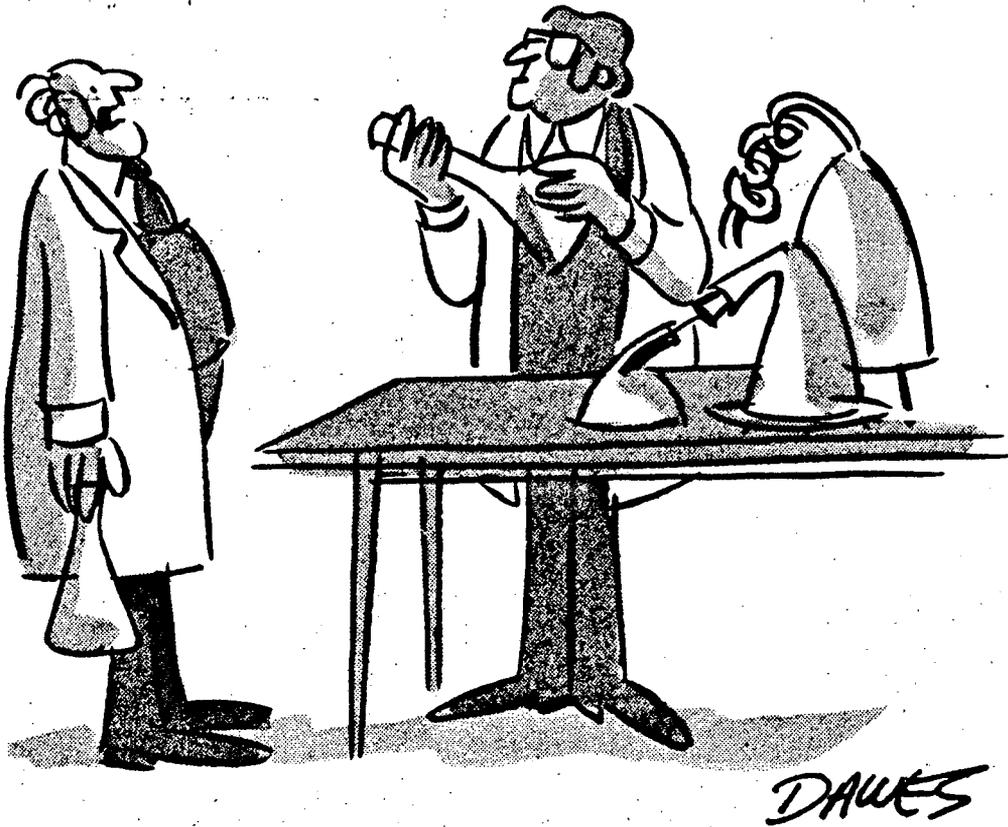


From Joe Engbeck

9/26/73

451b

The Citizens Task Force recommends that the East Bay Regional Park District ~~hire an appropriate local consultant - one thoroughly familiar with the natural environment of the East Bay -~~ to develop a broad public information-oriented statement of park district expansion plans and objectives. This statement should describe the basic human relevance of an improved, enlarged, and more comprehensive regional park system to all of the citizens of the District. It should be eloquent and persuasive rather than technical. That is, it should be written in large-scale conceptual terms and take into consideration such concepts as the "Five-Cities Plan," the "Skyline Boulevard Linear Park Proposal," and the still broader "Ridgeland Plan" as presented by the Preserve Area Ridgeland Committee, as well as a comprehensive East Bay Shoreline Preservation and Recreation Plan. The statement should relate the rather detailed and specific recommendations of the Overview Report to these larger concepts and thereby make it easier to more adequately understand and evaluate specific recommendations both in terms of human needs and the remaining park and open space opportunities that exist today in the East Bay Region. This kind of long range, idealistic statement of goals should - - once it was available - - be used to guide a phase by phase acquisition program and help ensure both regional and functional balance in terms of acquisition and development.



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**"I, Professor T. Harrington Filmore, MS, PhD, ScD, world-renowned member of the scientific fraternity, Nobel Prize winner for brilliant work in the field of advanced chemonuclear research, author of a dozen masterful tracts and papers, have my finger stuck in a flask."**

WE HAVE A LOT OF PROBLEMS TO SOLVE

AT THE NEXT PROGRAM COMMITTEE MEETING:

THURSDAY, SEPTEMBER 27, 1973

12:00 NOON

GTS' OFFICE

Thursday, September 27, 1973 (con't)

is now based in Room 3136C Building 50A and is anxious to talk with anyone interested to develop a profile of the laboratory administratively and steps for improvement. (Jack reinforced this at the end of the meeting, noting that Andy had asked him and Dick Mack to conduct a thorough study in the Lab; Andy is not interested in hearing gripes but wants any concrete suggestions about the LBL program and organization and the names of LBL personnel who have distinguished themselves in their respective jobs, at all levels.)

Bernie Harvey reported on the work of the ad hoc committee to recommend a Visiting Review Committee for the Nuclear Chemistry Division. He submitted the roster of Gerhart Friedlander, Stanley S. Hanna, J. C. D. Milton, John S. Blair, Jacob Bigeleisen, and Jack Winchester. He pointed out that two are nuclear physicists, two are nuclear chemists, and the one-year appointees are from the third category of a variety of fields. The Program Committee discussed the roster briefly; there being no objections to this roster, it was agreed that I will write to the individuals. The first meeting will be held in February, 1974. George Rogosa and SAN office people will be invited to attend the presentations of the program. The Review Committee will report to me. (Earl noted that, if Elliot Pierce happens to be at LBL in connection with a similar review of the IMRD program, Nuclear Chemistry would be prepared to give him whatever program he might request.)

Earl discussed briefly the pending questions as to how our program is affected by the new organization of the Division of Research in the AEC. Dave Shirley's photoelectron program is probably misclassified--Earl thinks it should be divided into "photoelectron spectroscopy and gases" under Elliot Pierce and "photoelectron spectroscopy and solids" which should be under the Stevens program. Frank Asaro's program is presently classified under heavy element chemistry; however, Earl thinks it would be better under Elliot Pierce.

Earl reviewed the overall allocations of the national budget: high energy physics, \$125 million; nuclear chemistry, \$65 million; materials, about \$32 million; the Pierce program, \$30 million (of which \$6 million is already earmarked for mathematics centers and \$2 million for training programs).

Earl announced that the Transplutonium Element Committee will meet in Berkeley on November 13-14. The Executive Committee of the SuperHILAC Users Association will meet here on October 12.

The committee discussed possible procedures for recruiting applicants for the few postdoctoral positions which we will have available next year, particularly with an eye to affirmative action criteria. Bernard Harvey said that the LBL ad hoc committee will be coming out with a full policy statement soon, which will also go a step farther in terms of requiring documentation on why any caucasian male is hired instead of minority or female applicants.

Thursday, September 27, 1973 (con't)

I reported on the superheavy element work I had seen in Europe, noting that the most interesting and puzzling work I saw was that of Claude Stephan at Orsay. I briefly outlined the transuranium elements work that is developing in Europe.

From 2:00-3:00 p.m., I met in my office with Earl Hyde, George Pappas, Maynard Michel, and Jack Hollander to discuss the Norman Milleron problem. Milleron made no attempt to undertake the assignment that we gave him during our meeting with him in my office on May 9, 1972. We decided that, in view of his connections with Ralph Nader (his wife's brother), a dismissal at this time would apt to be misunderstood. We will keep him on but under a tighter arrangement with another specific assignment. He will work on a detection system for the analysis of multi-component systems involving organic molecules of interest to life processes. He will probably work in collaboration with Roy Teranishi of the Western Regional Laboratory of the Department of Agriculture at Albany on the development of a new ionization source preparatory to the preparation of a proposal to NIH for the support of this research. He will be transferred to the Energy and Environment Program under Jack Hollander with Michel contributing his services for more immediate supervision, and his salary will continue to be charged to account number 3000-01 in the Director's Office. The aim will be to exercise a close supervision with progress checks made at least on a weekly basis.

At 3:00 p.m., I met in a continued meeting with George Pappas and Earl Hyde in regard to the Mathilde Kland-English problem. They outlined for me the plan for increasing her salary to \$1,650 per month and the letters and notifications that will accompany this, as well as the follow-up actions that will be taken depending on the responses obtained. Pappas said he will give me a more complete description of this plan of action.

I called Dixy Lee Ray in Washington at 3:15 p.m. to inquire about the report I had just read in the Weekly Energy Report, stating that Senator Jackson is turning against ERDA. She indicated that there is some truth in it although it is somewhat overstated. Senator Jackson fears that it will not be possible to get the Senate support required for approval of the White House plan, which contemplates the creation of ERDA, although House approval seems more likely. Because of this, Jackson feels that a step-wise move would be preferable: the first step would be to centralize energy research, including the office of coal research, in the Atomic Energy Commission; this would be followed by a move of this entity into the new Department of Energy Resources. In response to my questions, she indicated that John Foster has taken a position as Vice President in charge of Research at TRW (Redondo Beach) and thus probably has effectively removed himself from consideration as head of ERDA. I mentioned that I will probably attend the reception being hosted by her and the Dorseys on October 11 at the Smithsonian, and she indicated that this would probably give us the opportunity to discuss these matters further. I also inquired whether she had decided yet to accept the invitation to address the Science Talent Search banquet in March, and she said that she wasn't sure but will look into it.

Thursday, September 27, 1973 (con't)

I called Ann Chilcote at 3:35 p.m. She reported that the City of Lafayette is not allowed to give us any money for the Open Space Bond Initiative because that is using public funds for convincing the citizens that they should vote for this measure. She asked if I would contact Edgar Kaiser and ask him to make a \$2,000-2,500 contribution to our campaign. I gave her the background of my earliest attempts to get money from him in the Lafayette green areas project, on the basis of which I declined to follow up this suggestion. I suggested, however, that we approach three or four people to give \$500 each. I indicated that I would call Gordon Holmes and Barney Rocca in this regard. She will contact Fred and Amy Davis and others. The checks should be made out to Lafayette SOS and sent to P.O. Box 673, Lafayette, California, 94549. Mary Kelley handles the mail. I told her that I had tried to reach Bill earlier to tell him that (1) the five-cities plan was endorsed by the Task Force last night, and (2) Dick Trudeau again offered his help and that of Jerry Kent (as Lafayette residents). I asked her to ask Bill to think about how we might best use their help.

I then called Gordon Holmes, indicating that I was pledging \$500 to the Lafayette SOS campaign and asked if he would do likewise and contact some of his friends. He said that he will send in his check immediately and will call Jim Moore and others.

I then called Ann Chilcote back to report on my conversation. She indicated that she is also calling the Cardins and the Edwards.

Charles Hitch phoned me just before 5:00 p.m. to say that he will do the talk at the Co-Chairmen's Symposium at the AAAS 1974 Annual Meeting. He will use as a title, "The Future of Higher Education in the Bay Area."

I sent Lombard Squires a nomination of Frank Stephens as a candidate for the Ernest Orlando Lawrence Memorial Award, enclosing a statement covering his biography and scientific achievements (copy attached). I wrote Carl H. Strandberg, President of the Environmental Protection Institute at Mission San Jose, in response to his inquiry on what I might know about archaeology in Sweden (copy attached). I sent a copy of my China Journal to Mel Abrahams at the AEC in Washington, at Betsy McFadden's suggestion.

I rode home with Helen and hoed weeds in our field for a while before dinner. After dinner, I watched the regular Thursday evening volleyball game of our neighbors on our court; Dianne participated as usual.

I attended the meeting of the Lafayette Park and Recreation Commission in the Lafayette Federal Savings Building from about 8:45-9:45 p.m. Present were Commission members Austin Gibbons, Chairman, Stanley Euston, Richard Singer, Betty La Porte, and Nancy Michaelson. Also present as a recorder was David Granados (City Manager's office). Among our Lafayette SOS representatives present were Bill Chilcote, Mary Kelley and her husband, Jop van Overeen, and George Ponomareff.

Dr. Frank S. Stephens

Dr. Frank S. Stephens was born in Indiana in 1931. He attended Oberlin College, obtaining an A.B. degree with honors in 1952, and making Phi Beta Kappa in his junior year. He then went to graduate school at the University of California at Berkeley, receiving a Ph.D. in nuclear chemistry in 1955. During the last year of his studies he was a National Science Foundation Fellow.

He has been at the Lawrence Berkeley Laboratory since 1955, and a member of the Senior Staff of the Nuclear Chemistry Division since 1957. In 1959-1960 he was a Ford Foundation Fellow at the Niels Bohr Institute for Theoretical Physics in Copenhagen, and in 1970-1971 he was a guest professor at the University of Munich. He is a member of the American Physical Society and of the Society of Sigma Xi.

The research projects of Dr. Frank S. Stephens are remarkable in their demonstration of the application of very careful experimental techniques and simultaneous development of theory. The bibliography enclosed shows a wide-ranging interest in many aspects of nuclear spectroscopy, with the most important contribution being the recent experimental and theoretical investigations of the Coriolis effect in deformed nuclei.

His earliest work was in alpha-gamma spectroscopy, and an important study from that time was the characterization and systematization of the vibrational states, particularly the octupole bands at the beginning of the actinide region. In 1957, he and Dr. John Newton started the Coulomb excitation group in the Nuclear Chemistry Division at LBL, in order to take advantage of the heavy-ion beams expected with the completion of the Hilac that year. Indeed, this led to the first experimental observation of double Coulomb excitation, by the irradiation of tungsten targets with  $^{16}\text{O}$  beams at an energy below the Coulomb barrier. By the use of still heavier projectiles such as  $^{40}\text{Ar}$ , still higher-order multiple excitation was achieved, e.g., six-fold excitation to the  $12^+$  state in  $^{238}\text{U}$ . These experiments prodded the theoreticians into tackling the calculational problem and led to the semi-classical multiple Coulomb excitation theory of Alder and Winther.

In these, and the succeeding, Coulomb excitation experiments, Dr. Stephens showed his experimental ingenuity in a number of ways; most importantly in helping originate the use of the back-scattered particle  $\gamma$ -ray coincidence technique which is now the technique of choice in many Coulomb excitation measurements. At that time an Ar gas scintillation counter was used as the particle detector, as the modern Si diode was not yet available.

From this time and from his year at the Niels Bohr Institute date his interest in the theory of the Coriolis interaction and in its experimental manifestations. The Coulomb excitation studies on the odd-mass rare-earth nuclei illustrate the wealth of detail possible to extract from such measurements, and the best example is the study of  $^{235}\text{U}$ . This work showed clearly the importance of the Coriolis interactions in mixing the bands derived from the unique parity orbitals in a shell, but also showed unambiguously that the Coriolis matrix elements near the Fermi surface, calculated on the Nilsson model, had to be reduced a factor of two in order to obtain agreement with experiment. The origin of this disturbing discrepancy is still not understood.

The technique of observing the  $\gamma$ -ray de-excitation of a compound nucleus during the target irradiation and in the period between the beam pulses has become one of the most important methods of present-day nuclear spectroscopy. This process was popularized independently and nearly simultaneously by Morinaga and Gugelot in Amsterdam, Elbek and colleagues in Copenhagen, and the Berkeley group of which Dr. Stephens was co-leader. With the use of heavy-ion projectiles, a variety of information on the de-excitation process from high-spin states was obtained for the first time. For example, Dr. Stephens and his colleagues showed that this passage down the yrast region was very fast, <10 picoseconds, to explain this result, and a number of other features, they had to postulate that decay down collective bands was involved. It is still not known what the nature of these bands may be, but it is now generally accepted that a collective motion is involved.

Currently the most talked-about subject in in-beam spectroscopy is the phenomenon of "backbending". Normally, the transition energies connecting the ground-band levels of a doubly-even deformed nucleus increase monotonically with spin, but a number of such nuclei show a sudden decrease in transition energies around the  $14^+$  or  $16^+$  levels, before regaining a monotonic increase at still higher spins. On a plot of moment of inertia vs the square of the nuclear rotation velocity (essentially  $1/2$  the transition energy) this yields an s-shaped curve, and hence the name, backbending. Dr. Stephens has provided one of the two main competing theories to explain this behavior, and his model turns out to be capable of very detailed predictions. In essence, his model involves the alignment of the angular momentum of two unpaired high-j particles with the rotation of the remaining core via the Coriolis interaction. Time has not yet decided which (if either) of the two theories is correct, but the most recent experiments tend to favor his model. In any case, his ideas on this topic have provided a much more fundamental insight on the importance of the Coriolis interactions. A major result has been

the application of these ideas to odd-mass nuclei, leading to the discovery in certain of these nuclei of "decoupled" or "rotation-aligned" bands. These have the (otherwise) unexpected properties of similar energy level spacings and transition probabilities to those of the neighboring even-even core nuclei. This is a third type of particle coupling scheme, other than the strong-coupling (deformation-aligned) scheme of Bohr and Mottelson and the weak-coupling scheme of de-Shalit and others. Observation of a decoupled band in an odd-mass nucleus allows a decision to be made regarding the oblate or prolate nature of the nucleus in that configuration, and permits rather detailed predictions of the other nuclear properties such as transition probabilities, magnetic moments, and spectroscopic factors.

This explanation of decoupled bands and the related (but earlier) description of backbending are remarkable achievements in theory for an experimentalist. But versatility and a diversity of interests are the keynote for Dr. Stephens' research interests. For example, he has been concerned with the measurement of hexadecapole moments of nuclei by Coulomb excitation, a quite different topic from backbending. He published the first such measurements in 1970, and since then, 25-30 other nuclei have been studied in major programs at several other laboratories, attesting to the interest in these measurements.

In addition, Dr. Stephens and the group associated with him have made significant contributions to the measurement of static quadrupole moments of light nuclei by projectile reorientation experiments, the measurement of magnetic moments of excited states by time-differential perturbed angular distribution methods, the study of the "deorientation" of excited high-spin nuclei recoiling into vacuum, and the determination of transition probabilities by Coulomb excitation and by Doppler-shift recoil-range methods.

Finally, it should be noted that the excellence of Dr. Stephens' work is indicated by the invitations he receives to speak. During the past year he was an invited speaker at the Heavy-Ion Conference in Stockholm, June 1972, the Heavy-Ion Workshop at Oak Ridge, July 1972, the 5th Nuclear Physics Summer School Rudziska, Poland, August 1972, and the International Conference on Nuclear Structure, Munich, August 1973. These talks, the esteem of his colleagues, and the excellence of his research papers attest to the outstanding reputation Dr. Stephens has achieved in his chosen field of nuclear spectroscopy and nuclear structure.

September 27, 1973

Mr. Carl H. Strandberg, President  
Environmental Protection Institute  
Post Office Box 3516  
Mission San Jose, California 94538

Dear Mr. Strandberg:

I appreciate having your letter of September 5 and its enclosures, which awaited my return from a trip.

I don't have too much knowledge about archaeology in Sweden. However, I do have a cousin, Karl-Erik Eriksson, who is involved in archaeological digging in Stora Skedvi in Dalarna and who gave me a reprint, a copy of which I am enclosing. Perhaps you can trace the address of the author and leader of this work, Åke Hyenstrand, with the help of this reprint with the hope that he might give you some further leads.

With best regards,

Cordially,

Glenn T. Seaborg

GTS/sms

Enclosure

P.S. Yes, I am on the mailing list of the Swedish Information Service.

Bill Chilcote made his slide presentation on behalf of the group and asked for an endorsement from the Commission. Stan Euston moved that the Commission endorse the open space bond issue, seconded by Richard Singer, and the vote carried unanimously after some discussion. The wording of the support resolution will be patterned after that of the Lafayette City Council but will include a phrase saying that the objectives of the bond issues are consistent with the recreation plans of the Lafayette Park and Recreation Commission.

Following the meeting, I conferred with Ponomareff about my slides and backup material for the talk to the Lafayette Jaycees next Wednesday night. He will give me the necessary supporting material this weekend at my home.

I then talked to Bill Chilcote about the funding problem for Lafayette SOS. I indicated that I thought the rejection by the Lafayette City Council of our request for support funds was not a bad move. I also said that we shouldn't accept the \$1,500 from the anonymous donor because we should be very careful to be above suspicion in all respects. I said that I thought that we will be able to get five or six donors of \$500 a piece and suggested that Chilcote proceed with his publicity campaign immediately on this assumption. I said that I would send in my \$500 tomorrow. Chilcote agreed to this plan of action.

Friday, September 28, 1973 - Berkeley - Lafayette - Burlingame

I phoned Barney Rocca at 9:05 a.m. I indicated that I am pledging \$500 to the Lafayette SOS campaign and that we need five or six other people who will do this. He said that we could put him down for \$200. He will talk to Mrs. Rocca and they may be able to come up with more later. He asked if this contribution is tax deductible; I assumed that it is, but do not know for sure. (It proved not to be.)

At 9:15 a.m., I phoned Gerhart Friedlander to invite him to serve as chairman of the Visiting Review Committee for the Nuclear Chemistry Division, which would meet once a year for two days, with the first meeting to be held next February. I told him that this would be a six-man committee, with staggered three-year terms, and reviewed the membership roster with him. I noted that we would like a strong committee with expertise in all areas, with as much physics as chemistry. I told him that the chairmanship would rotate each year, that we were asking him to be chairman the first year--the committee to elect the succeeding chairmen. He agreed to serve, and I told him that I will follow up with more information, will send him written material, and will have Earl Hyde call him. In response to his queries, I said that the committee will report to me and that we are not being asked to set up this committee but think it is a good idea, to which he replied that they have found it useful.

I called Manfred Lindner at 9:20 a.m. to discuss a possible date for my talk to the Contra Costa Park Council. We arrived at the date of November 19; I will show both movies and slides and will use the title "A Journey to China."

Friday, September 28, 1973 (con't)

At 9:30 a.m., I drove back to Lafayette to the Federal Savings Building, where I was scheduled for a radio interview in the Board Room. Here, after a 45-minute delay due to the late arrival of the radio station engineer, Al Graf, Lloyd Townley and I were interviewed on tape by Ruth Dixon of Radio Station KWUN in Concord on the Lafayette Open Space Bond Election. Our 20-minute interview was broadcast on station KWUN on the program "Focal Point" at 1:00 p.m. today (and I heard it on my way to KeveX). Following our interview, the remainder of the half-hour program was taken up by Mrs. Dixon's interview of Michael R. Verneti, Director of Public Relations of Saint Mary's College. As we were leaving, we met Jim Brown, Manager of Lafayette Federal Savings.

I drove back to LBL and placed a call to Bob Bridges to solicit a contribution for Lafayette SOS. He appeared willing to make this contribution provided his land was not marked for acquisition in the Open Space plan--this, of course, would be embarrassing if he would have to dispute Lafayette SOS on this issue. (I found out later that some of his land is identified for potential acquisition in the Open Space plan.)

I called Bill Chilcote to review my conversation with Bridges. Chilcote told me that Al Raeburn of Raeburn Associates was in his office and was writing a proposal on what he can do for us.

At noon, I returned a call from Jaime Merino. He told me that the Mexican government is interested in investing in atomic electric plants in Baja California in conjunction with Southern California Edison. He has an idea of creating a small company that would train American and Mexican engineers to supervise the plants. The needed money would be raised by Edison and the Mexican Government. He asked if I would have any interest in this, and I indicated that I had to be extremely circumspect in my associations with other companies and didn't think I could become personally involved in this. We made an appointment for him to meet with me here on October 2, so that he could explain his ideas to me before he goes to Mexico City on Wednesday to discuss the matter with people there.

I met with Hans Kading (a student and early co-worker of Hahn, some seven years up to 1935), along with Jack Cope (of Chevron) and Harold Fidler. Kading is Chairman of the Advisory Committee for GSI at Darmstadt.

I had lunch in my office. Rolf Woldseth came by at 1:00 p.m. and I rode with him to the KeveX headquarters in Burlingame. Here I presided over the Annual Meeting of the KeveX stockholders. Present were Richard S. Frankel, Edward Woo, George Hanepen, Ron Prairie, Gary Kramer, Peggy Rogers, Peter Lum, Rolf Woldseth, David Porter, David Heinemeyer, George Jung, Chris Tan, Chris Palmer, Dennis Collins, Madeline Antone, Henry Barton, Don Whitaker, and Philip Lam. (Not present were Richard Cushing and Lee Jensen.) We followed the script (copy attached). Frankel gave a complete progress report. The sales for the last year, \$1,700,000, are \$100,000 short of the target, and profits are down from last year.

**KEVEX CORPORATION AGENDA AND SCRIPT  
FOR ANNUAL STOCKHOLDERS MEETING**

**September 28, 1973 -- 2:00 P. M.**

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**1. Glenn T. Seaborg, Chairman:**

I am Glenn Seaborg, Chairman of the Board of Directors of Kevex Corporation. Before the stockholders meeting begins I want to express the thanks of Management for your attendance here today.

Will the meeting please come to order?

Richard Frankel, Acting Assistant Secretary, will now present proof of the due calling of the meeting.

**2. Richard Frankel, Acting  
Assistant Secretary:**

I will present the following:

- A. Copy of Notice of Annual Meeting dated September 21, 1973 stating the time, place and purposes thereof.
- B. Complete list certified by the Assistant Secretary of the holders of common shares of the Corporation as of the close of business on August 31, 1973, the record date fixed by the Board of Directors for the shareholders entitled to notice of and to vote at this meeting.
- C. Declaration of Peggy M. Rogers, an employee of the Corporation, showing that she caused to be mailed on August 31, 1973 to certain stockholders of record a copy of the Notice of Annual Meeting of the Stockholders.
- D. Declaration of the Assistant Secretary showing that on August 31, 1973 he delivered to the balance of the stockholders of record copies of the Notice of Annual Meeting of the Stockholders.

3. **Glenn T. Seaborg, Chairman:** The Secretary is directed to incorporate a copy of the Notice of Meeting together with the Declaration of Mailing and Declaration of Delivery into the Minutes of the meeting. The Minute Book of the Corporation is here and will be kept open for the inspection of the stockholders throughout the course of the meeting.
4. **Chairman:** Will the Secretary please report on the shares represented at this meeting, either in person or by proxy?
5. **Secretary:** There are present, in person or by proxy, the holders of record at the close of August 31, 1973 an aggregate of 91,400 shares (79,050 in person; 12,350 by proxy).
6. **Chairman:** By reason of the fact that the holders of record of the majority of the issued and outstanding common stock of the Corporation entitled to vote at this meeting are present in person or by proxy, a quorum is present for all purposes.
- The meeting is therefore lawfully and properly convened and competent to proceed to the transaction of the business for which it was called.
7. **Chairman:** The Minutes of the last meeting of shareholders held November 21, 1972 are open for inspection throughout the course of the meeting. I suggest that, unless specifically requested, the reading of those Minutes be dispensed with.
- (Pause)
8. **Chairman:** There being no special request, the reading of the Minutes are hereby dispensed with.
9. **Chairman:** This meeting has been called to elect Directors to serve for one year and until their successors are elected and qualified. The Secretary will present the nominations of Management to the holders of common stock.
10. **Secretary:** On behalf of Management, I nominate the following persons: Glenn T. Seaborg, Richard S. Frankel, Edward Woo and Stanley T. Lesser.

11. Chairman: Does someone second the motion?
12. Stockholder: (I second the motion.)
13. Chairman: Are there any further nominations?  
(Pause)
14. Chairman: No further nominations being heard, the nominations are declared closed.
- All in favor, signify by saying "Aye".
- Opposed "No".
15. Chairman: Are there any common stockholders who desire to vote and have not been heard?  
(Pause)
16. Chairman: I declare the polls closed.
17. Chairman: The report of the Secretary shows that the holders of 91,400 shares of common stock, being in excess of the majority of common stockholders, present in person or by proxy, have voted for the election of Glenn T. Seaborg, Richard Frankel, Edward Woo and Stanley T. Lesser as Directors. They are hereby elected to serve as Directors of Kevex Corporation for one year and until their successors are elected and qualified.
18. Chairman: The next order of business is the selection of Auditors for the Corporation for the ensuing year.
19. Secretary: I make the following motion: RESOLVED, that this Corporation select Coopers & Lybrand (formerly called Lybrand, Ross Bros. & Montgomery) as Auditors of the Corporation for the ensuing year.
20. Chairman: Does someone second the motion?
21. Stockholder: (I second the motion.)
22. Chairman: Is there any discussion?
23. Chairman: There being no discussion, all in favor say "Aye".
- Opposed "No".

24. Chairman: Are there any common stockholders who desire to vote and have not been heard?
25. Chairman: I declare the polls closed.
26. Chairman: The report of the Secretary shows that the holders of 91,400 shares of common stock, being in excess of the majority of common stockholders, present in person or by proxy, have voted to adopt the resolution to select Coopers & Lybrand as Auditors for the Corporation for the ensuing year.
- I therefore declare that this resolution is hereby duly adopted.
27. Chairman: The President would like to take this opportunity to discuss some highlights of the progress of the Corporation.
28. R. Frankel, President:
29. Chairman: Is there any other business to come before this meeting? If not, I propose that this meeting be adjourned. Does someone second this motion?
30. Stockholder: (I second the motion.)
31. Chairman: All in favor, say "Aye".
- Opposed "No".
32. Chairman: I therefore declare this meeting adjourned.

CERTIFIED LIST OF STOCKHOLDERS

I, Richard J. Cushing, Assistant Secretary of Kevex Corporation, do hereby certify that the attached list of common shareholders of Kevex Corporation, with the number of shares owned by each shareholder stated opposite each such name, represents a true and complete list of all common shareholders of the corporation as shown on the books of the corporation as at the close of business on August 31, 1973, and a true and complete record of all the issued and outstanding common shares of the corporation as at that date.

WITNESS MY HAND and the seal of Kevex Corporation this 31st day of August, 1973.

  
Assistant Secretary

KEVEX CORPORATION  
LIST OF SHAREHOLDERS  
August 31, 1973

<u>Name</u>	<u>Number of Shares</u>
Frances L. Chang	500
Richard and Sydney Frankel, as joint tenants	43,110
Richard Frankel, as custodian for Sydney Susan Frankel	417.5
Richard Frankel, as custodian for Brad C. Frankel	417.5
Richard Frankel, as custodian for Todd P. Frankel	417.5
Richard Frankel, as custodian for Robin S. Frankel	417.5
Marvin D. Frankel	4,000
Joseph I. and Helen Frankel, as joint tenants	3,340
George and Ilse Hanepen, as joint tenants	3,000
Gary W. and Barbara Ann Kramer, as joint tenants	3,500
Stanley T. Lesser	2,000
Peter and Doris Lum, as joint tenants	30
Glenn T. Seaborg	3,000
Alex Weiss	840
Edward and Frances Woo, as joint tenants	<u>26,410</u>
Total	<u><u>91,400</u></u>

I then presided over the annual meeting of the Board of Directors. Frankel, Woo and I were present, in the presence of members of the Management Committee (Rolf Woldseth, David Porter, Henry Barton, Gary Kramer, and Dennis Collins). The agenda was essentially the same as that of the meeting of the stockholders. As a last item, we discussed in addition the interest that Phillips Electronics has expressed, through Frank Hopkins (the President of PEPI), in acquiring a relationship with or an interest in Kevex. They are even interested in going so far as to buy Kevex. I suggested that a purchase price somewhere between \$3 and \$5 million might be worth considering. If it should be only a matter of doing business with them, their business would add \$500,000 to the Kevex projected sales of \$2,200,000 in 1974 and \$1,500,000 to the Kevex projected sales of \$2,900,000 in 1975. In each year there would be additional advantage due to the tax advantages that accrue from foreign sales. Frankel is meeting with Hopkins in a few weeks to discuss this.

We set October 29, 1974, as the date for the next annual meeting of stockholders and Board of Directors. Woldseth then drove me back to Berkeley.

I received a call at 5:00 p.m. from Barbara Hubbard of the Committee on the Future, in Philadelphia. She asked if I would intercede in their behalf in their attempts to get Dixy Lee Ray to participate in a SYNCON; I said that I wouldn't call Dr. Ray specifically about this but might mention it when I see her on October 11.

I sent to Dr. Kuo Mo-jo, President of the Chinese Academy of Sciences in Peking, the invitation of AAAS to send a delegation to the 1974 Annual Meeting in San Francisco (copy attached).

I hoed weeds in our field for a while before dinner. I called Bob Bridges to tell him that his land is not critical to Lafayette Open Space and it can be left up to him as to whether he will want to sell it; he said that, on that basis, he will send his contribution to Lafayette SOS.

#### Saturday, September 29, 1973 - Lafayette

I hoed weeds on our field in the morning. Helen and Dianne took Moses to the veterinarian's to have him look at his infected ear--some salve was prescribed.

After lunch, Bill and Ann Chilcote came by with more material for Lafayette SOS and the Open Space bond issue. We are about ready to go with Albert Raeburn and Associates (including Rick Ellis) to help us with publicity, endorsements, telephone activities, etc., at an estimated cost of \$1,500. I called Bill McKee about the bond issue. He said he would be pleased to have some of his property be purchased as a result of the open space bond issue; he said he will make a contribution of between \$100 and \$500.

I spent some time before dinner hoeing weeds on our field. After dinner, I worked on my speech on Lafayette SOS before the Lafayette Jaycees next Wednesday night.

*American Association  
for the Advancement of Science*

GLENN T. SEABORG  
Chairman, Board of Directors

LAWRENCE BERKELEY LABORATORY  
UNIVERSITY OF CALIFORNIA  
BERKELEY, CALIFORNIA 94720

U.S.A.

September 28, 1973

Dr. Kuo Mo-jo, President  
Chinese Academy of Sciences  
Peking  
People's Republic of China

Dear President Kuo:

During my visit to Peking last May, I extended to Dr. Chou Pei-yuan an invitation for a delegation of scientists from the People's Republic of China to attend the Annual Meeting of the American Association for the Advancement of Science (AAAS) to be held in San Francisco, California, during the week of February 24-March 1, 1974. I also extended this invitation, while at the AAAS-CONACYT meeting in Mexico City in June 1973, during my conversations with Liu Jui-yii (of the Institute of Oceanography at Tsin-Tho, Shungting) and Liu Jui-ting (Secretary of the Bureau of Foreign Affairs of the Chinese Academy of Sciences and the Scientific and Technical Association).

It is the hope of AAAS that the People's Republic of China will send a delegation to the 1974 AAAS meeting in San Francisco. I would like to mention, as examples, two particular areas of scholarship in which we would like to see representatives from your country.

We would be very pleased if a member of the delegation would speak on the general topic, "Earthquake Research in the People's Republic of China," at the symposium on "Earthquakes, Earthquake Prediction, and Earthquake Control," which is being arranged by Dr. John H. Healy and Dr. L. C. Pakiser

President Kuo Mo-jo

- 2 -

September 28, 1973

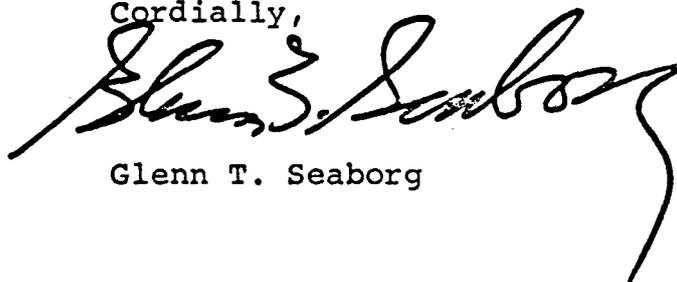
of the U.S. Geological Survey. We would like to suggest your consideration of Dr. Fu Cheng-yu of the Institute of Geophysics in Peking for this presentation.

I am pleased also to invite a member of the delegation to speak on the general topic of science in your country at the symposium on "Science and the People's Republic of China," which is being organized for the AAAS Meeting by the Committee on Scholarly Communication with the People's Republic of China. This symposium will have reports by recent visitors to China, surveying their scientific fields and experiences there.

If you would not wish members of the delegation to participate as speakers in the symposia, we would be delighted if they would come to the 1974 AAAS Annual Meeting as observers. We hope that your delegation might include broader representation in addition to my two suggestions. I am enclosing an outline of the Meeting Program to provide you with a better basis for determining the composition of your delegation.

With best regards,

Cordially,



Glenn T. Seaborg

GTS/sms

Enclosure

Copy to: Dr. Chou Pei-yuan

- bxc: L. C. Pakiser
- Anne Keatley
- William Bevan
- Harve Carlson
- Leonard Rieser
- Roger Revelle
- William Hewlett
- Jane Kingston

## AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

## PROGRAM OF THE 140th MEETING

24 February - 1 March, 1974  
 San Francisco, California  
 USA

SCHEDULE OF SESSIONS  
 (Dates subject to  
 change)

## I. THE MATHEMATICAL AND PHYSICAL UNIVERSE

"World Views in Collision: Velikovsky's Description of our Planetary System"	Feb. 25
"Some Mathematical Questions in Biology"	Feb. 25
"Category Theory Applied to Computation and Control"	Feb. 25, 26
"Particle Physics"	Feb. 25
"Cosmic Evolution"	Feb. 26
"Science for the Naked Eye; or, The Physics of Everyday Experience"	Feb. 26
"New Applications of Mathematics to the Behavioral Sciences"	Feb. 26
"Search for Extraterrestrial Life"	Feb. 26
"Recent Developments in Atomic Physics"	Feb. 26
"Fusion Power"	Feb. 27
"The Emerging Portrait of the Planets"	Feb. 27
"The Superheavy Elements"	Feb. 28
"Neutron Stars and Black Holes in the Universe"	Feb. 28
"Recent Progress in Foundations of Mathematics"	Mar. 1

## II. LIVING WORLD

"The Food Supply and the Organic Food Myth"	Feb. 25
"Liquid Crystals"	Feb. 25
"Annual Biological Clocks"	Feb. 25
"Pest Management, Predators, and People"	Feb. 25

"On the Nature of Species in Light of Modern Research"	Feb. 25
"The Structure and Functioning of Western United States Coniferous Forest Ecosystems"	Feb. 26
"The Use of Zoos in Animal Behavior Research"	Feb. 26, 27
"Biological Control of Populations"	Feb. 27
"Endangered Species: Causation and Remedies"	Feb. 27, 28
"Pest Management: An Interdisciplinary Approach to Crop Protection"	Feb. 28
"Invertebrate Transplantation"	Feb. 28
"Energy and Agriculture"	Feb. 28
"New Developments in Brain Function for Speech Perception and Production"	Feb. 28
"Galapagos Symposium"	Mar. 1

### III. HISTORY, PHILOSOPHY, AND SOCIOLOGY OF SCIENCE

"The Marconi Centenary"	Feb. 25
"The Nation's Heritage: What Should be Saved?"	Feb. 25
"Systems Thinking and Science Policy: A Critique of Contemporary Science and Science Studies"	Feb. 26
"The Role of Controversy in Science"	Feb. 27
"Paradigmatology"	Feb. 27
"The Danger of 'Relevance' in Scientific Research"	Feb. 27
"Problem Dimensions of Intercultural Communication"	Feb. 28
"Science and the People's Republic of China"	Feb. 28
"The Social Context of Research--The Problem of Forbidden Knowledge"	Feb. 28, Mar. 1
"The Development of American Science in the 19th and 20th Centuries"	Mar. 1

## IV. HEALTH, BEHAVIOR AND SOCIAL PROCESSES

"Neurobiological Mechanisms of Adaptation and Behavior"	Feb. 25,26
"The Control of Pain"	Feb. 25,26
"Food Additives: Beneficial or Deleterious"	Feb. 25
"The Application of Science and Technology to the Problem of Drug Abuse in the United States"	Feb. 25
"The Science of Consciousness"	Feb. 26
"Energy and Society"	Feb. 26
"Hospital and Clinical Pharmacy"	Feb. 26
"The Outlook for Psychiatry, Psychoanalysis, and Mental Health"	Feb. 26
"Possible Cellular Regulatory Roles for Polyamines"	Feb. 26
"Systems Approach to Strokes and Heart Disease"	Feb. 27
"Recent Scientific Inquiries in Immunobiology"	Feb. 27
"Two Aspects of Drug Selection: Medical Efficacy and Pharmaceutical Quality"	Feb. 27
"Implications of Recent Studies of Biological Changes in Depression"	Feb. 27
"Cognitive Views of Human Motivation"	Feb. 27
"Biochemical Lesions of Periodontal Disease"	Feb. 27
"The Pharmaceutical Sciences"	Feb. 28
"Behavioral Sociobiology"	Feb. 28
"Biomedical Aspects of Aging"	Feb. 28
"Developmental Psychobiology: The Significance of Infancy"	Mar. 1
"Life's Input-Output: Are Non-Intrusive Multicomponent Low Cost Time-Profiles Needed?"	Feb. 28
"Policies and Procedures in the Use of Grants and Contracts by the National Institutes of Health in the Support and Conduct of Biomedical Research"	Mar. 1
"Ethics, Moral Values, and Psychological Interventions"	Mar. 1

## V. TECHNOLOGY

"Applications of Artificial Intelligence Research"	Feb. 25
"Controlling the Energy 'Delta' = (Demand - Supply)"	Feb. 25-27
"Printing Technology"	Feb. 25
"Organizing Computer Resources for Science"	Feb. 25, 26
"Remote Sensing Applications for Water Resources Monitoring"	Feb. 27
"High Voltage Electron Microscopy"	Feb. 27
"The Transition from Science to Engineering"	Feb. 27- Mar. 1
"Major Features of the World of 1994"	Feb. 27
"Material Achievements in the Enhancement of our Health, Safety and Environment: Looking Ahead"	Feb. 28
"Skylab Science Experiments: A First Report"	Feb. 28

## VI. EDUCATION

"European Perspectives on Educational Research and Development"	Feb. 25
"The Relationship of the Natural Sciences, Social Sciences, and the Humanities to Environmental Education"	Feb. 25
"Governmental Policy for Educational Change"	Feb. 25
"The Psychology of Thinking"	Feb. 25
"New Trends in Higher Education"	Feb. 26
"Involvement - The Key to Effective Environmental Education"	Feb. 26
"Preparation for Site Studies"	Feb. 27
"Lenses on Nature"	Feb. 28
"Research on Decision Making--Potential for Education"	Feb. 26
"Communications Technology and Educational Prospects"	Feb. 27

"Motivating and Training Chicano and Native American Students in Science"	Feb. 27
"Graduate Programs and Policies for Minority Students"	Feb. 28
"Revisiting the Equality of Education"	Mar. 1
"The Social Science of Science: A Strategy for Science Education in the 1970's"	Mar. 1
"Scientific and Technical Literacy: How Can We Achieve It?"	Mar. 1
"The Longitudinal Study of Educational Effects"	Mar. 1

## VII. ENVIRONMENTAL SCIENCES

"Lake Powell and Lake Tahoe in Environmental Transition: Two Major Regional Multidisciplinary Environmental Research Programs"	Feb. 25
"Experiments in Regional Environmental Management"	Feb. 25
"Environmental Assessments: Science or Chicanery?"	Feb. 26
"Science and Technology in Environmental Impact Assessment"	Feb. 27
"To Feed the World: What to do with Changing Climate?"	Feb. 27
"Earthquakes, Earthquake Prediction, and Earthquake Control"	Feb. 27, 28
"Environment: A New Focus for Land-Use Planning"	Feb. 28
"Water Policy Recommendations of the National Water Commission"	Feb. 28
"Values and Choices in the Development of an Arid Land River Basin"	Feb. 28, Mar. 1
"Land Use and Land Policy"	Feb. 28, Mar. 1
"Ecology of the Pacific Coastal Zone"	Mar. 1

## VIII. SCIENCE AND SOCIAL NEEDS

"Crime and Social Control in the 1990's"	Feb. 25
"Mechanisms and Consequences of Transition to Limited Growth"	Feb. 25

"The 1990's and Beyond: A Gerontocracy?"	Feb. 25
"The San Francisco Bay Area: Looking toward the 1990's"	Feb. 25,26
"Ethnography of Power"	Feb. 25-28
"Science Manpower in the Seventies - Will Supply Match Demand?"	Feb. 25
"Architecture for the Future--A Proposal and Critique"	Feb. 26,27
"Population Change with Issues for Local Policy"	Feb. 26
"Where Should the World's People Live? International Migration and United States Immigration Policy"	Feb. 27
"Anthropology in the 1990's: Conditions, Needs and Prospects"	Feb. 28 Mar. 1
"Mathematics and the Social Sciences"	Feb. 28
"The Barefoot Technologist"	Mar. 1
"Intersociety Communications and Public Understanding of Technology"	Mar. 1

## IX. SCIENCE AND PUBLIC POLICY

"Social Policy Affecting Women's Roles"	Feb. 25
"Ethical and Public Policy Issues in Biomedical Innovation"	Feb. 25
"What are the Effects of Changes of Government Budgetary Support of Scientific Institutions?"	Feb. 25
"Technological Innovation: What We Know, Don't Know, and Should Know"	Feb. 25
"Insitutions for the Application of Science to Society's Problems"	Feb. 25
"National Administration of Science"	Feb. 26
"Interactions of Government Policies with Technolgical Development"	Feb. 26
"Is Behavioral Science a Policy Science?"	Feb. 26
"Science Advisors in State Government"	Feb. 26
"Scientists and Political Office"	Feb. 27

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1974 Annual Meeting

-7-

Schedule of Sessions

"Scientists and Congress: The Emerging New Relationships"	Feb. 27
"Reorganizing Information Resources to Improve Decision-Making"	Feb. 27
"Problems of Society - New Roles and Changing Parameters for Scientists"	Feb. 27
"Science and International Policies"	Feb. 27
"Technology Assessment: A Report and Comparison of Several Recently Completed Studies"	Feb. 28
"Implied New Directions for Science and Technology"	Feb. 28
"How Can Technology in the U.S. be Directed toward Helping Underdeveloped Countries?"	Mar. 1
"Role of Professional Societies in Meeting Environmental Problems"	Mar. 1

Sunday, September 30, 1973 - San Francisco - Lafayette

Helen and I went to Candlestick Park to see the San Francisco 49ers-Los Angeles Rams football game. The Rams won, 40-20. When we returned home, I hoed weeds for a while on our field.

Dave and I had dinner together. He was here when Steve and I returned from Europe, spent the last few days in Davis (returning at 2:00 a.m. this morning), and will start the fall quarter at Berkeley tomorrow. He will be living at International House.

After dinner, we viewed the movies (11 reels) that I took on our European trip. They all turned out fine, as did the two rolls (36 each) of slides.

Helen drove Dave, with his paraphernalia, to International House. He is despondent about his chances of finding a director for his Ph.D. research.

Monday, October 1, 1973 - Berkeley

I returned a call to Andrew Sessler when I arrived at the office at 8:35 a.m. We discussed the group he will take with him to his meeting with Chancellor Bowker tomorrow. I indicated that I thought his list (Jack Hall, Paul Witherspoon, Charles Wilke, and George Pappas) was a good one. He outlined the background of his forming this delegation and indicated that Leo Brewer also wants to be in the group. He will come in to see me on Tuesday afternoon to discuss how things are moving along.

Howard Greyber phoned me from Washington at 8:40 a.m. to let me know that he would not be at the October 12 meeting of the AAAS Advisory Committee for the Annual Meeting. He wanted to discuss matters in connection with his being relieved of his duties as Director of Meetings for the AAAS. It was a sad conversation.

I attended Professor Pimentel's opening Chemistry 1A lecture in the Physical Sciences lecture hall from 9:10-10:00 a.m. The class is the largest in the history of Chem 1A. I then walked back up the hill to my office to go through my correspondence. I called Carl Helmholtz to solicit a contribution from him and Betty for the Lafayette SOS campaign. He indicated that he could probably send in \$100 at this time and will do so.

I walked back down the hill to keep my office hour in 446 Latimer Hall from 11:00 a.m. to noon. I talked to Vicki Levine, a Chinese born in Shanghai (maiden name Chang, father's name Chang Chiang, father's uncle a librarian who furnished books to Mao in his youth, served as Minister of Justice and Education before 1927, died last summer, and had a big funeral in the Great Hall of the People in Peking). Vicki was referred to me by Ron Kihara. She is uncertain as to whether she should remain a pre-Med student because of the callous attitude of doctors she worked with last summer. She may change to Business Administration. I called her attention to the need for treatment of peoples' mental problems. She may call me at Christmas time to come out to talk to Lynne.

Robert Kraus, also referred by Kihara, dropped in to discuss his double major curriculum for his freshman and sophomore years--physics and chemical evolution or biochemistry. He is a graduate of Leigh High School in San Jose.

I attended the regular Monday luncheon of the Chemistry Department faculty in the Howard Room of the Faculty Club. Starting at 1:10 p.m., I then taught my first laboratory section of Chemistry 1A for the fall quarter, in Room B Latimer Hall. My teaching assistant for this section is Keith Berry. At alternate lab sections, on Wednesday afternoons, I will teach in Room M with Mark Watts as my assistant. I described some general Chemistry 1A course mechanics, checked out the lockers to the students, etc. I checked briefly in Room M to see how things were going there.

At 3:00 p.m., I walked back up to my office. Here I met with Dan Wilkes to discuss my remarks about Ed McMillan at the dinner President Hitch is giving for him on October 18. Dan told me he has decided to go fulltime with the Lawrence Livermore Laboratory. He will probably retire in about four years and has bought a cottage near the clubhouse at the Contra Costa Golf Club.

At 4:00 p.m., I made some introductory remarks at the first session of the new-type Nuclear Chemistry Research Seminars, at which two graduate students will speak at each third meeting; the usual type of talks will be given during the intervening two meetings. I introduced visitors here on sabbatical leave--Walter Meyerhof, Vic Viola, John Huizenga, and Arthur Zebelman--then the first graduate student speaker, Gordon Wozniak, who spoke on "Alpha-Transfer Studies Utilizing the ( $\alpha$ ,  $^8\text{Be}$ ) Reactions." After a 25-minute talk, followed by a 5-minute discussion period, I introduced the second graduate student, Steven Kowalczyk, who spoke on "X-Ray Photoemission Studies on the Valence Bonds of Covalent Crystals." After the seminar, I met with prospective graduate students Douglas Sherman and Kim Williams.

I hoed weeds before dinner. After dinner, Ann Chilcote called to say she has checked out Raeburn and got a good report. He will meet with Lafayette SOS tomorrow night.

Tuesday, October 2, 1973 - Berkeley

I talked to Ghiorso. Curt Bemus (ORNL) has told him they have found 2-second S.F. activity due to element 105, which complicates the controversy over the discovery of element 105.

I called Kenneth Pitzer to ask about the procedures for submitting the nominations of Rasmussen and Shirley for membership in the National Academy of Sciences. He agreed that Shirley should be a straightforward Chemistry Section nomination and I should send that directly to Jacob Bigeleisen. He suggested that the critical voting is the informal caucusing early next calendar year. He suggested that I try to drum up support at institutions where there are several Academy members, which may involve some phone calls. Once a nominee's name appears on the informal caucus ballot, the April Academy meeting becomes very important. Regarding the nomination of John Rasmussen,

Tuesday, October 2, 1973 (con't)

we agreed that his is clearly intersectional and for this we should get as much Physics and Chemistry support as possible. Another route would be to form a Voluntary Nominating Group, but we are both reluctant to do that.

I then called Jacob Bigeleisen (Chairman of the Chemistry Section of the NAS) in Rochester. He told me that the data I have prepared can be sent in with no signatures or covering letters as required. He will treat the Shirley nomination as a straight Chemistry Section matter. He will treat the John Rasmussen data as an intersectional nomination with Physics. He will list John as an intersectional nominee on the Section Caucus Ballot. Others who will appear on this next ballot are John Huizenga, Jack Miller, and Nathan Sugarman. No co-signers are needed for this. When the time comes that any of them have enough support within the section to become an intersectional nominee, then Bigeleisen will send the formal papers in to the Academy to start the ball rolling. He also described the Voluntary Nominating Group procedure, but we agreed that we should not go that route. His term as Chemistry Section Chairman will be up this year. Ron Breslow will succeed him.

I then mailed to Bigeleisen my nominations of Rasmussen and Shirley (copies attached).

I met with Hyde from 9:30-10:30 a.m. to discuss a number of Nuclear Chemistry Division matters. The continuing problem of supervision of construction and testing at the SuperHILAC must receive attention soon, involving the new LBL Director; Bob Main is still very dissatisfied. Birt Kortegaard is not happy and the possible role of Hermann Grunder as the man in charge needs to be further explored. We also agreed on the raises in salary and promotion in rank that we will request for Gertrude Steel, Eileen Eiland and Sheila Saxby. We agreed as well to invite Frank Stephens to serve as a member of the Program Committee.

I met with Jaime Merino from 11:00 a.m. to noon, joined toward the end by Stan Thompson. Jaime is working with Luis Farias, Senator to the Mexican legislature (or its equivalent) from the State of Nueva Leone (Monterrey is the capital) on his idea of a nuclear plant at Cubo Colnett, about 70 miles below Ensenada in Baja California. It would be a large nuclear plant, about 1,000 megawatts electrical, and would include desalting. This large plant would export electricity to the United States, presumably in collaboration with the Southern California Edison Company. Jaime is also working on the idea of a 450-megawatt electric and desalting plant near the southern tip of Baja California across from La Paz.

He wants me to join with him in forming a company supported by the Mexican Government to the extent of about \$500,000 a year which would plan this development and train the personnel required in the plant. I told him that I do not want to become directly involved in such an enterprise because of my former connection with the USAEC, but would be glad to act as a consultant to put him in touch with officials of the Southern California Edison Company, the Mexican Institute

Airmailed to Jacob Bigeleisen, Chairman, Chemistry Section,  
NATIONAL ACADEMY OF SCIENCES [Rochester]. Per GTS phone  
call to JB today, JB will record that Rasmussen should be  
an intersectional nominee, with Physics.

102/73

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*blue*

## DATA REQUIRED FOR NEW PROPOSALS FOR NOMINATION

Name John Oscar Rasmussen

Position Professor of Chemistry

Address Department of Chemistry, University of California, Berkeley, Calif. 94720

Requirements: Sketch should give nominee's full name, address, birthplace (if foreign-born, year of naturalization), degrees (year and school where attained), and official positions successively held after his doctorate to the present. Only significant memberships and major honors or awards should be included.

The core of the jurisdiction should be factual biographical narrative, not to exceed 250 words, setting forth objectively the nominee's accomplishments.

Appended to the biographical data should be a list, *not to exceed 12 titles*, of the nominee's most important published contributions to science. Entries should be arranged in chronological order, giving title, co-author(s), journal, volume number, pages, and year.

Born August 8, 1926, St. Petersburg, Florida. B.S., Chemistry, California Institute of Technology, 1948; Ph.D., Chemistry, University of California, Berkeley, 1952. Nuclear Chemist, Lawrence Berkeley Laboratory, 1949-69, 1972--. Instructor in Chemistry, University of California, Berkeley, 1952-53; Assistant Professor, 1953-57; Associate Professor, 1957-62; Professor, 1962-69, 1973--. Visiting Professor, Nobel Institute for Physics, Stockholm, 1953-54; Institute for Theoretical Physics, Copenhagen, 1961-62; Professor of Chemistry, Yale University, 1969-73; Associate Director, Yale Heavy Ion Accelerator Laboratory, 1970-73.

Member: American Chemical Society (Chairman, Committee on Major Nuclear Facilities, Division of Nuclear Chemistry and Technology, 1967-68; Professional Awards Committee, Division of Nuclear Chemistry and Technology, 1970-73); American Physical Society; Board of Editors, Nuclear Data, 1966-69; Nuclear Physics Panel (Feshbach Committee), National Academy of Sciences, 1968-69; Nuclear Data Panel, National Academy of Sciences, 1969-71; Advisory Committee, International Conference on Nuclear Structure, Dubna, U.S.S.R., 1968; Executive Committee, Federation of American Scientists, 1968-73 (National Chairman, 1969); Yale College Course of Study Committee, 1970-72; Visiting Committee for Chemistry, Brookhaven National Laboratory, 1969-72 (Chairman, 1972); Chairman, Executive Committee, Superhilac Users Association, 1971-73; Chemistry Review Committee, Argonne National Laboratory, 1972-75; Chemistry Advisory Committee, Oak Ridge National Laboratory, 1973-76. Participant in more than ten international conferences in Nuclear Chemistry or Physics, 1966--. E. O. Lawrence Award, USAEC, 1967; Guggenheim Fellowship, 1973. Co-author of more than 120 scientific publications.

John Rasmussen entered the field of nuclear chemistry with the surprising discovery of an entirely new group of radioactive, alpha particle emitting isotopes of the rare earth elements. Previously, alpha radioactivity was known chiefly in the heaviest elements above lead. Chemical techniques of rare earth element separation were essential in these studies. This study led Rasmussen into the first serious restudy of alpha decay theory in two decades. Over the years he has contributed more than 20 articles and 2 major monographs on all aspects of alpha decay theory, particularly on the microscopic description of alpha cluster formation in spherical and deformed nuclei.

John Oscar Rasmussen

2

In the early 1950's, John Rasmussen was one of the first to recognize the importance of the Bohr-Mottelson (Copenhagen) description of collective effects in nuclei and to show that a large body of Berkeley data on complex alpha spectra of heavy nuclei provided strong evidence for the new theory. Since then Rasmussen has used chemical and nuclear techniques to discover and study the radioactive decay characteristics of scores of isotopes of rare earth and heavier nuclei. He has made numerous experimental contributions to beta and gamma decay and to measurements of internal conversion of gamma radiation. He was one of the first to apply cryogenic techniques to the orientation of radioactive nuclei. He established one of the most convincing examples of the effect of chemical state on the lifetime of nuclear decay. He has used experimental observations of fission products of the spontaneous fission of  $^{252}\text{Cf}$  to obtain detailed information on nuclei far from stability and on angular momentum effects in fission. He is an expert on nuclear reactions induced by heavy ions. He has contributed many outstanding articles on the effects of pairing of nucleons on nuclear structure and excitation phenomena.

His career has been remarkable in its breadth of coverage of experimental and theoretical areas and of the fields of chemistry and physics.

## PRINCIPAL PUBLICATIONS OF JOHN OSCAR RASMUSSEN

1. Alpha-Decay in Isotopes of Atomic Number Less Than 83  
S. G. Thompson, A. Ghiorso, J. O. Rasmussen and G. T. Seaborg  
Phys. Rev. 76, 1406 (1949)
2. The Strong Surface Coupling Nuclear Model and Hindered Alpha Decay  
J. O. Rasmussen  
Arkiv Fysik 7, 185 (1953)
3. Alpha-Radioactivity in the 82-Neutron Region  
J. O. Rasmussen, S. G. Thompson and A. Ghiorso  
Phys. Rev. 89, 33 (1953)
4. Alpha Decay of Spheroidal Nuclei  
B. Segall and J. O. Rasmussen  
Phys. Rev. 103, 1298 (1956)
5. Alpha Radioactivity  
I. Perlman and J. O. Rasmussen  
Handbuch der Physik (Springer-Verlag/Berlin-Gottinger, Heidelberg, 1947), XLII, 109
6. Theory of EO Transitions of Spheroidal Nuclei  
J. O. Rasmussen  
Nucl. Phys. 19, 85 (1960)
7. Shell-Model Calculations of Alpha Decay Rates of Even-Even Spheroidal Nuclei  
H. J. Mang and J. O. Rasmussen  
Mat. fys. Skr. Dan. Vid. Selsk. 2, 3 (1962)
8. Energy Levels of Bi<sup>210</sup> and Po<sup>210</sup> and the Shell-Model Residual Force  
Y. E. Kim and J. O. Rasmussen  
Nucl. Phys. 47, 184 (1963)
9. Alpha Decay  
J. O. Rasmussen  
Alpha-, Beta- and Gamma-Ray Spectroscopy, Vol. I, ed. by Kai Siegbahn (North-Holland Publishing Co., Amsterdam, 1964), Chapter XI, p. 701
10. Nuclear Structure and Pairing Correlations for the Heavy Elements  
H. J. Mang, J. K. Poggenburg, and J. O. Rasmussen  
Nucl. Phys. 64, 353 (1965)
11. Electron Binding Energies for Highly Ionized Fission Fragment Atoms  
R. L. Watson and J. O. Rasmussen  
J. Chem. Phys. 47, 778 (1967)
12. Theory of Angular Momentum Distributions in Primary Fission Fragments  
W. Norenberg, J. O. Rasmussen, and H. J. Mang  
Contributions, International Conference on Properties of Nuclear States. Montreal (August 1969), p. 5

Airmailed to Jacob Bigeleisen, Chairman, Chemistry Section,  
National Academy of Sciences [Rochester].

*blue* 460d  
10/2/73

## DATA REQUIRED FOR NEW PROPOSALS FOR NOMINATION

Name David Arthur Shirley

Position Professor of Chemistry; Department Chairman

Address Department of Chemistry, University of California, Berkeley, Calif. 94720.

Requirements: Sketch should give nominee's full name, address, birthplace (if foreign-born, year of naturalization), degrees (year and school where attained), and official positions successively held after his doctorate to the present. Only significant memberships and major honors or awards should be included.

The core of the jurisdiction should be factual biographical narrative, not to exceed 250 words, setting forth objectively the nominee's accomplishments.

Appended to the biographical data should be a list, *not to exceed 12 titles*, of the nominee's most important published contributions to science. Entries should be arranged in chronological order, giving title, co-author(s), journal, volume number, pages, and year.

Born March 30, 1934, North Conway, New Hampshire. B.S., Chemistry, University of Maine, 1955; Ph.D., Chemistry, University of California, Berkeley, 1959. Chemist, Lawrence Berkeley Laboratory, 1958--; Lecturer in Chemistry, University of California, Berkeley, 1959-60; Assistant Professor, 1960-64; Associate Professor, 1964-67; Professor, 1967--; Department Vice Chairman, 1969-71; Chairman, 1971--. NSF Senior Postdoctoral Fellow, Clarendon Laboratory, Oxford University, England, 1966-67; Guest Professor, Free University of West Berlin, Germany, 1970; FMC Lecturer, Princeton University, 1968; A.D. Little Visiting Professor, MIT, 1970; William Draper Harkins Lecturer, University of Chicago, 1971; Distinguished Lecturer in Nuclear Chemistry, University of Rochester, 1972; Riley Lecturer, Notre Dame University, 1972; Invited Lecturer, Michigan State University, 1972.

Member: Sigma Xi, American Chemical Society (Chairman-elect, Division of Nuclear Science and Technology, 1974), American Physical Society (Ad Hoc Committee on Physical Review Letters); Editorial Board, Journal of Electron Spectroscopy; Editorial Advisory Board, Magnetic Resonance Review. Organizer and Editor of Proceedings for International Conference on Hyperfine Structure and Nuclear Reactions (Asilomar, California, 1967); also for International Conference on Electron Spectroscopy (Asilomar, 1971). Member, Foreign Advisory Committee, International Conference on Nuclear Moments and Nuclear Structure, Osaka, Japan, 1972. California Section Award, American Chemical Society, 1970; USAEC Ernest O. Lawrence Award, 1972. Author or co-author of more than 125 research papers.

David Shirley obtained a firm grounding in thermodynamics, physical chemistry, and low temperature experimental techniques with Professor William Giaque. In postdoctoral studies he mastered the principles of nuclear chemistry and contributed importantly to studies of nuclear structure and radioactive decay. His greatest contributions have come from an imaginative combination of the techniques and insights derived from physical chemistry and nuclear physics to attack fundamental structural problems in atoms, chemical compounds or in nuclei. In much of this work he has used powerful new techniques to exploit the hyperfine interaction between nuclei and their atomic environments. For example, David Shirley has used cryogenic techniques to align radioactive nuclei deposited on crystal surfaces and then studied the spatial orientation of alpha or gamma radiation emitted by the nuclei. He has used the technique of perturbed angular correlation of a sequence of nuclear radiations to derive values of magnetic fields in the center of atoms alloyed as impurities into ferromagnetic host materials or to derive values on lifetimes and quantum characteristics of excited states of nuclei. He contributed definite interpretations and applications of Mössbauer spectroscopy and isomer shifts.

David Arthur Shirley

2

The field of photoelectron spectroscopy or electron spectroscopy for chemical analysis (ESCA) was a natural one for David Shirley to enter because of his background in nuclear chemistry and in structural chemistry. He was energetic in assembling at Berkeley superb equipment for this type of spectroscopy and in leading a brilliant program of investigation of electron binding energies in gases and solids. The experimental observations were supplemented with careful theoretical analysis which resulted in important new knowledge in structure of chemical compounds and in solid state physics. Particular success was achieved in study of electronic density of states for materials in the solid state.

## PRINCIPAL PUBLICATIONS OF DAVID ARTHUR SHIRLEY

1. Application and Interpretation of Isomer Shifts  
D. A. Shirley  
Rev. Mod. Phys. 36, 339 (1964)
2. Thermal Equilibrium Nuclear Orientation  
D. A. Shirley  
Ann. Rev. Nucl. Sci. 16, 89 (1966)
3. Paramagnetic Hyperfine Structure and Relaxation Effects in Mössbauer Spectra: Fe<sup>57</sup> in Ferrichrome A  
H. H. Wickman, M. P. Klein, and D. A. Shirley  
Phys. Rev. 152, 345 (1966)
4. Parity Violation by Inner Bremsstrahlung from Polarized <sup>119</sup>Sb  
W. D. Brewer and D. A. Shirley  
Phys. Rev. Letters 20, 885 (1968)
5. Chemical Tools from Nuclear Physics  
D. A. Shirley  
Science 161, 745 (1968)
6. The Detection of NMR by Nuclear Radiation  
D. A. Shirley  
Colloque Ampere XV, ed. by P. Averbuch (North-Holland Publishing Co., Amsterdam, 1969), p. 81
7. Electronic Densities of States from X-Ray Photoelectron Spectroscopy  
C. S. Fadley and D. A. Shirley  
J. Res. Nat. Bur. Std.-A, 74A, 543 (1970)  
Reprinted as "Electronic Density of States" in Nat. Bur. Std., Spec. Publ., 323, ed. by L. H. Bennett (1971), p. 163.
8. Multiplet Splitting of Metal Atom Electron Binding Energies  
C. S. Fadley and D. A. Shirley  
Phys. Rev. A 2, 1109 (1970)
9. Perturbed Angular Correlation of Gamma Rays  
D. A. Shirley and H. Haas  
Ann. Rev. Phys. Chem. 23, 385 (1972)
10. X-Ray Photoemission Spectra of Crystalline and Amorphous Si and Ge Valence Bands  
L. Ley, S. Kowalczyk, R. Pollak, and D. A. Shirley  
Phys. Rev. Letters 29, 1088 (1972)
11. ESCA  
D. A. Shirley  
Advan. Chem. Phys. 23, 85 (1973)
12. Theory of KLL Auger Energies Including Static Relaxation  
D. A. Shirley  
Phys. Rev. A 7, 1520 (1973)

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of Nuclear Energy, and so forth, and possibly contribute additional consultations after the project developed further. I told him about the collaborative effort between the USAEC and the (at that time) Mexican NEC concerning a huge dual-purpose nuclear power plant near the U.S.-Mexican border and suggested that he get in touch with Fernando Alba Andrade (Director General of the Mexican Institute of Nuclear Energy). I also gave him the names of Luis Galvez and Carlos Graef Fernandez.

Stan indicated that he might be interested in participating in the company. I emphasized that such a large dual-purpose nuclear plant would cost on the order of \$500 million. Jaime does not intend to put any of his own money into this venture.

Following this discussion, Jaime brought me up-to-date on the reunion of our Jordan High School graduation class, scheduled for the Fall of 1975. A partial list of members that he has contacted is attached. When our meeting was concluded, he went off with Stan to have lunch with his daughter, who is a student at Boalt Hall. He also has a son-in-law who is a lawyer living in San Francisco and a son who has graduated from Harvard Law School.

Michael Moravcsik called me regarding \$2,000 support from AAAS for his proposed symposium at the 1974 Annual Meeting. I indicated that I would have to go along with Bill Bevan's letter declining AAAS support. Moravcsik asked if I knew of other sources of funds; I didn't and suggested he might have to drop the idea (of paying travel funds of particular people from foreign countries to speak at a symposium on science in the lesser developed countries).

I called Charles S. Horn, Sr., President of the Olin Foundation, at his office in Minneapolis and arranged for an appointment with him when I am there on October 12.

I had lunch in the cafeteria with Helen and Ilse Biermann (mother of Peter Biermann, who married Bill Cobb's sister Jody at our home last January). We discussed my hopes to create an International Association for the Advancement of Science and possible contacts in East and West Germany in this connection. She will discuss this with her husband, who has been elected to the Leopoldina Academy [National Academy of Sciences of East Germany] and will visit there soon.

I then went to the Director's Office in Building 50A and attended a meeting of the Associate Directors. Present were Edwin McMillan, Andrew Sessler, Harold Fidler, Elmer Kelly, Jack Hollander, Melvin Calvin, Robert Birge, James Born, Leo Brewer, Earl Hyde, George Pappas, and Ed Lofgren; plus Ray Wakerling, Robert Hinckley, Robert West, and Lena Galtieri. We discussed the Ad Hoc Committee report on Equal Employment Opportunity concerning the affirmative action plan for the Lawrence Berkeley Laboratory (copy attached).

At 2:00 p.m., I met with Christopher Ritter, who had studied the Chemistry Department document, "Faculty Research Interests, 1973-74," and indicated that he is interested in doing graduate work in nuclear

10/2/73

## Class of 1929

(known addresses)

7. Comfort, Myrtle (Mrs Jesse Robinson)  
1702 N. Wilmington Avenue  
Compton, California, 90222
16. Galton, Mary Elizabeth (Mrs Noel C. Stevenson)  
2303 Bancroft Avenue  
Los Angeles, California, 90039
20. Jackson, Wilbur ('phone 213-3777 -1771)
30. Merino, James  
10741 Weyburn Avenue  
Los Angeles, California, 940024
32. Moser, Juanita (Mrs Ralph Salaway)  
230 Montreal Street  
Playa del Rey, California, 90291
34. Petersen, Gerner  
2797 Gaffey Street  
San Pedro, California
35. Seaborg, Glenn T.  
Berkeley, California
37. Sheldon, Clayton  
10005 Hildreth Avenue  
South Gate, California, 90280
38. Shoaff, Jean ( Mrs Brownfield)  
4919 Biloxi Avenue  
North Hollywood, California, 91601
41. Tamblin, Leslie ('phone 714-772-5209)  
912 Echo Place  
Anahiem, California
42. Thompson, Stanley  
85 Fairlawn Drive  
Berkeley, California, 94708
- Horne, Arthur ('phone 714-893-3325)

October 2, 1973

MEMORANDUM

To: Dr. E. M. McMillan  
From: The Ad Hoc Committee on Equal Employment Opportunity  
Subject: Affirmative Action Plan for LBL

The Committee has reviewed the September 18, 1973 draft of the LBL Affirmative Action Plan, exclusive of the Appendix, and recommends the changes shown on the attached pages. In accordance with our memorandum to you of September 18, 1973, we recommend that the position of Affirmative Action Administrator be relocated. We also recommend the establishment of a standing committee, with broader responsibilities, as a follow-on to the Ad Hoc Committee.

We received the Appendix to the report yesterday afternoon and have not had time to analyze it in any detail. However, we would like to mention that several Committee members have expressed serious doubts about the validity of the availability data used for minorities and women in the professional areas.

*R. K. Wakerling*  
R. K. Wakerling, Chairman  
for the Committee

AFFIRMATIVE ACTION PROGRAM  
LAWRENCE BERKELEY LABORATORY  
UNIVERSITY OF CALIFORNIA

I. Purpose

It is the purpose of this policy to define the Affirmative Action Program of the Lawrence Berkeley Laboratory, and to establish the responsibility for its implementation.

II. Objectives

The objectives of the Affirmative Action Program are:

- A. To establish affirmative action for equal employment opportunities as a key part of the mission of the Laboratory;
- B. To analyze the ethnic and sexual composition of the Laboratory work force and of its labor market, in order to identify areas where minorities and women are underutilized;
- C. To establish goals, timetables, and programs to eliminate underutilization of women and minorities;
- D. To ensure that all personnel actions are without regard to ethnic background and sex and that all employees are dealt with equitably;
- E. As a long range objective, to increase the proportion of minority and female employees at the Laboratory, and at all job levels, to their proportion in the <sup>job market</sup> population from which the Laboratory draws its employees.
- F. (see below)

III. Applicability

This policy applies to all of the Divisions and Departments of the Laboratory.

IV. Policy

It is the policy of the Lawrence Berkeley Laboratory to provide applicants and employees the right to equal employment opportunities. The Laboratory will not engage in discriminatory practices against any person employed or seeking employment because of race, color, religion, sex, marital status,

- \* F. To establish and administer special programs for the employment, training, and upgrading of employees, with emphasis on minority and female employees.

national origin, or, within the limits imposed by law or University regulations, because of age or citizenship. The objective of this policy is to achieve and maintain equal employment opportunity.

Positive efforts to further this affirmative action program must be vigorously pursued, must conform to all current legal requirements as well as to the spirit of the law, must be consistent with Laboratory standards of quality and excellence, must be specific in identifying areas of underutilization and in prescribing corrective measures, and must be consistent with the University of California Affirmative Action Personnel Program (See Appendix 8).

\*

Performance will be measured against/~~this program and against specific~~ Laboratory, division and department objectives and goals.

V. Responsibilities

\*

A. The Director of the Laboratory has appointed ~~the Business Manager to~~ an Administrator who will report to the ~~also serve as~~ Affirmative Action/~~Officer~~ Administrator of the Affirmative Action/~~Officer~~ are as follows.

1. Develop, prepare, and communicate the Affirmative Action Program.
2. Monitor the implementation of the Affirmative Action Program and provide appropriate reports to the Director.
3. Periodically review the Laboratory's personnel policies to insure that they are consistent with affirmative action policy.
4. Review and evaluate the Affirmative Action Program and make revisions as necessary.
5. Provide direction and assistance to Divisions and Departments in the implementation of the Affirmative Action Program.
6. Direct the liaison between the Laboratory and minority and women's organizations, both inside and outside the Laboratory.

Director through the Associate Director for Administration.

7. Provide liaison between the Laboratory and compliance agencies.

\* ~~Staff support for these efforts will come primarily from the Personnel Department and the Affirmative Action Coordinator.~~

B. Each Associate Director, the Assistant Director, and the Business Manager are responsible for:

1. The implementation of the Affirmative Action Program in the units for which he is responsible, with particular attention to hiring, promotion, and employee development; and,
2. Evaluating managers and supervisors, on their effectiveness in implementing affirmative action.

C. On June 15, 1973 the Director appointed an ad hoc committee to study the major recommendations of a compliance review report from the Atomic Energy Commission. The committee is studying Laboratory policies, practices, and needs in the areas of; employee performance evaluation, job classification and pay, recruiting, and employee and supervisory training, and will make recommendations to the Director. Input and recommendations are being sought from all Laboratory employees with a special focus on minorities and women. The committee consists of representatives of the Laboratory's divisions/<sup>s</sup> ~~as well as~~ <sup>and includes</sup> minority and female member<sup>s</sup>. It is anticipated that it will complete its work by the end of 1973.

In order to further the long-range affirmative action and equal employment opportunity objectives of the Laboratory, this Committee or a similarly constituted Committee will be appointed as a standing Committee to review periodically LBL personnel policies and practices and recommend needed changes to the Directors and Business Manager.

3. If an affirmative action goal has been established for the job classification, the Personnel Department shall list the opening and make special efforts to establish a diversified pool of qualified applicants. If a diversified pool cannot be obtained inside the Laboratory, outside recruiting to obtain such a pool will be emphasized.
4. All openings shall be listed for at least two weeks. For positions where an affirmative action goal has been established, the period shall be extended as necessary, in order to recruit a diversified pool of candidates. This pool shall include representation of ethnic groups which are underutilized and of women; if underutilized. The Administrator Affirmative Action/Officer may make exceptions in emergency situations.
5. On all job openings, the Personnel Department will provide current employees with information on availability of the job, as well as notifying other recruiting sources, particularly minority and women's organizations. (See Appendix <sup>2</sup> 10 ).
6. All openings will be posted on bulletin boards throughout the Laboratory, and listed in the "Magnet Memo", the Laboratory's bi-weekly newsletter.
7. The Personnel Department will maintain a record of applicants for each job and the reason why the applicant was or was not given further consideration.

The recruiting procedures of the Laboratory, particularly those for scientific personnel, are presently being scrutinized by an ad hoc committee appointed by the Director. (See Section V C).

B. Hiring

All applicants shall be considered equally for employment without regard to ethnic background and sex. In selecting from among employees from within and applicants from outside the Laboratory who are qualified for a position in a job category where goals and timetables have been established,

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chemistry at Berkeley under my direction, starting a year from now if he is admitted. He would like to work at LBL in the field of his graduate research during the intervening year. He gave me his course record at Lewis and Clark University (Portland, Oregon) and told me that he worked at Hanford for Atlantic Richfield in the summer of 1972 in the Analytical Laboratory on spectroscopic determinations of impurities in plutonium. He is single and will live with other students in a rented house in Berkeley.

I indicated that I might accept him as a graduate student in the actinide chemistry program under Edelstein, contingent on an indication from the Department of Chemistry that he will be admitted to graduate work, and suggested that he be paid at the fulltime graduate student rate of \$706 per month during the intervening year, after which he would go on to the graduate student half-time rate (apparently \$394 a month). I then took him down to their laboratory and introduced him to Norman Edelstein and Tom Parsons. Edelstein gave him a briefing on our research program.

Tom Parsons told me that Professor Peacock from England is coming to the Department of Chemistry at Berkeley to fill in for Neil Bartlett during his six-month sabbatical at Bordeaux, beginning next January. Peacock will supervise Bartlett's research program being carried on in the Edelstein-Parsons area in LBL on such topics as the attempted preparation of  $\text{NpOF}_5$  and so forth.

Hans Mark phoned me at 2:45 p.m. to discuss how we might involve Lieutenant Governor Ed Reinecke in the 1974 Annual Meeting of AAAS; he now finds that there are not enough source people available to compile a separate symposium on "Scientists and Political Office," as had originally been proposed. After some discussion, we agreed that Mark will explore with Reinecke the possibility of his speaking in the Co-Chairmen's symposium on a subject such as viewing the Bay Area from the Governor's Office.

During the day, I phoned J. C. D. Milton, Stanley S. Hanna, John S. Blair, and Jacob Bigeleisen to ask them to serve on the Visiting Review Committee for the Nuclear Chemistry Division (roster attached). All of them agreed to serve. I will have to call Jack Winchester after he returns from a trip in a couple of weeks.

At 3:00 p.m., Douglas Sherman came by and I took him over to Room 203, Building 70, to talk to Kratz, Norris and Binder about our research program.

I met with Andrew Sessler from 3:30-4:45 p.m. to discuss with him his plans for the administration of the Lab. He wants to have a Deputy Director and wants him to come from the Nuclear Chemistry and, as a result of conversations with Hollander, has come up with the names of Shirley, Hollander, Street, Harvey, and Hyde. We discussed these possibilities and I also suggested he add the name of Diamond.

We also discussed the problem with the LBL Division of Biology and Medicine and the need to replace Born as Director in order to put

Gerhart Friedlander

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the program on a constructive track. I said that I would back him on this move. He will talk to a number of other key people and also President Hitch, Chancellor Bowker, and James Liverman (Director of the AEC Division of Biomedical and Environmental Research in Washington) to get their reactions before making a move.

We also discussed his idea of having, in addition to the Associate Directors whom he intends to keep, a more important and active Program Committee or Cabinet (or some such name), and he is thinking of younger people in this connection.

With respect to the other people in the Director's Office: Fidler is going to retire in June; Wilkes, and perhaps Garberson, is going to move fulltime to Livermore by next June; Kelly may be moved to the SuperHILAC with Bob Main; Bill Douglass and his assistant will probably be replaced; Gordon McPeak will probably be kept on in his present position; George Pappas and his assistant, William J. Shanahan, will be kept on as Budget Director and Assistant Budget Director; West will be replaced; and Hinckley will probably be transferred to Physics I. Andy thinks he will have to replace all three girls on the secretarial staff. With respect to other people, he is doubtful about keeping John Porter as head of Personnel but feels that Ray Wakerling is doing a good job and that Roy Nielsen's performance is adequate.

He told me that he has discussed with President Hitch the concept of his being on a term appointment. Hitch said that this is contrary to the Regents' wishes to regard the LBL Directorship in the same category as a Chancellor. Sessler then told Hitch, and Hitch agreed, that he should have a strong review after five years.

I then met with Earl and went over in general the things that Sessler and I had discussed.

Christopher Ritter dropped by again to indicate his interest after he received the briefing from Edelstein, and I indicated that we would be in touch with him to let him know whether he has been accepted by the Chemistry Department for graduate work and by me for my program. He will get his application form in to the Chemistry Department by the end of the week.

Suki and I took a hike to the water tank. At 7:30 p.m., I attended a meeting of Lafayette SOS in the Town Hall. Present were Ann Chilcote, Alice Johnson, George Ponomareff, Ned Robinson, Joanne Johnson, and also Albert Raeburn.

The purpose of our meeting was to talk to Al Raeburn of Albert Raeburn and Associates about our contract with him to advise on our open space campaign. We gave him the letter dated today by William Chilcote (copy attached) and went over this with some care. We also gave him a \$500 retainer to apply on his \$1,500 fee. He agreed to the contractual arrangement. We then talked about the various items in the campaign--the budget, fund-raising by appeals to the public, the preparation of brochures, decided there would be two mailings to the general public, precinct activities, telephone activities to get out

October 2, 1973

Albert Raeburn and Associates  
1832 Second Street  
Berkeley, CA 94710

Dear Mr. Raeburn:

Mrs. Chilcote and I appreciated the opportunity to discuss your proposal to advise us in our open space campaign. As I understand it, you would for the sum of \$1500 agree to provide campaign assistance for us in the following areas:

- Development of the campaign plan
- Campaign Budget
- Publicity
- Fund raising
- Brochures
- Telephone activities to get out the vote
- Endorsements
- Dear Friends cards
- Precinct work

We understand and that you and Mr. Rick Ellis would be spending a total of 20 hours a week with us on about a 50/50 basis between now and election time. Also there would be daily contact with us including attending our group's weekly meetings. Mileage would be charged for trips between Berkeley and Lafayette at the rate of 15¢ per mile.

It is understood that the Committee has the right to terminate your services upon 24 hours written notice in advance of termination without cause. If the Committee terminates, fees and costs will be prorated to date of termination.

In the assumption that we have correctly understood the terms of your proposal correctly, we are enclosing a check in the amount of \$500 for a retainer, so that you may commence work at once.

Yours very truly,

William M. Chilcote

the vote, endorsements by organizations and by individuals, "dear friends" cards, and so forth. I got the impression that Raeburn had a good grasp of the situation and was going to get right to work. He will meet with Ann Chilcote tomorrow, and Alice Johnson within a day or two, to continue planning. The headquarters office for Lafayette SOS is at 3435 Mount Diablo Boulevard (the Bonanza Building), Room 304. We may have an open house there some weekend.

Wednesday, October 3, 1973 - Berkeley

I attended George Pimentel's Chemistry 1A lecture in the Physical Sciences Lecture Hall from 9:10-10:00 a.m. I then walked back up the hill to my office.

After working on my talk to be given at the SuperHILAC Research Progress meeting tomorrow, on my recent European trip, I had lunch in my office and walked back down to the campus. Here I taught, in Room M, my first session with this Chemistry 1A lab section for this quarter. Mark Watts is my Teaching Assistant in this section. I also spent some time with my other lab section in Room B, helping with instruction on the use of the balances, leaving at 4:00 p.m.

At 4:50 p.m., Jack Hollander brought in Ken Elia, Technical Assistant to Speaker Bob Moretti. He reminded me that I had met him around 1959 at a luncheon, introduced by Dick and Marian Diamond. Hollander said he had briefed him on the LBL program on energy, and we discussed Moretti's reputed stand that there is no energy crisis. Elia said that this is a misrepresentation--that Moretti is concerned about the gasoline problem and some of the misrepresentations there, but Moretti realizes there is an energy problem. He also explained the intricacies of the tax initiative (Proposition 1) and why Moretti is against this--namely, the limits it puts on future taxation could diminish support of key programs to an extent that it might lead or at least augment a future recession or depression.

Suki and I took a hike to the water tank. Starting at 7:30 p.m., Helen and I attended the dinner of the Lafayette Junior Chamber of Commerce at Petar's Restaurant in Lafayette. Those present included Bob and Pauline Kramer, President; John Hind, Secretary and Dinner Chairman; Tom and Betty Henry; Les and Ann Thompson; Gary and Beth Nelson; Doug Myers; Grant Bailey; Bill and Sharon Duncan; Jack Northrup; Bob Williams of the Richmond Jaycees; Jim Tony; Eric and Sue Gruder; Dave and Dee Coho; Henry and Mary Ellen Ferguson; and others. Also present were Dr. George and Guyla Ponomareff of Lafayette SOS and, before and after the dinner, Mary and Dick Kelley.

After dinner, Kramer made some welcoming remarks and introduced most of the people present. He then called on John Hind, who introduced me. I gave my talk, "The Open Space Initiative," illustrated with slides which were projected by George Ponomareff. Following my presentation, a number of questions were asked. The talk seemed to be well received and when I circulated sheets for sign-up by those supporting the initiative and willing to have their names used, quite a number of the key people signed it. I also asked for endorsement by the Lafayette Jaycees and this will be taken up at an early meeting; the prospects look good.

Thursday, October 4, 1973 - Berkeley

I attended the meeting on the superheavy elements and other chemistry programs in the conference room of the HILAC Building from 9:30-10:30 a.m. Present were Ghiorso, Nurmia, Nitschke, Binder, Sherman, Norris, J. Alonso, C. Alonso, Jim Harris, Kratz, Raunemaa, Wolfgang Schneider, and later, Ken Hulet.

Ghiorso reported that George Cowan had called from LASL yesterday to report that they have \$1 million to devote to the recovery of  $\text{Cm}^{250}$  from the Hutch shot; they estimate that there are 50 mg of  $\text{Cm}^{250}$  present in 100,000 tons of earth and they might be able to recover 0.1 mg to 0.5 mg (from 2,000 to 1,000 tons of dirt).

Nurmia reported on the experiments on the bombardments of dysprosium fluorides with heavy ions ( $\text{O}^{18}$ ) to produce volatile fluorides of tungsten (W) isotopes. He obtained 15% recovery of 20-day  $\text{W}^{178}$ . He described a proposed arrangement in which the target strip can be electrically heated. We discussed various multiple target arrangements which are limited due to the sharp peak in the excitation function for the reaction  $\text{Cf}^{249} + \text{O}^{18} \rightarrow 106^{263}$ . At 500  $\mu\text{g}$   $\text{Cf}^{249}$  per  $\text{Cm}^2$  with 4  $\mu\text{a}$  (meter  $\mu\text{a}$ ) ( $0.3 \text{ cm}^2$ ) of  $18\text{O}^{8+}$  and 0.1 nanobarn cross section the yield of  $106^{263}$  is 1.3 atoms per hour at 100% efficiency. The only way to gain yield is to use a larger target.

At 10:30 a.m., we continued, with a larger group, with the regular (every other Thursday) SuperHILAC Research Progress meeting. Ghiorso opened the meeting by having Swiatecki introduce his visitor (for a year), Jan Blocki of the Swierk Institute of Nuclear Research of Poland. He described Cowan's phone call, saying they hope to recover 0.1 mg to 0.5 mg of  $\text{Cf}^{250}$ . He also described the latest problems with the SuperHILAC. Some magnetism problems in one of the electric lines haven't been solved, but they will probably ignore these and try to bring the machine back into operation on 15 shifts a week soon. The big problem will be time-sharing with the BEVALAC in the interim before the time-sharing equipment is available a year or so hence.

I gave a talk describing my observations on my visits to scientific labs during my visit to Europe. I showed a reel of movies taken at GSI in Darmstadt and slides taken covering my visits to GSI, University of Darmstadt, Munich, Paris, and Gothenburg.

Gould gave a report on his He-like heavy atoms. Tsang described his calculations which suggest that a compound nucleus cannot be formed, at energies corresponding to the point of contact, between  $\text{Th}^{232}$  and  $\text{Ge}^{76}$ ; perhaps a compound nucleus can be formed at higher  $\text{Ge}^{76}$  energies if the nuclear viscosity is not too large. Similar calculations for  $\text{Ca}^{48}$  plus  $\text{Cm}^{248}$  to produce  $116^{296}$  give similar unfavorable results at the coulomb barrier; this is for spherical curium, and spheroidal curium might be better--again energies above the coulomb barrier might help if nuclear viscosity is not too large.

I dropped by to see Kratz and Norris in their room in Building 70, then went by Edelstein's room in Building 70A to greet Dr. and Mrs. Reinhard Gradl who just arrived from Germany this week.

I sent to Joe Peterson an inscribed copy of the picture that was taken of him with V. I. Spitsyn and me at the Institute of Physical Chemistry's Transuranium Elements Symposium in Moscow in September, 1972.

I had lunch with Earl Hyde in the cafeteria. We discussed the question of the Deputy Director of the Laboratory. Earl said that he believes at this point that he doesn't want to take this position, but he will discuss it further with Andy Sessler. He thinks the best choice would be Dave Shirley, and he will also discuss this with Sessler.

I talked with Frank Stephens at 1:00 p.m. to invite him to be a member of the Nuclear Chemistry Division Program Committee. He said that he was glad to accept.

W. O. Milligan phoned me at 1:55 p.m. He told me that the Scientific Advisory Board will start its next meeting on November 3 at 6:00 p.m. He indicated that we have twice the workload to conduct in this meeting that we have had in the past. He asked me to let him know when I will be arriving, which I said I would do. I indicated that I will be there through Sunday the 4th, but won't be able to stay on for the conference. In connection with his letter to Baron Stig Ramel, asking to be able to attend the Nobel Awards ceremony, I said that Ramel had as much as told me that Milligan will be taken care of. He is anxious to hear from Ramel so that he can begin to make his arrangements.

I met from 2:55-4:20 p.m. with Tony Thompson, a junior biochemistry major and reporter for the Daily Californian, who wanted to interview me about my teaching in Chemistry 1A. It was a wide-ranging interview concerning my methods, philosophy, teaching, the present status of public opinion about science and technology, the Free Speech Movement and its impact, the conflict between teaching and research in the eyes of students, the attitudes of students towards certain professors, my problems with students when I was Chancellor, and so forth. He is going to write this up this evening for publication tomorrow.

I hoed weeds in our field for about an hour before dinner. The neighborhood volleyball game took place as usual on our court.

Friday, October 5, 1973 - Berkeley - Oakland

Kim Williams came by at 9:30 a.m. I took her by and introduced her to Edelstein and his laboratory, Kratz and his lab, and Ghiorso, Nurmia, and Nitschke in the SuperHILAC Building. She planned to spend the rest of the morning talking with these people in their laboratories preparatory to making a decision as to whether she would like to work as a graduate student under my supervision in one of these areas.

I called Russell Train (new Director of the Environmental Protection Agency) as a follow-up to my invitation for him to speak at the 1974 AAAS Annual Meeting. His schedule is still uncertain, but he will be back in touch with me.

Friday, October 5, 1973 (con't)

Andy Sessler dropped in at 10:30 a.m. and talked about his Deputy Director problem and his long talk with Earl Hyde last evening (which Earl had also talked to me about earlier this morning). Earl was showing reluctance to accept the position and is recommending Dave Shirley, but Sessler has some doubts about this. We agreed that I would explore Hyde's possible interest in this position. Sessler has also asked Sheila to conduct a scouting campaign for candidates for the position of his Executive Secretary/Administrative Assistant, and she is working on this.

I called Bernie Harvey and he came up to my office shortly after 11:00 a.m. I indicated that Sessler feels the Deputy Director should be a nuclear chemist. When I asked Harvey for suggestions, he immediately named Earl Hyde. He thought that Shirley would not want to make the time commitment that would be required. When I asked him if he would be willing to serve as Deputy Director, he indicated that he would. I also asked whether, if Earl was chosen as Deputy Director of LBL, he would be willing to serve as Deputy Director of Nuclear Chemistry and he said he thought this is a possibility but that he would want to consider it further before making up his mind.

I then met with Earl and reviewed for him my conversation with Harvey, after which I met with Sessler and reviewed with him my conversation with Harvey.

Then I met with Sessler and Hyde together, and we discussed in some depth the question of the Deputy Director of LBL. Sessler would prefer Hyde if he could be persuaded. Hyde said he will think about it over the weekend. This conversation extended through the lunch-hour, so we ate our bag lunches in my office.

Arnold Fritsch called me to discuss the possibility of our getting together when he and Betsy are in San Francisco for the AIF/ANS meeting in November.

At 1:10 p.m., I attended the regular meeting of the teaching staff (made up of faculty and Teaching Assistants) for Chem 1A. I saw Kim Williams there and she expressed interest in working with me--particularly Ghiorso. After I returned to my office, I asked Sheila to contact Ghiorso, saying that I suggested Kim turn up at the HILAC and suggesting that he keep her busy during this next week while I am gone, but without committing her exact program.

I talked to Len Nugent about his proposed outline for our revision of Chemistry of the Actinide Elements and said that it was generally satisfactory. We agreed that Katz and Seaborg would be responsible for the writing of the preface and the introduction in January, 1975; and Nugent and Ryan would be jointly responsible for Part I and Part II. We would leave open the question of Penneman's status, since he apparently isn't going to make additional contributions beyond the ones he has already made--that is, arranging for writing by Newton and so forth and the large compilation of literature.

After some minor editing, I mailed out to Joe Katz, Bob Penneman and Jack Ryan the outline with a cover letter, asking for their comments (copy attached).

Tony Thompson's article in the Daily Californian was printed today (copy attached). I'm not sure that he needed quite such a long interview with me yesterday.

At 2:20 p.m., I left my office and drove to the Oakland Museum (1000 Oak Street, Oakland). I met Gerald George, was handed a large packet of papers covering the conference, "The Energy Crisis--Who Owns the Sun?", met Frances Townes, Mike Dobrin (in charge of publicity), and others. I was interviewed, on the lawn, for Cable TV Channel 11 by Kay Hickos (with Fritz Litchy, News Director) on the energy crisis or dilemma, and by Isabella Duran of Channel 2 (KTVU) on the same subject; in the latter interview, M. King Hubbert joined me, showing a little demonstrator motor, with propeller, operated by solar energy through the use of silicon converters.

We then went into the auditorium for the final session of the conference (program attached). The audience consisted of about 50 people. The moderator was Stu Winter (of LLL) who introduced John Holdren, the first speaker, on the final topic, "Towards a National Energy Policy." He said solar and fusion power should have priority over the breeder in development. The cost of the health aspect of coal mining, the cost of Price Anderson insurance, should be part of the cost of energy.

Winter then introduced me and I gave my prepared remarks, "Towards a National Energy Policy." Following this, there was a question-and-answer period of about a half-hour with Holdren and me sitting with Winter on the stage to answer the questions. Holdren and I had some discussion between ourselves, generally agreeing, except for the role that nuclear power can and should play in the future energy supply picture. George Pimentel, agreeing with my statement that the political instability that can result from oil shortages was the most serious problem, took issue with Holdren's placing the avoidance of detrimental environmental impact caused by the mining of coal as of greater importance. After the session was over, I made a short tour of the Museum, then drove home.

I talked to James R. Moore of Lafayette, who had attended the conference and who expressed support for and appreciation of my role in Lafayette SOS.

#### Saturday, October 6, 1973 - Lafayette

Jaime Merino called me home at 8:00 a.m. to say that he had met with Bill Gould and, he said, a man named Fogarty (he wasn't sure of the spelling) of the Southern California Edison Company. He had been very cordially received. They displayed a good deal of interest in his proposal and will let him know what price they would be willing to pay for the electrical power imported into the United States from the plant in Mexico. The plant would be located far enough south to be out of the seismic area.

## LAWRENCE BERKELEY LABORATORY

UNIVERSITY OF CALIFORNIA

BERKELEY, CALIFORNIA 94720 □ TEL. (415) 843-2740

October 5, 1973

Dr. Joseph J. Katz  
Chemistry Division  
Argonne National Laboratory  
9700 South Cass Avenue  
Argonne, Illinois 60439

Dr. Robert A. Penneman  
Los Alamos Scientific Laboratory  
P. O. Box 1663  
Los Alamos, New Mexico 87544

Mr. John Ryan  
Battelle Memorial Institute  
Pacific Northwest Laboratory  
P. O. Box 999  
Richland, Washington 99352

Dear Joe, Bob, and Jack:

I am enclosing an outline suggested by Nugent after consultation with me for the revision of The Chemistry of the Actinide Elements. I have emphasized that we should try to keep the book within about 700 pages by means of tight writing throughout.

We would be interested in your comments.

Cordially,

Glenn T. Seaborg

GTS/sms  
enc.

cc: L. J. Nugent

Proposed by Len Nugent

**Title: THE CHEMISTRY OF THE ACTINIDE ELEMENTS**

**Subtitle: A Physicochemical Exposition of the Elements beyond Radium**

**Authors and Affiliations**

**Preface, August 1957 (Katz and Seaborg)**

**Preface, January 1975 (Katz and Seaborg)**

## CONTENTS

- I. INTRODUCTION (Pages 4) (Katz and Seaborg)
- Part I. Physicochemical Properties of Each Element beyond Radium (Nugent & Ryan)
- II. ACTINIUM (Pages 11)
1. Historical
  2. Isotopes
  3. Occurrence in Nature
  4. Preparation and Purification
  5. Solution Chemistry
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  7. Metallic State
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- III. THORIUM (Pages 51)
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  6. Chemical Compounds
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- IV. PROTACTINIUM (Pages 27)
1. Historical
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  3. Occurrence in Nature
  4. Preparation and Purification
  5. Solution Chemistry
  6. Chemical Compounds
  7. Metallic State
  8. Spectroscopy
- V. URANIUM (Pages 110)
1. Historical
  2. Isotopes
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  5. Solution Chemistry
  6. Chemical Compounds
  7. Metallic State
  8. Spectroscopy

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## VI. NEPTUNIUM (Pages 35)

1. Historical
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3. Occurrence in Nature
4. Preparation and Purification
5. Solution Chemistry
6. Chemical Compounds
7. Metallic State
8. Spectroscopy

## VII. PLUTONIUM (Pages 92)

1. Historical
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4. Preparation and Purification
5. Solution Chemistry
6. Chemical Compounds
7. Metallic State
8. Spectroscopy

## VIII. AMERICIUM (Pages 42)

1. Historical
2. Isotopes
3. Preparation and Purification
4. Solution Chemistry
5. Chemical Compounds
6. Metallic State
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## IX. CURIUM (Pages 13)

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5. Chemical Compounds
6. Metallic State
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## CONTENTS (Continued)

## XI. CALIFORNIUM (Pages 14)

1. Historical
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2. Isotopes
3. Preparation and Purification
4. Solution Chemistry
5. Chemical Compounds
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## XIII. TRANSEINSTEINIUM ELEMENTS (Pages 20)

1. Fermium
2. Mendeleevium
3. Nobelium
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5. Element 104
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## Part II. Summary and Correlation of Physicochemical Properties (Nugent and Ryan)

(Pages 200)

## XIV. GENERAL CONSIDERATIONS (Including position in The Period Table)

## XV. ELECTRONIC STRUCTURES

## XVI. SPECTROSCOPIC PROPERTIES

## XVII. THERMODYNAMIC PROPERTIES (Including ionization potentials)

## XVIII. MAGNETIC PROPERTIES

## XIX. SOLID STATE CHEMISTRY (Including crystal structures and the tetrad effect)

## XX. SOLUTION CHEMISTRY (Including hydrolysis and complex ion formation, adsorption-elution behavior, and the tetrad effect)

## XXI. FUTURE ELEMENTS

## CONTENTS (Continued)

- APPENDIX I. Nuclear Spins of the Actinide Elements (Page 1) (Ken Vander Sluis)
- APPENDIX II. Specific Activity of Actinide Nuclides (Pages 3) (Russ Baybarz)
- APPENDIX III. This appendix will consist of a list of references which direct the reader to where more tabulated data on the lanthanides and actinides can be found. It will also list the subject matter not covered in the present revision but emphasized in other recent actinide monographs and reviews. (Pages 5). (Nugent & Ryan)
- NAME INDEX (Pages 8) (Nugent and Ryan)
- SUBJECT INDEX (Pages 20) (Nugent and Ryan)

Total number of pages above = 676

Consideration of Length

## Titles and lengths of similar publications

- 1) "The Chemistry of the Transuranium Elements" by Cornelius Keller, Verlag Chemie GmbH (1971), 675 pp.
- 2) "The Actinide Elements" by K. W. Bagnall, Elsevier Publishing Company, Amsterdam/London/New York (1972), 272 pp.
- 3) "The Chemistry of the Actinide Elements" by J. J. Katz and G. T. Seaborg, Methuen and Co. Ltd./London, and John Wiley and Sons/New York (1957), 508 pp.

The length of the (1975) revision of "The Chemistry of the Actinide Elements" should certainly not be shorter than the 500 pp. length of the first edition, and, in order to try and keep the purchase price below that of 1) above, it should not be longer than 700 pp.

Target number of pages = 650 ± 50 pp.

L.J.N.

# Innovative Programs Lighten Freshman Burden

By TONY THOMPSON

If you're a freshman, it's pretty hard to survive your first quarter here without totally freaking out or heading straight for the nearest high building.

For one thing, the university is big — so big that if the earth opened up and closed again, the students lost would never be missed. Classrooms are huge, enrollments gargantuan, professors a flickering image on a TV screen.

If you're lucky, you might get to know the person next to you, if he sits there day after day. You will get to know your teaching assistant, but the chances are slim to none that you'll sit under a tree and sip Orange Crush with Dr. Whozit, the world renowned.

## Is That Clear?

Eventually you'll deal with the University bureaucracy and with academic advisors, which is a bureaucracy to help you deal with the bureaucracy. At least you won't have to waste time standing in the wrong line. Whether you're a freshman or a graduating senior, Sproul Hall is a labyrinth, and a good advisor, not to mention a ball of string, is absolutely essential.

But if size and complexity don't get you, the classwork will, especially when your reading list has 25 books on it and the first two are *Moby Dick* and *War and Peace*. So by the time the papers and the lab reports and the quizzes and the midterms are over, the finals time is just around the corner, when you find that your ruthless powers of analysis have abandoned you and your mind is rice pudding, you begin to welcome any feeling approximating quiet desperation as evidence of a merciful Providence.

And, after your finals are over and you've fainted at your grade cards — for only God grades pass-fail — you must realize that Winter Quarter is about to begin and the rack must turn once again.

## These Are the Joys?

Such, these are the joys. But the University knows its shortcomings and is attempting to do something about them.

To increase contact between the faculty and undergraduates, departments such as Anthropology, Botany, and History now offer freshman seminars. The large introductory course in Political Science is now taught in small sections by reg-

ular faculty. For years the Department of Chemistry has had the tradition that senior faculty take part in the laboratory sections of freshman chemistry. Self-paced instruction (German 14 and IDS 7) emphasizes more personal contact between faculty and students.

## The "Cluster Scheduling" Pro-

gram advises entering freshmen. Groups of not more than 15 students having similar academic or career interests are assigned the same advisor and scheduled into the same courses and sections for their first quarter.

The "Faculty Fellows" Program is an informal advising effort in which faculty regularly visit in the dormitories. The Faculty Fellows attend meals at the dorms, some hold informal seminars, some offer course, some take groups of students to cultural or recreational events. They're regular guys.

For the academic pressures of Berkeley, there's the newly initiated Student Learning Center offering courses in developing study habits, as well as review sessions for the LSAT, the MCAT, and the GRE.

## Political Gerrymander

Three years ago, the Political Science faculty voted to change its lower division curriculum of three courses in American Government, Comparative Politics, and Political Theory, to two "introductions to politics" (PS 1) and one so-called "tutorial" (PS 4) taught in small sections.

Before the change, a prospective political science major might expect to take all three introductory courses in the form of large lecture courses,

with 400 students, taught by a professor and an army of teaching assistants. Now the introductory courses are taught in relatively small sections, with a senior faculty member and a teaching assistant giving lectures and leading discussions.

One of the advantages of the changeover said William K. Muir, who has taught both large lectures and small sections, "is now you can learn names. But I think that isn't all. One of the great things about a small class is that it gives the student a chance for exposure to someone over 30: the moral dilemmas, the pain, the failures, as well as the excellence and exhilaration of someone who's stuck it out longer than you have."

## Precious 50 Minutes

Senior faculty here have taught freshman chemistry for 60 years. Beginning students are taught by such professors as Kenneth Pitzer, former president of Stanford University; and Glenn Seaborg, former chairman of the Atomic Energy Commission, and Nobel Prize winner.

"Of course, I teach my students chemistry in the precious 50 minutes that I have," said Seaborg. "But my office hours are open and I'm always available by appointment and my students can talk to me about other things. The criticism that professors aren't accessible isn't true. Well, at least in Chemistry. We've had this since 1912, in the era of Gilbert and Lewis."

Another undergraduate initiative is the Cluster Scheduling Program for incoming freshmen. The clusters are advised by volunteers from the faculty or professional people from the community. For instance, the Pre-Law Cluster is advised by a lawyer and the Pre-Med Cluster is advised by a doctor.

## Light Conversation

Alan Searcey, coordinator of the program and Professor of Engineering and Material Sciences dined at the Faculty Club with his cluster, where they heard a lecture on human evolution by Sherwood Washburn, Professor of Anthropology.

"The idea behind the program," said Searcey, "is not to have students faithfully at your knee by the end of the year, but to get students acquainted with people having similar interests."

And for those of you who *do* want to wind up at your professors' knee, there's the Faculty Fellows Program, a well-intentioned but allegedly bad attempt at informal get-togethers between teachers and students. The aim was to get professors to meet with students in a casual setting — a lounge or a cafeteria of a residence hall — where they could talk about anything under the sun. Result: professors stranded lonely and abandoned in a sea of students.

#### Prima Donnas

"The problem at first," said Muir, coordinator of Faculty Fellows, "was that the sessions were too unstructured. You know professors are prima donnas. They like to be on top of a thing and they aren't comfortable unless they are. They

(see page 9)

## New Programs Aid to Students

(from page 3)

are intensely cerebral, they are not very good at interpersonal relationships and the real world, and that's why they became teachers."

#### Survival

The Student Learning Center in building T-8 offers courses in "academic survival skills." Courses include How To Take Lecture Notes, How To Read Faster, How To Write An English Paper, How To Do Chemistry Problems, and How To Take History Exams. Review sessions for the LSAT, MCAT and GRE are available.

Enrollment is limited to 25 students per class and the courses last three to five weeks.

Counseling services are available when study problems stem from undue nervousness and anxiety. An entire section is devoted to problems of pre-meds.

#### Help!

"Doctoral candidates," said Martha Maxwell, the Center's acting director, "sometimes come in and use our services. They have problems with things like spelling and the great amount of reading they have to do. Foreign students have problems, not only with the language, but with adjusting to American customs and norms. Freshmen come in because they complain of not being able to study well enough, or have an insufficient background or foundation in a subject."

"Often poor performance is correlated with a gap in background skills, or anxiety. We try to find these problems and then correct them."

Such are several ways the University is coping with the problems of its own size and complexity. Supposedly, the object of all these initiatives is better education.

"An ideal education," suggested William Muir, "should show a student how fine a person he really is. It should give him a creative experience, an ideal of excellence to measure himself against the the future time."

Good luck.



# The Energy Crisis • Who Owns The Sun...?

A conference sponsored by The Oakland Museum, Natural Sciences Department  
October 3, 4, 5, 1973  
1000 Oak Street Oakland, Ca 94607  
Telephone: (415) 273-3884

Contact: Michael Dobrin  
(415) 273-3009

## PROGRAM

### Wednesday, October 3 -- POWER TODAY

8:00 - 9:00 a.m. Registration, Classroom B, Oakland Museum

9:00 - 9:10 a.m. Introductory remarks, Gerald George,  
Conference Coordinator

9:10 - 10:15 a.m. ENERGY CYCLES, ENVIRONMENT AND MAN  
Keynote speaker, Dr. M. King Hubbert  
U.S. Geological Survey

10:15 - 10:30 a.m. Break

10:30 - noon HISTORY OF POWER GENERATION AND USE  
1. Dr. Lawrence Grossman  
Chairman, Department of Nuclear Engineering  
University of California, Berkeley  
2. H. J. Young  
Vice President  
Edison Electric Institute

(Morning session moderator -- Gerald George, Land Steward, Western  
Regional Office, The Nature Conservancy)

noon - 1:00 p.m. Lunch Break

1:00 - 3:00 p.m. WHERE DOES POWER COME FROM?  
1. Dr. James MacKenzie  
Joint Scientific Staff  
Massachusetts Audubon Society  
2. Walter G. Dupree  
U.S. Bureau of Mines  
3. M. Ray Thomasson, Manager  
Planning and Economic Forecasts  
Shell Oil Company  
Houston, Texas

3:00 - 3:15 p.m. Break

(continued)

## Energy Conference Program

2

3:15 - 5:15 p.m.

HOW DO WE USE/ABUSE POWER?

1. Beverly C. Moore, Jr.  
Corporate Accountability Research Group  
Washington, D.C.
2. Alex Radin  
General Manager  
American Public Power Association  
Washington, D.C.

Thursday, October 4 -- POWER TOMORROW

8:00 - 10:10 a.m.

TRANSPORTATION AND ENERGY

1. John W. Abbott  
Executive Secretary and Editor  
California Tomorrow
2. Lawrence H. Dunn  
Region IX (Western and Pacific)  
Representative of the Secretary  
U.S. Department of Transportation  
San Francisco, California
3. Raymond R. Wright, Jr.  
Director  
Division of Marketing  
American Petroleum Institute

10:00 - 10:15 a.m. Break

10:15 - 12:15 p.m.

CONVENTIONAL POWER - POSSIBILITIES/LIMITS

1. Joel Darmstadter  
Senior Research Associate  
Resources for the Future, Inc.  
Washington, D.C.
2. George R. Bell  
Engineer  
Electrical Resources Requirements Division  
San Francisco Office  
Federal Power Commission
3. Edwin L. Ekholm  
Executive Engineer  
Bechtel Corporation  
San Francisco, California

(Morning session moderator -- Robert Sandberg, Senior Vice President,  
Corporate Public Policy, Kaiser Industries)

(continued)

## Energy Conference Program

3

12:15 - 1:00 p.m. Lunch Break

1:00 - 3:00 p.m. NEW RESOURCES

1. Dr. Albert J. Moll  
Senior Engineer-Economist  
Energy Technology Department  
Economics Division  
Stanford Research Institute  
Menlo Park, California
2. Dr. Alfred J. Eggers  
Assistant Director for Research Applications  
National Science Foundation  
Washington, D.C.
3. Philip N. Ross  
Manager  
Power Systems Planning  
Westinghouse Electric Corporation  
East Pittsburgh, Pennsylvania

3:00 - 3:15 p.m. Break

3:15 - 5:15 p.m. POWER CONSERVATION

1. Deane N. Morris  
Domestic Programs Division  
The Rand Corporation
2. Darrell Trent  
Director of Policy  
Department of Commerce  
Washington, D. C.
3. Joseph Y. DeYoung  
Vice President  
Commercial Operations  
Pacific Gas & Electric Company  
San Francisco, California

Friday, October 5 -- POWER TOMORROW

8:00 - 10:00 a.m. NUCLEAR POWER

1. Hugh Nash  
Friends of the Earth  
San Francisco, California
2. Robert Thorne  
Manager  
U.S. Atomic Energy Commission  
San Francisco operations office

(continued)

## Energy Conference Program

3. Arvin Gibson  
Breeder Reactor Department  
General Electric Company  
Sunnyvale, California

10:00 - 10:15 a.m. Break

10:15 - 12:15 p.m. RATES/ECONOMICS/WHO OWNS THE SUN?

1. Dr. Frederick Morrissey  
Business Administration Department  
University of California, Berkeley
2. David Holmes  
Commissioner  
California State Public Utilities Commission  
San Francisco, California
3. Dr. Bruce C. Netschert  
Vice President  
National Economic Research Associates, Inc.  
Washington, D.C.

12:15 - 1:00 p.m. Lunch Break

1:00 - 3:00 p.m. WORLD ENERGY ECONOMY

1. Dr. Thomas Blaisdell  
Professor Emeritus  
Political Sciences Department  
University of California  
Berkeley, California
2. E. J. Cahill  
Supervisor  
Supply Division  
Economics Department  
Standard Oil Company of California  
San Francisco

3:00 - 3:15 p.m. Break

3:15 - 5:30 p.m. TOWARDS A NATIONAL ENERGY POLICY

1. Dr. John P. Holdren  
CalTech Environmental Quality Laboratory  
Speaking for the Sierra Club  
San Francisco, California
2. Dr. Glenn T. Seaborg  
Lawrence Radiation Laboratory  
University of California, Berkeley

(Afternoon session moderator -- ~~Dr. Charles Townes, University of California, Berkeley~~)

*Steve Winter, LLL*

I spent most of the morning hoeing weeds in our field. I saw part of the American League play-off game between the Oakland Athletics and the Baltimore Orioles on TV; Baltimore won, 6-0.

Helen and I went to see the University of California-University of Washington football game in Memorial Stadium at Berkeley; Berkeley won, 54-49. After the game, we went by to visit David in his room (no. 448) in International House and met his roommate, Chen (from Taiwan). We picked up three of his empty suitcases and brought them home to give him more room; his room is quite small.

After we returned home, I spent about an hour hoeing weeds. I read office papers during the evening.

Sunday, October 7, 1973 - Lafayette - Berkeley - Lafayette

Today was a rainy day, so I could not work outside. I went over Chem 1A material and watched part of the Oakland-Baltimore game, which Oakland won, 6-3.

I drove to the Roger Reeve residence in Berkeley and, from 1:45-4:45 p.m., presided over a meeting of Citizens for Urban Wilderness Areas. Present were Mary Bowerman, Don de Fremery, Lucretia Edwards, Janet Johnson, William Landis, Mary Jane Sills, Marian Reeve, Roger Reeve, Erwin Strohmaier, and Margaret Tracy.

Margaret Tracy reported on PARC (Preserve Area Ridgeland Committee) activities. We agreed to address supporting letters to Martin C. Kauffman, Chairman, Alameda County Planning Commission, and Joseph Bort in his capacity as Chairman of the Alameda County Board of Supervisors and a similar letter to Congressman Fortney [Pete] Stark supporting his legislation. Roger Reeve will compose, sign and send these three letters, as well as letters to Don Edwards and Ron Dellums.

Lucretia Edwards gave a report on the problems connected with going ahead with a small bay fill to extend George Miller Park. I reported on the last meeting of the Citizens Task Force and their acceptance, with one exception, of CUWA's recommendations on the Overview Master Plan.

Mary Bowerman of the Save Mount Diablo Group reported that the State Department of Parks and Recreation has adopted Mitchell Canyon as their number one priority.

We endorsed the Lafayette Open Space Bond issue. I appointed Joyce Burr, for Contra Costa County, and Margie Bowman, for Alameda County, to report on the question of allocation of funds from the State Bond issue. We agreed that we would hold our next meeting on either November 25 or December 9.

From 5:15-7:45 p.m., Helen and I attended a reception and buffet for the executives attending the Executive Program of the Graduate School of Business Administration, in the Lipman Room (8th floor) of Barrows Hall on the campus. Present, beside the participating executives (list attached) were Professor and Mrs. George J. Staubus

UNIVERSITY OF CALIFORNIA, BERKELEY

THE EXECUTIVE PROGRAM

1973 Session  
October 7 - November 2

--- LIST OF PARTICIPANTS ---

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(Faculty Director of the Program), Professor and Mrs. Robert C. Goshay (Acting Dean in place of Richard C. Holton), Dean Emeritus and Mrs. Ewald T. Grether, Professor and Mrs. Sherman Maisel, Professor and Mrs. Frank Kee, Professor and Mrs. Dow Votaw, Professor and Mrs. John G. Meyers, Professor Edwin M. Epstein, Professor Babette B. Barton (Law), Professor and Mrs. George Lenczowski (Political Science), Professor and Mrs. Joseph W. Garbarino (Economics), Professor Martin V. Covington (Psychology), Professor Raymond E. Miles, Michael Kerin (Federal Reserve Bank of San Francisco), Professor Harry Schaeffer (University of Kansas), Professor Leon Litwack, Professor and Mrs. Prakash Sethi, Judith Blake Davis, and Betty Robinson.

Helen and I spent a good deal of time talking to Leif Bengtsson (Coordinating Product Manager, AB Volvo, Goteborg, Sweden), Lennart V. Bjorklund (Personnel Manager, AB Volvo, Skovdeverken), and P. Borje Hallberg (Personnel Manager, AB Volvo, Kopingwerken). I told them about my contacts with the Volvo Company on energy problems. We had our buffet with Professor and Mrs. Sethi, Professor and Mrs. Votaw, Richard M. Dufuor (Martin Marietta Cement, Bethlehem, Pennsylvania), and Steven C. Kovely, Jr. (Pacific Telephone and Telegraph Company).

After I returned home, I returned a call from Mary Kelley, who had received a \$500 check from Bob Bridges, contingent on his checking the exact wording of the Open Space Bond election and being satisfied with it, and suggesting his donation be anonymous. I told her to send all the Lafayette City Council actions to him, but also to make it clear to him his contribution cannot be anonymous; otherwise we must return his check to him.

I also called Bill Chilcote to ask him to remove Bob Bridges's name as an endorser from the draft brochure and to check various other items concerning the Open Space Bond election with him.

I called Dan Wilkes to discuss with him my talk extolling Ed McMillan's scientific career scheduled for the dinner to be given in his honor on October 18.

Monday, October 8, 1973 - Berkeley - Washington, D.C.

Helen drove me to my office in the station wagon. Dianne wasn't feeling too well, so she didn't go to school to start with her 8:00 a.m. class.

I talked with Hyde at 8:45 a.m. He hadn't yet made up his mind as to whether or not to accept the Deputy Directorship of the Laboratory. He will discuss further with Andy Sessler the choice between him and Harvey.

I walked down to PSL to hear Pimentel's Chem 1A lecture from 9:10-10:00 a.m. I then walked back up to my office at LBL and handled my correspondence.

Ghiorso called me at 10:15 a.m. and said that he had talked to Andy Sessler last Friday evening. Ghiorso thinks the best choice for Deputy Director lies between Hyde and Harvey and hopes the other of the two would be Deputy Director of the Nuclear Chemistry Division.

At 10:50 a.m., I got a call from Bernie Harvey. He said that he would not be interested in being Deputy Director of Nuclear Chemistry, but would be interested in being Deputy Director of the Lab.

I walked back down to the campus for my office hour in 446 Latimer Hall from 11:00 a.m. to noon. I then had lunch with the Chemistry Department faculty in the Howard Room of the Faculty Club. After lunch, I taught my Chem 1A lab section in Room B.

Helen picked me up after my class and drove me to the San Francisco International Airport, where I boarded TWA Flight No. 68, which left at 3:10 p.m. and arrived at Dulles Airport in Washington at 10:45 p.m. Mike May was on the plane. I took a taxi to Harrison Street. Pete and Jane were at the Washington Redskins-Dallas Cowboys football game at Kennedy Stadium.

(At the Lab and on the campus this week, Sheila will be meeting with various people to recruit good candidates for Andrew Sessler's administrative assistant.)

Tuesday, October 9, 1973 - Washington - Vienna, Virginia

When I got up this morning, I learned that the Redskins beat the Cowboys last night, 14-7, in the last few minutes of play.

I took a taxi to DATRAN, Inc. The Board of Directors met in the 5th floor conference room, starting at 10:00 a.m. (agenda attached). Present were Sam Wyly, chairman, Robert S. Strauss, Charles J. Wyly, Jr., Sol Linowitz, Erwin D. Canham, Harry G. Bowles, Dean D. Thornton, Glenn E. Penisten, President, and staff members John M. Scorce, Secretary, Ed Berg, Dan Young, Ray Hannon, plus Coudert Brothers lawyers Samuel Highleman and Jonathan DeBois.

Penisten reviewed the company's operational status. They have arranged for a \$20 million equity sell to Walter Haefner (with commitment for \$10 million more when another major investor is found) and \$5 million equity sell to Bechtel. They are still underfinanced by some \$44 million, must get \$20 million more equity which means concurrent \$25 million debt financing.

Berg gave a report on construction status and installation plans. They are putting their antenna on the roof of the United Gas Building in Houston. They are using the top of the Wyly Building in Dallas.

Scorce reviewed AT & T's recent actions as they concern DATRAN. Bell has become quite aggressive in its opposition. They are suggesting via petition a "moratorium on competition" as enunciated by AT & T Chairman De Butts. Linowitz raised the question of whether DATRAN should talk to Bell in an effort to avoid an all-out fight, to suggest they might want to treat DATRAN in a different way from their other competition due to the unique character of the DATRAN product. ITT and MCI are also on the AT & T enemy list. MCI is going to initiate a suit against AT & T within a week or two. It was agreed that Strauss would make an approach to someone like Crossland (in charge of AT & T regulatory actions).

DATRAM BOARD OF DIRECTORS MEETING

OCTOBER 9, 1973

APPROVAL OF MINUTES OF PRIOR MEETING

OPERATIONAL OVERVIEW

GLENN E. PENISTEN

CONSTRUCTION STATUS & INSTALLATION PLANS

ED BERG

CRITIQUE OF AT&T'S RECENT ACTIONS AS THEY  
CONCERN SCC'S

JACK SCORCE

1974 PLANNING PRIORITIES, GOALS, BUDGET LEVELS  
AND PLANNING PROCESS BETWEEN NOW AND DECEMBER'S  
ANNUAL PLANNING

DAN YOUNG

FINANCING STATUS AND 24 WEEK PLAN, RESOLUTIONS

HARRY BOWLES

SUMMARY

GLENN E. PENISTEN

LUNCH

Tuesday, October 9, 1973 (con't)

Young reported on 1974 planning priorities, goals, budget levels, etc.; then Bowles made a presentation on financing status. The Loeb-Bear financing activities have not been successful. Discussions are continuing with the Southern Pacific Communications Company concerning cooperation on the network to California. Possible investment by ITT is also being discussed. The final negotiations with Haefner, through his tough lawyer, should be consummated within a week or two.

At the end of the meeting, we passed the resolutions authorizing the Haefner and Bechtel stock purchases and transfers and provision of stock options to Wyly Corporation. This was followed by a summary by Penisten. DATRAN needs to raise \$40 million within 180 days with first choice Dacor; next, joint effort with SPCC or ITT; next, blank debt; and last, public issue of stock. We adjourned at 1:10 p.m.

Following the meeting, the whole group (except Strauss, who had left near the end of the meeting, and Hannon) had lunch in the same room on the 5th floor as we had lunch last time. (Penisten said he will send a driver to pick me up at Harrison Street next time if we let him know the time.) I sat between Linowitz and Sam Wyly, which gave me the opportunity to talk to Sol about my recent visit to France and to Sam about last night's football game, his youth football team, etc.

I rode back to Washington with Linowitz, which gave me the chance to brief him further about my visit to Paris and Brussels; his driver dropped me off at Harrison Street.

I changed clothes, walked to Rock Creek Park, corner of Nebraska and Oregon Avenues, and took a hike north on the Black Horse Trail to Cross Trail 2, then along Cross Trail 2 to the White Horse Trail, south on the White Horse Trail, along Cross Trails 3 and 4 past the Park Police headquarters and back to my starting point, then walked back to Harrison Street.

Bevan called to get my opinion of a letter from Sheldon Novick suggesting that the report by the Committee on Environmental Alterations be published solely under the auspices of SIPI; I agreed to this--the less connection AAAS has with this poorly prepared report the better. Bevan and I then discussed the status of AAAS international affairs, including his forthcoming trip to Latin America and the status of AAAS fund-raising for the building.

I called Sheila and she called back a couple of times to discuss various items concerning correspondence received since my departure. I had dinner with Pete and Jane. We talked a little about his Law School program; he feels he is doing all right.

I called Stan Schneider and Syd Gaarder to talk about their recent activities. Stan is working on my Future speech for the AAAS symposium. Syd has some interest in coming to Berkeley at some time to work on the Met-Lab Section C-1 History if financing can be arranged.

Justin Bloom returned my call. He and Robbie are taking their vacation in California, starting November 10 at the time of the AIF-ANS meeting in San Francisco. He will show his copy of China Journal to Herman Pollack and the China Desk in the State Department.

Wednesday, October 10, 1973 - Washington - Rockville, Maryland

I took bus no. 4 on Connecticut Avenue to downtown Washington and walked over to the University Club. Here I had breakfast with Landrum R. Bolling, Executive Vice President of the Lilly Endowment (Indianapolis, Indiana) to explore with him the possibility of a grant to the AAAS for their proposed new building.

We began our conversation with a discussion of Earlham College, whose presidency Bolling left last July. We found that Wendell Stanley was a mutual friend; a science building at Earlham was just completed and named after Stanley.

I described the AAAS, emphasizing our recent move to expand our membership in order to further our goal of applying science to the benefit of human welfare, and my hopes to expand AAAS activities in the international field by forming a true American Association for the Advancement of Science and then an International Association for the Advancement of Science and Technology. I emphasized our need for a new building for the AAAS and its use as a National Science Center, saying it will cost \$7 million, of which \$1.5 million can come from the sale of the present AAAS building. I gave him a copy of our draft proposal, crossing out the reference to the Brookings Institution, and a copy of the AAAS Handbook. I said that the \$1 million suggested in the draft proposal is only a suggestion and we are interested in any amount up to the total \$5.5 million and would like guidance on this.

Bolling responded by saying that the Lilly Foundation Endowment does not normally give grants for buildings. Eli Lilly, in his 80's, is still an active member of the Board, does not want his name applied to a building and does not normally favor supporting buildings. Several other members of the Board are connected with universities and feel these are often overbuilt.

Bolling said that the Board will hold its next meeting on Tuesday, October 16. The full Board meets every other month, usually on the third Tuesday, and the Executive Committee meets during the intervening months. He will make an informal presentation of our request to the Board on October 16; then, if they show any interest, he will phone me with the possible prospect that a formal request could be considered at the December meeting.

Bolling was very intrigued by my suggestion that the AAAS expand its international activities. He thinks that there are two extra-governmental paths to improvement of international relations that might offer great hope: (1) the intercourse between scientists as I am suggesting for the AAAS and its expansion to the international arena and (2) multi-national corporations. I have the impression that our main hope for a grant from the Lilly Endowment relates to the proposed expansion of AAAS to the international field. Bolling is a political scientist, a former international newspaper reporter, an expert on the

Wednesday, October 10, 1973 (con't).

Israeli-Arab field and is very concerned about the present war there. He has written a book about this with a title something like Peace in Our Time. We should get a copy of this and should send him a copy of my Mexico City speech.

Bolling gets to Washington about every other month and to California two or three times a year. He will visit San Francisco next around November 5. I told him about Lynne and Bill at Purdue, which led him to remark that I might want excuses to visit them there.

After breakfast, I waited at the University Club until Glenn Stadklev and Bob Campbell arrived, and I rode with them to the headquarters of GEOMET in Rockville to attend the annual meeting of the Board of Directors of GEOMET, Inc. The meeting started in the conference room on the 4th floor at 10:20 a.m. Present were George Milly, chairman, Richard Allen, Charles Judkins, Bob Campbell, and Bob Trevisani.

Milly presided and followed the agenda (copy attached). He explained the resignations of R. Henderson and B. D. Weaver. He described the rather gloomy financial outlook for GEOMET, attributable in large part to problems in the Research and Analysis Company, resulting from the general slowdown of various U.S. federal departments due to the effect of Watergate and to various problems with American Health Systems, Inc. and Sitelines, Inc. The operations of GEOMET Mining seem to be more hopeful, although the discussions with Le Nickle in France came to a disappointing conclusion; another line of negotiations for collaboration with GEOMET Mining is proceeding with William Marx (plus Young and F. Aley Allen) of New Court Securities Corporation (New York). I described the method being used by the National Institute of Nuclear Energy in Mexico to explore for uranium and thorium, namely, the measurement of gamma rays in planes at 3-400-foot altitudes and of radon by drilling holes in the ground. This differs from GEOMET's method in that GEOMET measures airborne radon at night, when inversions occur, using airplanes. I suggested to Milly that he get in touch with Fernando Alba Andrade, the Chairman of the Mexican National Institute of Nuclear Energy. Milly's secretary will get in touch with Mrs. Saxby to get Alba's address.

Judkins gave a more detailed review of the GEOMET financial status. It is likely that this will be the year of the "bath," deferring profits into next year. To get through the short-term crunch (chiefly Sitelines), it will be necessary to borrow \$200,000 from commercial credit banks at 3% above the prime interest rate (which is about 10%).

I raised the question of the public responsibility of the public Directors in the case of financial failure of GEOMET. Trevisani said that such public responsibility is essentially confined to publicly owned companies--GEOMET is privately owned.

We then had a sandwich lunch at the conference table. We approved management's request that they borrow from commercial credit sources an amount equal to up to 90% of accounts receivable. We also

A G E N D A  
BOARD OF DIRECTORS MEETING  
October 10, 1973

1. CALL TO ORDER
2. RESIGNATION OF OFFICERS  
    R. Henderson  
    B. D. Weaver
3. ST. JOSEPH TRUST  
    Loan Status
4. FINANCIAL STATUS  
    Borrowing Authority
5. RESOLUTIONS  
    Sitelines Guarantees
6. STOCK OPTION
7. FAIR MARKET VALUE OF STOCK
8. OTHER



Wednesday, October 10, 1973 (con't)

passed resolutions for GEOMET to guarantee to Reynolds Aluminum Company payment from Sitelines for goods received and for GEOMET to indemnify Sitelines building agreements.

We discussed stock options for employees and the fair market value of the stock. We agreed on \$1.10 a share, differing from the \$4.50 a share we agreed to last March, reflecting the smaller worth of GEOMET in the meantime; this will introduce tax problems and a waiting period, in general five years, before the new options can be exercised. We adjourned at 2:00 p.m.

I rode back to Harrison Street with Trevisani and his driver, who continued on to downtown Washington. I expressed concern to Trevisani about my continuing association with GEOMET in view of its poor prospects and my heavy schedule and my need to ration my time more carefully. On the way we heard the announcement over the car radio that Spiro Agnew has resigned as Vice President and Judge Walter Hoffman has fined him \$10,000 and placed him on probation for three years on the basis of Agnew's plea of "no contest" to an agreed-upon charge of one 1967 case of income tax evasion.

When I arrived home, I saw continued coverage of this situation on TV. I also saw part of the baseball play-off games. The New York Mets beat the Cincinnati Reds in the fifth and decisive game, 7-2. In the other game, which I had to leave before the finish, Baltimore won 5-4, so the series now stands at 2-2.

Pete was home from school taking a nap. I woke him up and rode in with him when he went in to pick up Jane. He dropped me off at Chez Francois (818 Connecticut Avenue) where the International Science Study Group of AAAS had drinks and dinner in an upstairs private room. I sat near Claire Nader, Leonard Rieser, Philip Abelson, Janet Stanford, and Arthur Solomon. I talked a good deal with Rieser about the AAAS building fund-raising efforts, international program, etc.

Present were: Arthur Solomon, Albert Baez, Howard Foncannon (staff officer), Arthur Livermore (AAAS Education Director), Charles Weiss, Jr., Glenn E. Schweitzer, Herman Pollack, Dan Margulies (consultant), Philip Abelson, Michael Moravcsik, Leonard Rieser, Michael Green, Don Phillips (AAAS staff), Janet Stanford (AAAS staff), Claire Nader (pre-dinner only), and William Bevan (through dinner).

After dinner, we rearranged our chairs and held our meeting in the same room. The agenda for the two-day meeting is attached. The time was devoted to a talk by Baez on international education. Foncannon gave us Draft No. 2 of our report and a document, "Science Education International."

After the meeting, I rode home with Phil Abelson. We discussed the energy crisis and he agrees that the number one priority should be the gasification and liquefaction of coal due to the need to decrease the potential political instability of our reliance to such a great extent on the Arab countries as a source of our oil.

*American Association  
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Fifth Meeting of the AAAS Study Group on International Science

Washington, D. C., October 10-11, 1973

Agenda

October 10 (Chez Francois Restaurant - 818 Connecticut Avenue, N. W.)

- 6:00 p.m. - Cocktails
- 7:00 p.m. - Dinner
- 8:00 p.m. - Working Session - EDUCATION
- 9:30 p.m. - Adjourn

October 11 (Board Room - AAAS, 1515 Massachusetts Avenue, N. W.)

1. 9:00 a.m. - SECTION I - CHARGE TO THE STUDY GROUP  
II - METHOD OF PROCEDURE  
III - BASIC RECOMMENDATION  
IV - OBJECTIVES OF THE AAAS AND OF ITS INTERNATIONAL SCIENCE ACTIVITIES
2. 9:30 a.m. - SECTION V - THE RESOURCES OF THE AAAS FOR THE DEVELOPMENT AND ADMINISTRATION OF INTERNATIONAL PROGRAMS
3. 10:00 a.m. - SECTION VI - THE PRIMARY FOCUS OF THE AAAS INTERNATIONAL PROGRAM
4. 10:45 a.m. - SECTION VII - DEVELOPMENT OF THE AAAS INTERNATIONAL PROGRAM
5. 11:30 a.m. - SECTION VIII - MEDIA FOR PROGRAM DEVELOPMENT AND ADMINISTRATION
6. 12:30 p.m. - LUNCH (in Board Room)
7. 1:30 p.m. - EDUCATION
8. 2:30 p.m. - SECTION IX - ORGANIZATION AND ADMINISTRATION OF THE AAAS OFFICE OF INTERNATIONAL SCIENTIFIC AFFAIRS
9. 4:30 p.m. - ADJOURN

Thursday, October 11, 1973 - Washington

I took a taxi to AAAS headquarters to attend the fifth meeting in the Board Room of the AAAS Study Group on International Science. Solomon presided, and the following were present: Baez, Moravcsik, Pollack, Weiss, Livermore, Todd, Abelson, Foncannon, Nader, Margulies, Rieser, Green, Hebert (NSF, filling in for Tom Owens), Phillips, and Stanford. The meeting began at 9:15 a.m. and followed the presented agenda (attached to 10/10/73).

I informed the group about the October, 1973 issue of Science and Public Affairs which is devoted to the Mexico City meeting "Science and Man in the Americas."

At 2:30 p.m., we took a break for lunch--sandwiches were served in the Board Room; Pollack and Abelson left at this time. Sheila phoned to bring me up-to-date on matters at the office and home; I also talked to Earl Hyde, who told me he has decided to accept Sessler's offer to serve as Deputy Director of LBL. He will hold a meeting of the Program Committee of our Nuclear Chemistry Division to announce this tomorrow noon. He also said that Ghiorso is beginning to accept the idea of Hermann Grunder taking over as director of the construction, trouble-shooting and operation of the SuperHILAC.

Weiss told me that the World Bank (and McNamara) are now tending more toward supporting international science coordinating efforts--now might be a good time to again approach them regarding a catalytic-type grant for the ISF (I should inform Roger Revelle of this).

After lunch, we continued the meeting pretty much on schedule for the agenda. I suggested considerable changes in the paragraph with respect to the formation of an "Association of Associations," changing it from a negative to a more positive stance.

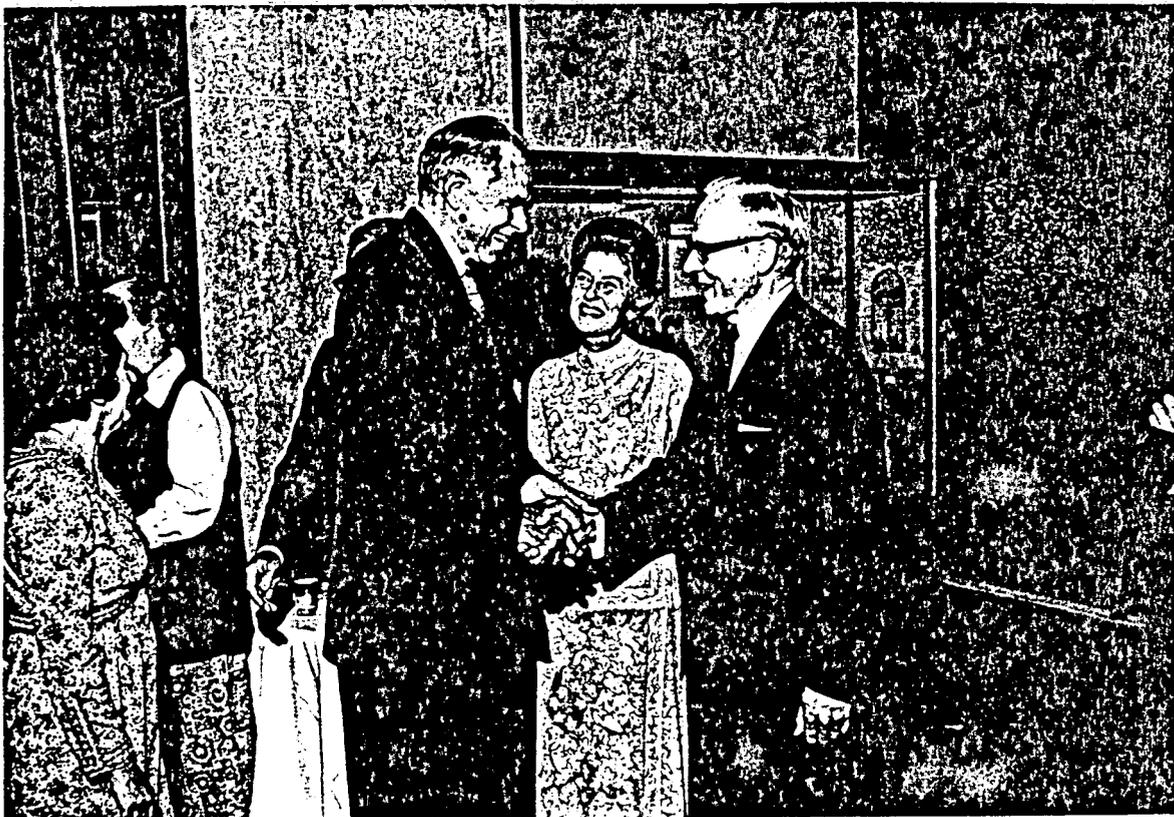
Pollack and Abelson returned at 3:00 p.m., when we discussed the section on Organization and Administration of the AAAS Office of International Scientific Affairs. Pollack left again at 4:00 p.m. The group agreed that the Office should be staffed with the minimum of a Director and the Director's staff support (a secretary) and, if possible, some additional financial support for the Office's activities. Before this, support to the extent of \$100,000 per year for five years was discussed.

Weiss suggested that the Study Group should be continued, but other members disagreed. A number of members, especially Abelson, raised the question of whether the report is adequate. This will be improved by the addition of appendices giving specific examples to be written by Schweitzer, Moravcsik, Green, and Baez. Solomon will write the letter that will accompany the transmittal of the report to the Board. The meeting adjourned at 5:30 p.m.

I then walked to the Statler Hilton Hotel, accompanied part of the way by Rieser and Baez. Here I went into the bar and saw on TV the last inning of the American League play-off game; Oakland won, 3-0, thus winning the American League pennant three games to two. I had a bite to eat in the coffee shop, then walked to the National

Museum of History and Technology to attend the premiere showing of "The Atom is International." (I met Dr. and Mrs. Nathan Pusey on the way; they were en route to the dinner of the American Council on Education where Clark Kerr was speaking.)

I went through the receiving line to meet AEC Chairman Dixy Lee Ray, Mr. and Mrs. B. R. Dorsey, Sigvard Eklund, and Edward M. Korry (President of the United Nations Association of the U.S.A.). The subsequent program consisted of a welcome by Korry, remarks by Dorsey (in his capacity as Chairman of the 1973 United Nations Celebration in Washington), Dr. Ray, and Dr. Eklund.



GTS with Dr. Sigvard Eklund: October 11, 1973.

I met and talked to many old AEC friends. Justin and Robbie Bloom are looking forward to seeing Helen and me when he attends the AIF-ANS meeting during their vacation in California next month.

Bob Hollingsworth called me aside to tell me that he has decided (yesterday) to resign as General Manager of the AEC; he is fed up with the continuous in-fighting among the Commissioners. He said most of the senior staff is completely disillusioned. He told me that control of breeder reactor development has been completely decentralized under Tom Nemzek. I later talked to Will Kriegsman and he said he cannot get along with Dr. Ray; he is completely cut off from needed information. Apparently he and Dr. Ray are at each other's throats and are each enlisting White House support in their battle.

I also talked to Commissioner and Mrs. Doub, Larson and Anders, but they had nothing to say about such problems between Commissioners. Doub hopes to get together with me during his attendance at the AIF-ANS meeting in San Francisco and will send me his calendar to make it possible to find mutually convenient times.

I talked to Dorsey, Art Rolander, and others of Gulf Company; we referred briefly to the progress on the HTGR and the partnership with the Shell Company.

I talked with Congressmen Chet Holifield, Craig Hosmer and Melvin Price, all of whom seemed anxious to inform me of their disgust with the way the AEC is operating; they also expressed a lack of confidence in the White House understanding of the important nuclear energy issues.

I talked to Abe Friedman about progress with the NPT and the status of Betsy McFadden's work for me. He will send me a status report on NPT ratification. I saw Mr. and Mrs. Syd Gaarder and expressed interest in continuing work on the Met-Lab Section C-1 history. I talked to Jerry and Jo Tape. They are both coming out to the AIF-ANS meeting and Jo hopes to see Helen--they will stay at the St. Francis Hotel.

I also talked to Ed Bowser, George Murphy, Ed Giller, Mr. and Mrs. Giambusso, Jack Vanderyn, Mr. and Mrs. John Teem (he and his people had made a presentation to John Love on energy research today), Mr. and Mrs. Bob Hirsch, Mr. and Mrs. Jim Ammons, Herman Pollack, Mr. and Mrs. Keith Glennan, Mr. and Mrs. Harry Smyth, Mr. and Mrs. Martin R. Hoffman (AEC General Counsel), Congressman Orval Hansen, Sigvard Eklund (who is worried about the status of NPT and continued nuclear weapons testing by US and USSR), Mr. and Mrs. Frank Pittman, Mr. and Mrs. John Kuranz, Carl Behrens, Mr. and Mrs. George Quinn, Mr. and Mrs. James Webb (I thanked him for talking to John Curtis), Mr. and Mrs. Tom Nemzek, and many others.

I left the affair at 9:15 p.m., rode part way with Commissioner and Mrs. Anders, along with Mr. and Mrs. Art Rolander, in Anders's AEC car, then took a taxi to Harrison Street.

Friday, October 12, 1973 - Washington - Minneapolis - Berkeley

Pete drove me to the Washington National Airport where I boarded Northwest Airlines Flight No. 305, which left at 8:15 a.m. and arrived at Minneapolis-St. Paul International Airport at 9:20 a.m.

I took a taxi to Foshay Tower for my meeting with Charles S. Horn, Sr., President of The Olin Foundation. When I arrived at the reception desk opposite the elevators on the 27th floor, I could hear Mr. Horn on the phone through an open door to his office down the hall. The receptionist informed him of my presence and he soon came out to greet me and escorted me to his office where I met with him from 10:00-11:00 a.m.

Horn began by telling me he has read the AAAS request very carefully; in fact, he has had it on his desk before him ever since he

Friday, October 12, 1973 (con't)

received it, but he was sorry to have to say he is forced to turn it down. He has also checked by phone with Ralph Clark, another of the three Directors of The Olin Foundation and who lives in Chicago, and Clark is dead set against it and will vote against it. In reply to my question, he said it would do no good for me to visit Clark. The other Director, James Wynn of New York, is so ill with emphysema that he could not check with him. (He later told me he has requested Wynn's resignation but has not received it and would like to have him replaced and the number of Directors increased to five in order to decrease his own work load; the "membership" elects the Directors.)

Horn told me the main reason he was turning down the AAAS request was its large magnitude and the fact that their funds are essentially committed through 1974. (They have just about promised buildings to two colleges in Idaho and Washington.) Their income from which grants are made is only about \$4-5 million per year, so a grant to us would mean they could make no other grants for a period of three years. The largest grant they have ever made is \$4 million for a building at Vanderbilt University. He mentioned that building grants to such schools as USC and Nebraska Wesleyan have also been made. He told me the first building on a campus for which they make a grant is named after Olin and the usual follow-on building grants (one or two additional) are named after prominent people connected with the school. He reiterated that they only make turn-key grants for complete buildings and furnishings, and thus a grant to AAAS would, in his estimation, amount to a total of \$8-10 million.

Horn distinctly warmed up to me as our conversation proceeded. He was particularly taken by Swedish heritage; although his father's family emanated from the Boston area of England, he said this area was largely settled by Danes and, since Horn is a Danish name, he is sure he is of Danish descent. He was also struck by the fact that I was born in nearby Ishpeming, with which he was familiar, and that Lynne was married by his good friend Judge Luther Youngdahl.

As we continued talking, he indicated he would keep the AAAS application open and that we should keep in touch. He said that some of their grants took as long as eight years to develop and only one was ever granted on a short time scale; that was in the middle 1950's at USC after, on the basis of his demands, a public fund-raising campaign elevated its goal from \$30-100 million (a total of \$110 million was actually raised). As I was leaving, Horn asked me to let him know about any further visits I might make to Minneapolis in order that we might get together again.

In retrospect, I feel that Horn would have supported our request for a grant had money been available or had it been of smaller magnitude and that the door is not closed if we are prepared to wait and remain in touch with him for a matter of years (as is apparently the pattern for grants from The Olin Foundation).

I took a taxi back to the Minneapolis-St. Paul International Airport, had a bite to eat, went out to the gate area and, a little after 1:00 p.m., boarded Northwest Airlines Flight No. 153. At the

scheduled departure time (1:25 p.m.), we were told that, due to an equipment problem, we must change to another plane, requiring a 25-minute delay in departure time (the usual malarky on time estimate). During the waiting interval, I called Earl Hyde at LBL, who told me that the hoped-for arrangement with Al Ghiorso to change responsibility at the SuperHILAC has fallen through. Sessler and Hyde met with him yesterday to discuss the change and Ghiorso was adamant that he wanted to remain in charge if some arrangement was made to bring Hermann Grunder in. Apparently his phone talk to Sessler and talk with Hyde earlier this week has resulted in a misunderstanding.

We boarded the substitute equipment at 2:10 p.m., took off at 2:40 p.m. (an hour and fifteen minutes late), and arrived at San Francisco International Airport at 4:00 p.m. (about an hour late). Helen met me and drove me to LBL through heavy traffic, arriving there a little after 5:00 p.m. Here I met in my office with Harve Carlson, Jim Mears and Jane Kingston for about an hour (while Helen spent part of the time down on the campus looking for Dave). We discussed today's luncheon meeting of the Local Committee of the San Francisco 1974 AAAS meeting, which was presided over by Bill Hewlett in my absence, the proposed visit of a Chinese delegation to this meeting, and the thematic structure of the meeting (Jane's summary of the meeting is attached).

I rode home with Helen, took a hike to the water tank with Suki, had dinner with Helen and Dianne, and spent the evening reading correspondence and papers that accumulated during my absence.

President Nixon announced on a 6:00 p.m. broadcast that he has chosen Representative Gerald Ford of Michigan to be Vice President.

#### Saturday, October 13, 1973 - Lafayette - Oakland

I drove to the headquarters of the East Bay Regional Park District to attend the meeting in the Board room of the Drafting Committee of the Citizens Task Force, appointed to prepare the Final Report of the Task Force. Present were Bill Dickinson, Bernice May, Sally Germain, Bill Horne, and Jerry Kent. We reviewed the draft which had been prepared by Horne and Kent. I suggested the inclusion of the Skyline Boulevard Linear Park, on the basis of Joe Engbeck's resolution, and this was included. I monitored the drafting to be sure that the concepts in the CUWA report to the EBRPD of August 26, 1973, were included. We had a sandwich lunch at our working table. We finished at about 2:30 p.m.

I drove home and saw the last few innings of the first game of the 1973 World Series between the Oakland Athletics and the New York Mets. Oakland won, 2-1. I hoed weeds in our field for a couple of hours.

Helen and I went to Rosemary Shepard's for pre-dinner cocktails. Present were Mr. and Mrs. George Link, Mr. and Mrs. Roger Samuelson, Mr. Adolph T. Brugger (Special Assistant to the UC Vice President), Mr. and Mrs. Chiver (of Berkeley), and Mr. and Mrs. Ted Bresnahan. Mrs. Samuelson and the Bresnahans are working for us on the Lafayette Open Space Bond election.

Summary of GTS meeting with Harve Carlson and Jim Mears on  
Friday, October 12, 1973, at 5:30 p.m.

1. Carlson gave me the background of Moravcsik's attempts to obtain funding for his symposium (specifically to pay for the travel of two of the panelists). There are no AAAS funds available, and Moravcsik has been given an extension to seek other sources before having to withdraw his symposium. I said there was nothing more anyone in AAAS could do about it.
2. If the Chinese come to the Annual Meeting, Carlson would like to help with the arrangements and be kept informed. I explained why previous letters had not been answered (translation problem). I told Carlson not to worry, that I would handle it, and that I think they probably will come.
3. Carlson explained the background of the theme of the Annual Meeting (Science: Challenges of Today--Outlook for the Future), and why they were forced to drop the 4 themes previously developed (they didn't apply to some already developed symposia). I made some critical comments about the position of the two Chinese programs and the Galapagos program (they should be put under the Pacific basin heading) and the heading "Environment in Transition" as not appropriate to go over particle physics and superheavy elements (they will change it to "Environment and Science in Transition". I requested a less prosaic title than "Biological Systems", and Carlson said he would call me early next week with some suggestions.
4. Carlson described the opening contents of the program book. In the place of "Perspectives" we shall have:
  - a. One column on themes, to be written at the Meetings Office
  - b. An expanded version of Hans Mark's article.
  - c. A paragraph from the co-chairmen.

I had a talk with George Link about the Regents' debate over the choice of Andy Sessler as Director of LBL; he said my name was used and played a key role in the ultimate outcome of the voting.

Sunday, October 14, 1973 - Lafayette - Oakland

I finished hoeing the weeds on our field (the first time around) with some help from Kem Akol this morning. I then went to see the second World Series game in the Oakland Coliseum. New York won, 10-7, in 12 innings, the longest World Series game in time duration in history. Helen and Dianne, with Bob Alexander and Roshan Chamrun (Tamsen Keyston Chamrun's daughter) went to Candlestick Park in San Francisco to see the San Francisco 49ers-Minneapolis Vikings football game. Minneapolis won, 17-13.

I returned home at 6:30 p.m., had dinner with Helen, and spent the evening catching up on my office papers. I called Bill Chilcote to discuss the current status of Lafayette SOS affairs.

Eric called at 9:00 p.m. He will come home some weekend soon to get his driver's license renewed in Walnut Creek.

Monday, October 15, 1973 - Berkeley

I attended Pimentel's Chem 1A lecture in PSL, then walked back up the hill to my office to go over the mail. I received a letter from Russell G. Mawby, President, indicating that the W. K. Kellogg Foundation would not be able to support our AAAS request.

I walked back down to my Latimer Hall office to hold my regular office hour. I then attended the regular Monday luncheon of the Chemistry Department faculty in the Howard Room of the Faculty Club. I taught my regular Chem 1A lab section from 1:10-2:30 p.m., then walked back up to my office at LBL.

At 4:00 p.m., I went to the Nuclear Chemistry Division seminar where George Craig of the Institut fur Kernphysik, Technische Hochschule Darmstadt, spoke on "Two Particle Intrinsic Excitations (and Backbending) in  $^{22}\text{Ne}$  and  $^{26}\text{Mg}$ ."

Suki and I took a hike to the water tank. Jamia Riehl called me at 9:00 p.m. about a Gateway Education Project concerned with the world university concept. She wants to know whether I might be interested and perhaps might join an Advisory Board. She will send me further information. She told me that a Dr. Chandhuri is a member of the Advisory Board.

Tuesday, October 16, 1973 - Berkeley

I met with Earl Hyde to discuss the problem of Deputy Director of the Nuclear Chemistry Division. Earl indicated that a better title for his duties might induce Harvey to change his mind and accept, including such a title as Co-Director. I said that I thought this would not be feasible, that it might be better to make him Director. We also discussed, joined by Sessler at the end, some of Sessler's and Hyde's problems concerning LBL and, in particular, the need to make a change

Tuesday, October 16, 1973 (con't)

in the Director of the Division of Biology and Medicine. Sessler is seeing Hitch on this later this morning.

I called Robert Kramer (President of the Lafayette Jaycees) at 9:35 a.m. to ask if the Lafayette Jaycees had taken a position on the open space bond election. He indicated that the Board will meet next week; at that time, he will ask them to take a position supporting the bond issue. He is optimistic. We discussed the Lafayette Chamber of Commerce position, which is apparently against the bond issue. He explained that there is no connection whatsoever between the Lafayette Chamber of Commerce and the Lafayette Jaycees, though it is clear that the latter's position would help counteract that of the former. (He said that Don Young et al. have the opinion that there are "other priorities.")

Just before 10:00 a.m., I went up to the HILAC Building to meet with the SuperHILAC Planning Group. Ghiorso, Nitschke, Jose Alonso, and Carol Alonso were present. We discussed general progress on the machine. Ghiorso thinks it will be operating again next week following the shutdown.

After the meeting, I talked with Ghiorso about the problem of Deputy Director of the Nuclear Chemistry Division and the question of whether Harvey could be induced to serve with that title. We also talked about his talk with Hyde and Sessler regarding bringing Hermann Grunder in to run the SuperHILAC. Ghiorso insisted that Grunder report to him. I suggested that perhaps he could suggest to Grunder that he start that way with the understanding that he would later be in complete charge, but Ghiorso wasn't ready to do this. He said that such an arrangement would lead to serious morale problems, such as a number of people quitting. I said I would discuss it further with Earl.

While I was at the HILAC, Sheila called to give me the sad news that Russell Baybarz died of a heart attack yesterday in Oak Ridge. He was only in his late 30's.

I went by to see Jens Kratz to discuss the unrest concerning the possible temporary assignment to us of the Hewlett-Packard pulse analyzer purchased by GSI among Binder and prospective graduate students. I indicated that I may have to arrange for the purchase of the pulse analyzer from GSI in order to introduce stability. Kratz showed me a copy of the letter to him from Schmelzer, indicating that the pulse analyzer might be returned to GSI when Kratz leaves.

Paul Lochak called me from Paris just before noon. He said that he has had long talks with Wyart, Director of Production and [Electrical] Transport for EDF, who is now serving as Acting Chairman for 35 Western European power utilities--an incipient organization known as "Community of Power Producers." This organization may decide to build a uranium enrichment plant of its own and not rely on Eurodif and Urenco, or US or USSR supplies. If they do this, they would like to first work out an arrangement with the USAEC for sharing of information, perhaps through the mechanism of the American group headed by

Tuesday, October 16, 1973 (con't)

Sol Linowitz as intermediary. However, they need to do this before the USAEC deadline of December 31, 1973, before which time utilities have to make long-term commitments to the USAEC for enrichment services. Lochak would like to have this deadline postponed 90 days to allow more time for negotiation and would like to have Linowitz check with Chairman Ray regarding the feasibility of such a postponement precedent to a follow-up letter from Wyart explaining the reasons therefore. I indicated that I didn't know whether there would be much chance of getting such a postponement but that it would probably be worth trying.

I had lunch with Norman Edelstein, Jens Kratz, Ted Norris, Jerry Bucher, and others at the table outside the lower level of the cafeteria. After, I dropped by to see Norman Edelstein. We agreed that we should begin to hold meetings of his research group, perhaps on some specified day at lunchtime.

Allan Bromley called at 1:45 p.m. to discuss the controversy over the discovery of elements 104 and 105 and the possibility of cooperation between LBL and Dubna in resolving it. He referred especially to the spot that Flerov is in should he lose the confidence of his authorities and the blow this would be to transuranium research in the Soviet Union. I told him that I had read his trip report describing his conversation with Flerov. We discussed the Joint Committee, including the names mentioned by Flerov at our meeting in Hamburg, of IUPAC and IUPAP for consideration of the issues involved and possible resolution of the controversy of the naming. I described the difficulties of trying to resolve the controversy by having Ghiorso work at Dubna or one of Flerov's people work here. Bromley and I agreed that an area of cooperation that might be very helpful would be for LBL and Dubna to cooperate in the ERA development, probably through the USAEC-USSR State Committee Agreement route, and I agreed to explore this possibility with Sessler and let Bromley know.

Manfred Lindner called me at 2:00 p.m. to discuss the arrangements for my talk to the Contra Costa Park Council on November 19. He indicated that they would like to arrange to have a short interview and picture-taking session for their newsletter. I will be contacted by the program chairman, Mrs. Helrich; I indicated that this should be arranged during this week or next.

After this, I walked down to the campus and went to the Lipman Room on the 8th floor of Barrows Hall to speak to the participants in the 1973 Session of the Executive Program of the Graduate School of Business Administration. I was introduced by Professor George Staubus and gave my talk, "Energy for the Future," illustrated with about 40 slides, which were shown by Betty Robinson. I talked for about an hour, followed by a half-hour of questions.

I talked a little with three of the participants who come from Volvo in Sweden: Leif Bengtsson, Coordinating Product Manager, AB Volvo Truck Division; Lennart V. Bjorklund, Personnel Manager, AB Volvo Skovdeverken; and P. Borje Hallberg, Personnel Manager, AB Volvo Kopingverken. I recalled my invitation from Gunnar Johansen to

consult with Volvo and found they were familiar with him. They indicated that we might see each other next year in Sweden.

In the early evening, I watched the World Series game until about the 9th inning, at which time we had to leave. The final outcome was Oakland 3, New York 2, after eleven innings.

Helen and I then attended the open house at Acalanes High School where we went to ten-minute sessions of each of Dianne's classes in the order in which she attends them during the day. There were descriptions of the course content by each of her six teachers as follows:

1. French I (Stan Oberg)
2. Physical Education (Judy Steele)
3. Social Studies I (Bob Smith, who said they cover Man and His Environment, Economics, and Culture)
4. English (Tom Eggertson)
5. Algebra I (Siegfried)
6. Introduction to Science (Al Thurling)

Wednesday, October 17, 1973 - Berkeley

Fran Freeman phoned me from AAAS in Washington as soon as I arrived at my office at 8:30 a.m. She told me that our letter requesting support from the Fleischmann Foundation will be forthcoming for my signature; it is to be in their hands by October 31. They wish to ask ten eminent people to write the Fleischmann Foundation in support of our request. The names they are considering are George Beadle, Detlev Bronk, Warren Weaver, John Knowles, Gerard Piel, Don Price, Mina Rees, Emilio Daddario, Norman Hackerman, John Wheeler, Bill Ruby, and Ed David. I had no other names to suggest. I briefly summarized my visits with the heads of Lilly and Olin Foundations and indicated that my status report would go out in the mail immediately (copy attached).

Lew Keller called me just before 9:00 a.m. He told me that Kurt Kraus asked him to explore the possibilities of a professorship opening for him at Berkeley. Kraus is doing work on actinides in the environment. I indicated that professorships are nearly impossible to come by and that our budget is limited in the Lab but that I would think about it. Lew said he will send me a copy of his article for the Russian volume.

I walked down to the campus and attended Pimentel's Chem 1A lecture, then walked back up to my office.

Jack Scorce, Secretary of DATRAN, called me at 10:45 a.m. to ask if I would be available for a Board conference call meeting tomorrow morning at 8:00 a.m. PDT. The purpose of the meeting will be to gain approval for DATRAN to be a signatory to the agreement about Haefner's investment, along with Wyly and Haefner. I indicated that he could

*American Association  
for the Advancement of Science*

GLENN T. SEABORG  
Chairman, Board of Directors

LAWRENCE BERKELEY LABORATORY  
UNIVERSITY OF CALIFORNIA  
BERKELEY, CALIFORNIA 94720

October 17, 1973

To: William Golden  
William Bevan  
Leonard Rieser  
Fran Freeman

From: Glenn T. Seaborg *83.8.*

Re: Status Report on Fund-Raising for AAAS Building  
Project

This is to summarize my relative progress to date in approaches to foundations. It supersedes my status report of August 28, and incorporates information given to you in Sheila Saxby's memorandum of August 31 and subsequent mailings of relevant correspondence.

Charles A. Dana Foundation. During my phone conversation with Executive Vice President Henry W. Littlefield on August 28, he suggested that we might be able to talk in another six months. I said I would phone him before my visit to New York in November; I have done this, and the word is that we should wait the remainder of the six months.

Jonsson Foundation. The President, Philip R. Jonsson, has met with the members of his family (per Sheila's memorandum). Their negative decision is explained in his letter of October 11, enclosed.

W. K. Kellogg Foundation. In his letter of October 2, which you have received, Russell Mawby reported that he held a preliminary discussion of this with his Board and that their decision is negative. (A copy of my response is enclosed.)

Kresge Foundation. I met with William H. Baldwin in Troy, Michigan at the end of August. We have to have our formal application in their office in the first week of January 1974

Status Report

- 2 -

October 17, 1973

(I would suggest a mailing date of December 27). If theirs is a partial grant toward our total project, the Kresge Foundation will require a statement of our entire financial plan; however, this does not have to accompany our initial application of January 2, 1974.

Lilly Endowment. I met with the Executive Vice President Landrum R. Bolling in Washington on October 10. He planned to discuss our proposal, in a preliminary way, with the Lilly Board at its meeting on October 16. If they have some interest, we should be prepared to have a proposal to him for their meeting on December 11, 1973. (Bolling was very impressed with the international aspects of AAAS' developing program.)

Andrew W. Mellon Foundation. I have an appointment with Nathan Pusey in his office in New York at 9:30 a.m. on Friday, November 2.

Seeley G. Mudd Fund. Negative, per Robert D. Fisher's letter of September 4, of which you have a copy.

Olin Foundation. I saw Charles L. Horn, Sr., in Minneapolis on October 12. They only give out \$4-\$5 million in grants per year, and are already committed for 1974. The largest grant in their history is \$4 million for one building. Grantees have waited as long as eight years. If they undertook the AAAS building, it would immobilize them through 1976. However, we struck up a good rapport and Mr. Horn said for us to keep in touch. The immediate prospects are poor.

Research Corporation. James S. Coles and I have had some scheduling problems. He has therefore arranged an appointment with Dr. Sam C. Smith (Vice President for Grants) and/or Mr. C. H. Schauer (Executive Vice President) at the Research Corporation office in New York at 2:00 p.m. on Friday, November 2.

Rockefeller Brothers Fund. I have an appointment with the Vice President, William Deitel, in their New York office at 11:00 a.m. on Friday, November 2.

Do Rieser, Golden and/or Bevan want to join me in the appointments in New York on November 2 with Pusey (Mellon Foundation, 9:30 a.m.), Deitel (Rockefeller Brothers Fund, 11:00 a.m.), and/or the Research Corporation people (Smith and/or Schauer, 2:00 p.m.)?

Status Report

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October 17, 1973

For your reference, I am enclosing a copy of our internal work summary sheet as of today.

GTS/sms

Enclosures

10/17/73

Summary  
Seaborg Approaches to Foundations  
AAAS Building Project

Foundation	Action
Charles A. DANA Fdn. MacLean Gander Greenwich, Conn. 203/869-2902 [FTS 203/327-9550]	Dr. Henry W. Littlefield, Exec. V.P. Phoned 8/2 Dana making no pledges for 6 months. Confirmed 10/18/73: wait until Feb-March 1974.  Secretary: Mrs. Gallagher
No JONSSON Foundation Philip R. Jonsson Dallas, Texas 214/742-7341 [FTS 214-749-1011]	GTS saw him on August 29. Jonsson met with board/family, wrote on October 11: No.
No W. K. KELLOGG Foundation Dr. Russell G. Mawby Battle Creek, Mich. 616/965-1221 [FTS 616/962-6511]	GTS talked with Mawby by phone, sent AAAS literature and proposal. Mawby explored with his Board. They aren't providing funds for capital purposes except with rare exception.
* KRESGE Foundation William H. Baldwin Troy, Michigan 313/643-9630 [FTS 313/226-6000]	GTS met with Baldwin on August 30. Have proposal at Kresge as of January 2-5, 1974. If partial donor, Kresge will later require total financial plan of our project. Secretary: Virginia Jeffrey
LILLY Endowment Landrum R. Bolling Indianapolis, Indiana 317/924-5471 [FTS 317-633-7000]	GTS saw Bolling in Washington on October 10. Bolling will hold preliminary review with his Board on October 16.  Secretary: Miss M. J. Morrison
ANDREW W. MELLON Fdn. Nathan Pusey New York City 212/838-8400 [FTS 212/460-0100]	GTS will see Pusey on November 2, 9:30 a.m.  Secretary: Margaret McKenna
No Seeley G. MUDD Fund Robert D. Fisher Los Angeles 213/626-4411 [FTS 213/688-2000]	Robert Fisher wrote GTS on September 4: AAAS project does not fall under provisions of their Fund
No OLIN Foundation Charles L. Horn, Sr. Minneapolis, Minn. 612/333-8255 [FTS 612/725-4242]	GTS saw Horn in Minneapolis on October 12. Funding AAAS would immobilize them for several years.
RESEARCH CORPORATION James S. Coles New York City 212/986-6622 [FTS 212/460-0100]	GTS will see Executive Vice President C. H. Schauer and/or Dr. Sam C. Smith (Vice President for Grants) in New York at 2:00 on November 2.  Coles' secretary: Miss McCarthy
ROCKEFELLER BROTHERS FUND Dana S. Creel New York City 212/247-8135 [FTS 212/460-0100]	GTS will see Vice President William Deitel in New York on November 2 at 11:00 a.m.  Creel's secretary: Mrs. Stekker

\* Send Proposal

Wednesday, October 17, 1973 (con't)

report to the Board that he had talked with me separately and that I support the action.

Tom Parsons dropped in to remind me of his age (58) and the need to find a man to carry on the actinide chemistry program; he feels that the death of Russ Baybarz re-emphasizes this need. I said I have been thinking along similar lines and will try to find a solution--our budget is the main problem.

James Coles, President of the Research Corporation in New York, called me at 11:40 a.m. He indicated that, in light of our scheduling problems when I am in New York on November 1 and 2, he will arrange for me to meet with either Dr. Sam C. Smith, Vice President for Grants, and/or Mr. C. H. Schauer, Executive Vice President, at their offices on November 2 at 2:00 p.m.

David Granados (of the City Manager's office in Lafayette) called me at 11:50 a.m. to set up another TV taping on the open space bond proposal for broadcast around October 29 or 30, since the previous tape did not come out in its entirety. He indicated that this taping would be pretty much the same as before, but with slides of the city model instead of the model itself. We agreed to do this taping at Cablevision in Moraga on Monday, October 22. I indicated that I could arrive between 5:00 and 5:30 p.m.; he agreed to schedule it so that I would not have to wait after my arrival.

Alex Epstein called me from Toronto just before noon to ask for my reply to Gerhard Herzberg's memorandum asking for Nobel Laureate signatures on a letter to the Soviet Union about Sakharov. I indicated that I am working on this through another channel, but would further consider Dr. Herzberg's letter.

I had lunch in my office with Stan Thompson. He told me he will enter Alta Bates Hospital next Tuesday for another operation to remove a small growth from his bladder; it could be only a rather minor operation. He favors Street for Deputy Director of the Nuclear Chemistry Division.

I walked down to the campus and taught my Chemistry 1A section in Room M from 1:10-3:00 p.m. We gave the first quiz of the quarter (copy attached).

Russell Berg phoned me at 3:15 p.m. regarding the funding for Michael Moravcsik's symposium. Hewlett thinks there is some virtue in what Moravcsik wants to do, and there is a good distinction between his and the Asia Foundation's symposium on "barefoot technology" in Asia. Hewlett wants me to consult Robert Kreidler of the Sloan Foundation to find out what he thinks and whether Sloan might fund Moravcsik's ideas. If Sloan won't provide the needed \$2,000, Hewlett thinks he could see a way to fund it, though we would be free to turn Moravcsik's request down.

I distributed copies of the journal reports on my recent European trip to a number of people in the Nuclear Chemistry Division (list

Section 2

Chemistry 1A-First Quiz

October 17, 1973

Name

Room

Instructor

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Show all work.

1. (Credit 2) What ~~does~~ a mole of iodine molecules,  $I_2$ , and a mole of argon atoms have in common?

2. (Credit 12) One eighth of a mole of  $O_2$ :

a. Weighs how many grams?

$$\frac{16.00 \times 2}{8} = 4.00 \text{ gm.}$$

b. Contains how many molecules?  $\frac{1}{8} \times 6.023 \cdot 10^{23} = 7.53 \times 10^{22}$

c. Occupies what volume at standard conditions (1 atmos. and  $0^\circ \text{C.}$ ) ?

$$22.41 \times \frac{1}{8} = 2.80 \text{ li.} \quad V = \frac{nRT}{P} = \frac{1 \times 0.08206 \times 273}{8 \times 1} = 2.80 \text{ li.}$$

d. Gives what molarity when dissolved in 250 liters of water?

$$\frac{1}{8} \times \frac{1}{250} = \frac{1}{2000} = 0.0005 \text{ M}$$

3. (Credit 6) A sample of an oxide of ruthenium, Ru, when heated in a stream of  $H_2$  gas, reacted completely to form  $H_2O(g)$  and Ru metal. From the following data deduce the formula of the oxide.

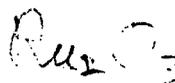
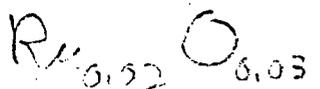
Weight ruthenium oxide sample 2.50 g.

Weight after heating with  $H_2$  2.02 g.



$$\text{Moles Ru} = \frac{2.02}{101.1} = 0.02$$

$$\text{Moles O atoms} = \frac{2.50 - 2.02}{16.0} = \frac{0.48}{16.0} = 0.03$$



4. (Credit 5) Given the following reaction, what volume of  $\text{CO}_2(\text{g})$  measured at  $25^\circ \text{C}$ . and 1.50 atmos. pressure could be prepared by adding 0.60 moles of  $\text{H}_2\text{SO}_4$  to excess  $\text{NaHCO}_3$ ?



(Full credit will be given in this problem for the correct numerical expression, without carrying out the indicated arithmetic).

$$2 \times 0.60 = 1.20 \text{ moles } \text{CO}_2$$

$$PV = nRT$$

$$V = \frac{nRT}{P} = \frac{1.20 \cdot 0.08205 \cdot 298}{1.50} \text{ li.}$$

$$= 19.8 \text{ li.}$$

#### Atomic Weights

H	1.008	Ru	101.1
O	16.00	I	126.9
Ar	39.95	Na	22.98
C	12.01	S	32.06

attached). I sent to Julius Bergen, Chairman of the Max C. Fleischmann Foundation, the AAAS request for funding support for a new headquarters building (as prepared by Fran Freeman; copy attached).

I discussed progress on our book revision with Len Nugent.

From 4:00-4:45 p.m., I met with Norman Glendenning, Wladyslaw Swiatecki, William Myers, John Rasmussen, and Earl Hyde to discuss with the theoretical group their need for more space in one concentrated area. They would like to have the space now occupied by Frank Asaro and made a good case for it, but this will certainly be resisted by Asaro. I promised to look into it.

Hyde and I discussed the meeting he and Sessler had with Hermann Grunder to investigate the feasibility of his taking charge of the SuperHILAC. Ghiorso has discussed this with Grunder, but the conditions of such an arrangement have not been well defined. Hyde and I will discuss this with Ghiorso tomorrow.

I discussed with Irwin Binder the future of our pulse analyzer, etc., to assure him of the stability of our group.

Suki and I took a hike to the water tank. I watched on TV part of the fourth World Series game, which New York won, 6-1.

Thursday, October 18, 1973 - Berkeley - San Francisco

I phoned Robert Kreidler at the Sloan Foundation in New York at 9:15 a.m. to inquire about the possibility of their financial support for Mike Moravcsik's symposium on the needs of science in less developed countries. He indicated that they will not give foreign travel grants but that the symposium topic is something they would consider for support. They would prefer to give the grant to the AAAS for this purpose rather than to the local committee (to conform to tax laws). He asked me to have Bill Bevan call him in this regard, and he indicated that this would not affect AAAS's credit with the Sloan Foundation in any way. (He invited me to lunch sometime when I am in New York.)

I then called Bill Bevan at AAAS in Washington and reported on my conversation with Kreidler. He indicated that there would be no problem in his approaching Sloan for support of this project. He will get the symposium's descriptive materials from Harve Carlson and call Kreidler. (I asked if he wanted to participate in any of my fundraising meetings in New York on November 2, but he said that he and Rieser will be in South America at that time.)

I then called Mike Moravcsik to report on these steps.

I called Henry W. Littlefield's secretary, Mrs. Gallagher, at the Dana Foundation in Greenwich, Connecticut, as a follow-up to my conversation with him last August, to inquire about the desirability of our meeting when I am in the New York area on November 2. She indicated that it would be best to wait the full six-month period as he suggested in August. We will therefore be in touch with him in February or March.

October 17, 1973

## MEMORANDUM FOR THE RECORD

Excerpts from Dr. Seaborg's journal of his recent European trip were given to the following people:

Bernard Harvey  
9/10/73 - Orsay and Saclay

Arthur Poskanzer  
9/10/73 - Orsay

Stanley Thompson  
9/10/73 - Orsay

Leonard Nugent  
9/5/73 - Hamburg  
9/7/73 - Munich, Institute of  
Inorganic Chemistry,  
and Garching, Inst.  
of Radiochemistry  
9/10/73 - Fontenay-aux-Roses

Norman Edelstein et al.  
9/5/73 - Hamburg  
9/7/73 - Munich, Institute of  
Inorganic Chemistry,  
and Garching, Inst.  
of Radiochemistry  
9/10/73 - Fontenay-aux-Roses

Jens Kratz et al.  
9/4/73 - Hamburg  
9/5/73 - Hamburg  
9/6/73 - Darmstadt  
9/10/73 - Orsay

Albert Ghiorso  
9/4/73 - Hamburg  
9/6/73 - Darmstadt  
9/10/73 - Orsay

Matti Nurmia  
9/4/73 - Hamburg  
9/5/73 - Hamburg  
9/6/73 - Darmstadt  
9/10/73 - Orsay

Earl Hyde  
9/4/73 - Hamburg  
9/7/73 - Garching, Institute  
of Plasma Physics and  
Institute of  
Radiochemistry  
9/10/73 - Orsay and Saclay

Jack Hollander  
9/7/73 - Garching, Institute  
of Plasma Physics

Andrew Sessler  
9/7/73 - Garching, Institute  
of Plasma Physics

/ssk

*for your files*

*American Association  
for the Advancement of Science*

1515 MASSACHUSETTS AVENUE, NW, WASHINGTON, D. C., 20005

Phone: 467-4400 (Area Code 202)

Cable Address: Advancesci, Washington, D. C.

October 17, 1973

Mr. Julius Bergen, Chairman  
Max C. Fleischmann Foundation  
P. O. Box 1871  
Reno, Nevada 89505

Dear Mr. Bergen:

As Chairman of the Board of the American Association for the Advancement of Science, I have the pleasure of writing to you concerning a timely and significant plan for action which our Board approved at a recent meeting.

As you know, the American Association for the Advancement of Science is the largest scientific society in the world. It is both a federation of scientific and engineering societies and at the same time it has individual membership of approximately 130,000 scientists, engineers, and laymen who are joined by a common interest in supporting the aims and activities of the Association. The Association is not a scientific professional society in the usual sense, but is a society with deep commitment to the public understanding of science and to the dedication of science to the betterment of humanity. The Association is writing to ask Fleischmann Foundation's consideration of a major grant to support a new building for the Association's activities.

For the past year and a half, a special committee of the Association consisting of its Executive Officer, Dr. William Bevan, Drs. Caryl Haskins and Richard Bolt, Messrs. William Golden and Harold Linder, have developed plans for a new facility that will meet the space needs of the Association and at the same time serve as a National Center for Science and Technology in the nation. The Board has approved the recommendations of this committee with respect to a building site and the plan for going forward with the project, and appointed a special committee of its membership to undertake the development of necessary funding. This group consists of Dr. Bevan, Mr. Golden, Drs. Lewis Branscomb and Leonard Rieser, and myself.

The most likely site for the Center, of several under consideration, is adjacent to the campus of the Brookings Institution on Massachusetts Avenue in the Northwest quadrant of Washington, D. C. As present owner of the property, Brookings favors its sale to our Association, and has also carried on

discussions with us looking toward a planned unit development of its adjacent properties. This arrangement would offer important economies to the Association, since certain of Brookings present facilities would be available for Association use and would not have to be duplicated in the construction of the new building. These would include conference rooms, food service, library facilities and services, computer hardware and services, and a full range of publication and shipping services. Brookings is also prepared to lease office space in its new west wing to the Association and/or to some of its member organizations.

Of special importance in considering a close working relationship between the Association and Brookings is a mutuality of program interests. For the past several years, the two organizations have collaborated in conducting a series of seminars on science for members of Congress. Now, with a major thrust of the Association into the arena of science and public policy, we anticipate a more extensive interface of program activities. The Association has already demonstrated its potential for constructive public service. In 1970, for example, the Association conducted a study of the impact of defoliation on the land and people of Vietnam which exerted a significant influence on our government's decision to phase out the use of herbicides and defoliants within literally weeks of the first public reporting of our findings. This year, the Association is focusing a major effort on opportunities in science for ethnic and racial minorities, and for women. The range of its programming will include educational and cultural preparation as well as employment opportunities and advancement.

There are two reasons why the building project is essential right now. First, the present AAAS facility is inadequate to its space requirements. Originally built in the mid '50's to house a staff of 40, it provides only 15,000 net usable square feet. With a present staff of 150 and with an anticipated growth to over 200 by 1980, it is inevitable that the space requirements along with the staff have quadrupled. The AAAS is at present meeting its needs by leasing offices at two locations several blocks from its main building.

The second reason is our ambition to see the beginnings of a National Science Center. The range of the societal issues upon which science and technology must impact if solutions are to be found is clearly apparent. The limited ability of scientists to communicate effectively with the public at large so that informed consensus can be reached on these issues continues to be a major impediment. Public access to the scientific community and to an understanding of the scientific methods on the one hand, and channels for communication from science to the larger community on the other, must be established across the broad spectrum of mutual concerns.

The establishment of a National Science Center could provide a natural forum for information exchange and policy debate. The public should be able to seek from the membership of the Center hard data on societal issues involving science. Indeed, it will be encouraged to view the Center as an open door to the whole world of science. Specifically, the Center will include meeting rooms, exhibit areas, audiovisual aids, and staff professionals who

can call on the immense resources of the AAAS constituency for information on specific policy questions. Philosophically and programmatically, therefore, the Center will reinforce and substantially increase the capability of the AAAS to fulfill its commitment to the achievement of greater public understanding of science.

The proposal here enclosed gives further detail to the general objectives which I have cited. May I also take this opportunity to invite you and your colleagues to visit with us in Washington, to have an on-site exposition of the activities and programs of the AAAS and to further explore our proposal with you. If you feel it useful for representatives of the Association to call on you in Las Vegas, I and other directors and staff will be most happy to do so. You may know that Dr. Walter Orr Roberts is one of many distinguished past Chairmen of the AAAS. We are hopeful that if favorable consideration is given to the AAAS in this matter, the Fleischmann Foundation will support our project with a grant of \$1 million. You will note that the project will cost \$6 to \$7 million, of which AAAS can provide \$1-1/2 million from its own funds.

My sincere thanks for giving our proposal and invitation your attention. I look forward to hearing from you.

Cordially,

Glenn T. Seaborg  
Chairman of the Board

GTS:hh

Thursday, October 18, 1973 (con't)

Ed Lofgren called me at 10:05 a.m. to arrange for me to see Clarence Richardson of George Rogosa's AEC office when he is here on October 23.

I walked up to the HILAC Building. On my way up, I met Kurt Wolfsberg of LASL who is here in connection with a meeting at Livermore.

I attended the regular meeting of the SuperHILAC Research Progress Group from 10:30 a.m. to noon in the conference room of Building 71, after first talking to Colin Watanabe (a UCLA graduate, B.S. and M.S. in Engineering) about the possibility of his joining me as a graduate student; he looks like a good prospect and might start working immediately, before assuming the regular status as a graduate student, if the Department of Chemistry finds him admissible.

The first speaker at the seminar was Duane Spence who spoke on the alignment of the drift tubes which has taken place during the shutdown of the SuperHILAC; Mike Nitschke described the development of the electronic capacitor device for measuring the position of the drift tubes.

Chin-Fu Tsang described the further theoretical work on the heavy ion collision process to form a compound nucleus. They use the quadrupole moment as a measure of nuclear compactness. They explain the observed production of  $\text{Fm}^{244}$  from U plus O ions (fusion within the saddle point) and the failure to observe it from Pb plus Ar ions, due to failure in the latter case at potential barrier energy to fuse inside the saddle point. With  $\text{Cm}^{248}$  plus  $\text{Ca}^{48}$  the calculations show it is close to fusion inside the saddle point. They will investigate  $\text{Cm}^{248}$  plus  $\text{Ti}^{50}$ .

I had lunch at the table outside the lower level of the cafeteria with Gregory Choppin (here in connection with a meeting of the Committee on Radiochemistry to be held at LLL tomorrow), Vic Viola, John Huizenga, Ken Hulet, Art Poskanzer, Frank Stephens, Jerry Bucher, joined at the end by Ted Norris and Jens Kratz. Choppin told me that Sten Ahrland, of the Department of Physical Chemistry at the University of Lund, is probably going to move to the Technical University in Stockholm to take Sillen's place. He said that Ingmar Grenthe in the same department is doing outstanding work in lanthanide solution chemistry including thermodynamics, kinetics, NMR measurements, and so forth. Perhaps I should visit him when I am in southern Sweden next June.

I called Jaime Merino at 1:20 p.m. as a follow-up to his letter asking me to arrange appointments with Jack Horton and T. M. McDaniels at Southern California Edison Company. He would be able to see them at any time, preferably after the first week of November, and he would be glad to see them.

David Bruner called me from the Chairman's Office at the AEC in Washington at 1:25 p.m. They received a referral from the White House of a call from Dale Edwards of San Francisco, who is involved in the

Thursday, October 18, 1973 (con't)

"Foundation of Revelation." Edwards believes that he has some way to release the energy in the sub-nuclear parts of the atom. He wants to impart this information to the President or to a reliable person who is in a position to make proper use of it. Bruner reported that he had indicated to Edwards that the AEC is an administrative agency and would want an expert's assessment and report on Mr. Edwards's ideas. He therefore gave Mr. Edwards my name and suggested that he call me. He expects that Mr. Edwards would want a 15-30 minute appointment, and I indicated that I would be willing to see him. Bruner wants me to call him back with a report because he must report back to the White House. (I reaffirmed the invitation to Chairman Ray to speak at the Science Talent Search Banquet on its new date of March 18, and he said he will follow this up.)

Ann Chilcote called me at 1:30 p.m. Al Raeburn has arranged for Channel 2 television, KTVU, to do something for us on the Lafayette open space bond election. She asked me to call the Editorial Director, Deacon Anderson, as a follow-up, next Tuesday. She is not clear as to whether they will do an independent report; we agreed that if we can appear on a program it would be even better. She suggested that I might want to call Raeburn about this. She is sending Anderson a copy of the brochure, a copy of the League of Women Voters' pro-and-con statement, and the mailer being sent to Lafayette residents by the League (Lafayette Federal is anonymously supporting this mailing; the League is asking for some financial help from us). Ann will send copies of these materials to me. She reported that the Pleasant Hill election was defeated 2-1. It is surmised that it failed because they went after "parks and recreation" rather than open space, and their precinct work was inadequate. I told her that I had reviewed the Lafayette SOS budget and found it satisfactory. I reported on my conversation with Kramer of the Lafayette Jaycees. I gave her the names of John Kennedy and John May as potential help to us and encouraged her to find things that Dick Trudeau can do on our behalf because he is extremely willing to help us.

I called Lucille McCormick in the Chairman's Office of the Chemistry Department to arrange for Colin Watanabe's getting application forms for graduate work there. I noted that he did not major in chemistry at UCLA but took all of the equivalent courses. I suggested that, if he is admissible, I might want him to start working with us here at the Lab before he actually begins his classwork. She asked me to send him to 419 Latimer and indicated that Bradley Moore will decide on the applicants. She added that it is possible that he might be admissible for the Winter Quarter 1974 if he moves fast enough.

I sent letters to the Program Committee of the Nuclear Chemistry Division, soliciting their ideas on the future leadership of the Division now that Earl Hyde will be Deputy Director of the Lab. I acknowledged the letter I had received from Robert Fisher of the Seeley G. Mudd Fund in Los Angeles indicating that they could not support the AAAS building project. I responded to a letter from Philip Jonsson, in which he said that the Trustees of the Jonsson Foundation had reviewed our AAAS proposal but could not help.

Thursday, October 18, 1973 (con't)

At 3:00 p.m., Betsy McFadden visited us, which gave her the opportunity to meet Sylvia Kihara, Sheila Saxby, Earl Hyde, Al Giorso, and others. We discussed progress on Travels in the New World.

At 3:15 p.m., Earl, Al and I met in my office to discuss Hermann Grunder's role in the construction and debugging of the SuperHILAC. Al met with him yesterday and made some progress in defining his role and in persuading him to undertake this responsibility. It isn't clear yet whether Al and Hermann see this in identical ways. They and Bob Main will meet soon to discuss this further.

At 4:00 p.m., I went to the Conference Room in Building 50 to hear a talk by Herb Steiner on the Bevatron and BEVALAC and high energy ion physics.

Suki and I took a walk to the water tank. Helen and I drove over to San Francisco and attended the retirement dinner for Ed and Elsie McMillan, given by President and Mrs. Charles Hitch in the California Room of the St. Francis Hotel, starting at 6:30 p.m.

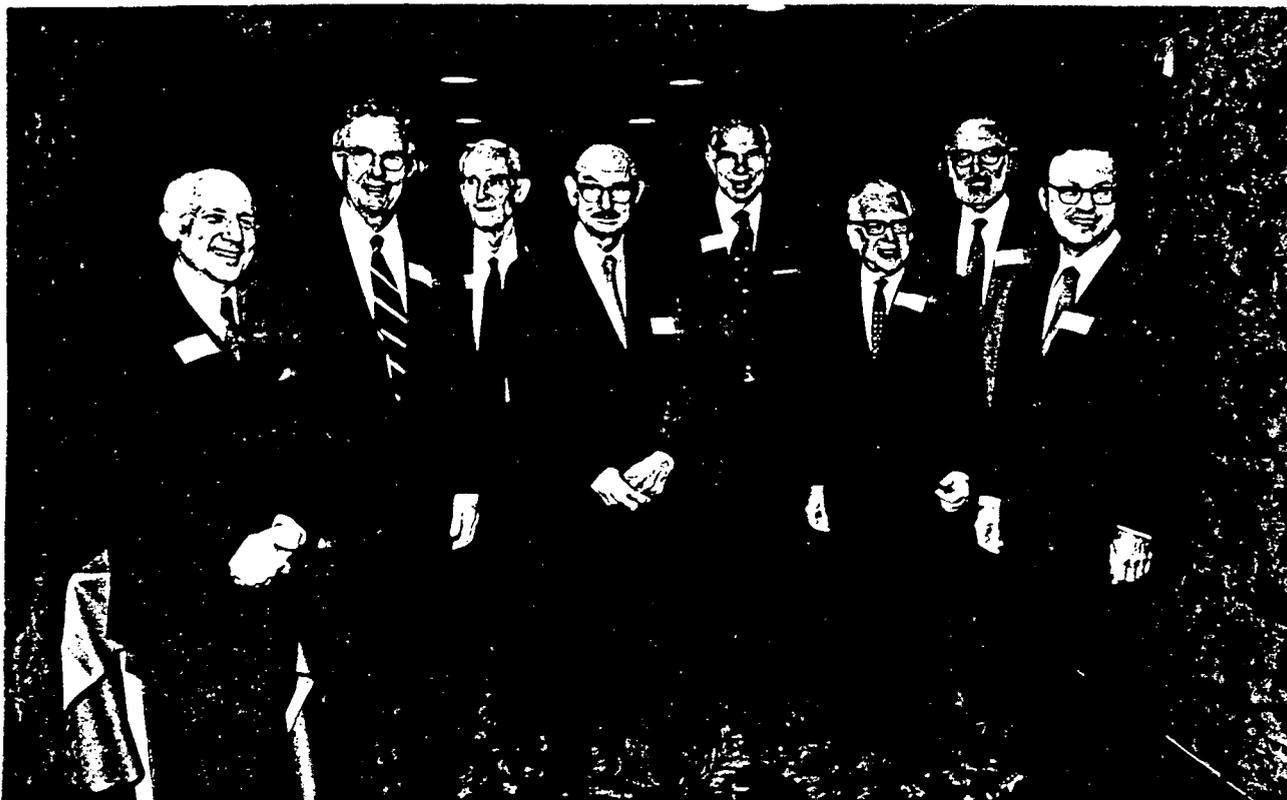
Before the dinner, Robin Orr--to whom I gave a copy of my remarks--arranged to have an Oakland Tribune photographer take a picture of President and Mrs. Hitch together with the McMillans, the Alvarezes, the Calvins, the Giaugues, the Segres, Owen Chamberlain, Donald Glaser, Helen, and me. A picture was also taken of the Nobel Prize winners and their wives alone. The Hofstadters were also present, although I am not sure whether they were in this picture.

At the dinner, Helen and I sat at a table with the Hitches, McMillans, Chairman of the Board of Regents and Mrs. Dean Watkins, and Molly Lawrence. I sat between Elsie McMillan and Mrs. Watkins. (I had my little transistor radio along and, when someone expressed curiosity about how the World Series was coming along, I took it out and listened long enough to find out that the New York Mets had won, 2-0.)

After the meal, President Hitch opened the program with a few welcoming remarks, then indicated that, since he was not an expert on McMillan's scientific work, he was calling on someone who was, and introduced me. I then gave my prepared remarks on "Edwin M. McMillan," embellished with considerable extemporaneous remarks. This was followed by President Hitch's remarks which culminated in a toast to Ed and Elsie. Then Ed made a very brief response, thanking all who had helped him, and ending with special thanks to President Hitch and me. This was followed by some extemporaneous remarks by Elsie, including the reading of a poem. These remarks were quite pithy and humorous. Hitch then brought the evening to a close by saying that this was the end of the program--no one could follow Elsie.

All in all, it was a very successful evening. There was a large attendance, perhaps 200 people, including: Andrew and Gladys Sessler; Chancellors Chuck Young (UCLA), Dean McHenry (Santa Cruz), Vernon Cheadle (Santa Barbara), Ivan Hinderaker (Riverside), William McElroy

(San Diego), Albert and Rosedith Bowker; and Regents Elinor Heller, Catherine Hearst, John Canaday, William Forbes, John Lawrence, and Mr. and Mrs. George Link.



Melvin Calvin, Luis Alvarez, William Giaquie, Edwin McMillan, GTS, Emilio Segre, Owen Chamberlain, Donald Glaser:  
McMillan retirement dinner, October 18, 1973.

Friday, October 19, 1973 - Berkeley

I met from 9:00-10:00 a.m. with Arthur Norberg of the History of Science Project at the Bancroft Library. We discussed the need to start with biographical material on Gilbert Newton Lewis, and I suggested that he begin by interviewing Professor Giaquie, to be followed closely by interviews with Professors Calvin and Pitzer. I also identified younger people like Connick, Brewer and Pimentel who had some contact with Lewis. He said that he thought he would like to start soon after this project with the Nuclear Chemistry Division of LBL. I told him that he should interview especially such people as Ghiorso, Thompson and Templeton, who had been at the Met Lab. I also reminded him of my Met Lab Section C-1 History, and he agreed with the importance of this as a satellite historical project.

I then described to him the project upon which Marge Hollander is working, to put together a complete chronological file on my Chancellor period, to be followed by a similar file covering the period 1946-58 in the Nuclear Chemistry Division here. I introduced him to Marge and we looked over some of the Chancellor chronological files that she has amassed to date. I suggested that, when she gets

Friday, October 19, 1973 (con't)

started on the 1946-58 period, he keep in close touch as an excellent entree to this period. I also mentioned to him my hopes to find some of the historic apparatus used in the discovery of the transuranium elements in our Division.

I phoned Michael Moravcsik in Oregon at 10:45 a.m., indicating that Bill Bevan will only be able to contact Bob Kreidler at the Sloan Foundation after next Wednesday, when the latter returns to his office. Moravcsik expressed his gratitude and seemed confident that the problem would now be solved. He will be inviting Jorge Sabato of Argentina and Antoine B. Zahlan of Lebanon to speak at the symposium.

Art Poskanzer dropped in at 11:00 a.m. in response to my request for comments on the problem of leadership in the Nuclear Chemistry Division. He suggests Harvey under conditions that would be attractive to him, such as half-time, a three-year term appointment, and a title such as Co-Director of the Division.

I raised with Poskanzer the possibility of collaborating with the Stephan group at Orsay in their work on the identification of naturally occurring superheavy elements with the mass spectrograph, as I discussed with them during my visit. Poskanzer will explore this further with Michel. We also discussed the possibility of having Madame Epherre come to work with us here on the project.

Ted Sherburne called me at noon. I indicated that I was predisposed somewhat negatively toward the suggestion in his letter of lowering Science News subscription rates to scientific societies and contacting these societies; I said, however, that I would give it further thought. In connection with the Bicentennial, he indicated that a Nobel Prize winners' convocation at the time of the 1976 Science Talent Search has been suggested. I mentioned that Gustavus Adolphus organizes such conferences each year, but thought it is probably a good enough idea for him to feel out the Nobel Foundation. I reported that I had confirmed with Dr. Ray's office the change in date of the STS Banquet to March 18, but am still waiting for a reply to our invitation for her to speak.

I had lunch at the table at the lower level in the cafeteria with Hyde, Poskanzer, Viola, Huizenga, Thompson, Moretto, and others. After, I walked down to Latimer Hall to attend the meeting of Chem 1A instructional staff from 1:10-1:50 p.m. After this meeting, I talked to Bob Connick and Harold Johnston--we decided that I will teach the lab section in Room 124 Lewis in order to free Johnston to teach both periods in a section where the teaching assistant has great trouble with his English; Berry will handle Room B alone.

John Fogarty, Special Assistant to Russell Train at the Environmental Protection Agency in Washington, called me at 2:30 p.m. He indicated that Train can accept my invitation to speak at the AAAS meeting, and he will suggest a title to us early next week.

I received a letter (copy attached) from George Milly describing his contacts with Paul Lochak and some of his thinking about GEOMET.

GEOMET, INCORPORATED • 50 MONROE STREET • ROCKVILLE, MARYLAND 20850  
301/762-5820 • CABLE ADDRESS: GEOMETINC

October 17, 1973

ASD 10/19/73

Dr. Glenn T. Seaborg  
1154 Glenn Road  
Lafayette, California 94549

Dear Glenn:

On October 11, the day after our Board Meeting, Paul Lochak called me from Paris. He indicated that the engineering and development group of Electrobél wanted to proceed with discussions concerning our provision of health facility consultation and planning assistance. Negotiations which had been underway toward acquiring an European firm for this purpose have terminated. Earlier they had indicated an interest in our services, contingent on hospital construction contracts in Iran. They have now decided to pursue this matter regardless of those contracts, apparently because of their need for assistance in various projects around the world. I currently plan to meet with them in November on this subject.

In addition, Paul described at some length a meeting he had just had with Mr. Thys, the Managing Director of Electrobél. As you are undoubtedly aware from your meeting with the Directors of that company, they are much concerned with the energy problem and the assurance of supplies of nuclear fuel. As a result of Paul's conversations with him, Mr. Thys has indicated interest in the possibility of financing and participating with us in a uranium exploration program. I am in the process of providing Mr. Thys with some preliminary information which he requested and, at his request, will meet with him also in November.

I would like to express our appreciation for the critical role you have played in causing these various contacts to come together. I particularly value the unobtrusive manner in which this has come about and regard it as a most needed kind of assistance you can give GEOMET to help it succeed.

I have not had a chance to contact Dr. Alba of the National Institute for Nuclear Energy in Mexico City, but hope to do so in the near future.

I have had a number of thoughts concerning our Board Meeting and believe there must be a more effective way to conduct our business. While all the matters which were discussed required consideration and action, I was depressed at the way in which they dominated our time. I would like to suggest that in future we consider the use of an Executive Committee, of the Board to consider matters of that kind, and who would provide the full board with a brief summary of their recommendations.



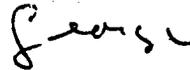
Dr. Glenn T. Seaborg  
October 17, 1973

Page Two

This could avoid occupying the entire board with exploratory examinations. I would hope that, as a consequence, we might be able to shorten the total time required for the meeting and also devote time to more important matters of program objectives, content, and means of accomplishment.

I am sensitive to the value you place on your time, and feel that an experiment along these lines may afford a better way which satisfies your needs and at the same time provides a mechanism whereby our joint effectiveness is enhanced.

Sincerely,



George H. Milly, Ph.D.  
President

GHM/c11



At a little before 4:00 p.m., I walked down to the campus to talk at the regular weekly Inorganic Seminar in room 120 Latimer Hall. Introduced by Bill Jolly, I spoke on "Heavy Ion Nuclear Chemistry," illustrated with about 50 slides and followed by a question period. There was a good size audience, including a number of people from the hill and quite a few graduate students as well as inorganic chemistry faculty such as Connick, Bartlett, Brewer, Moretto, and Schaefer. After the seminar, I went with Jolly and Bartlett to Jolly's office on the fifth floor for a glass of sherry. We were joined by Jim Smart, a new instructor in the Department of Chemistry whose work is on organometallic compounds.

Suki and I took a hike to the water tank. Frances Heppe had dinner with Helen, Dianne and me; she is here to spend the weekend with us.

Saturday, October 20, 1973 - Lafayette - Berkeley

I hoed weeds on the bank at the back of the yard in the morning.

Helen and I attended lunch at University House hosted by Chancellor and Mrs. Albert Bowker. Present were Professor and Mrs. Robert Steidel (he is the Faculty Athletic Representative for the Berkeley campus), Len Renick (a long-time alumnus supporter of UC Berkeley athletics), Joe Duffel (in real estate and house contracting) and his friend Jackie Weathers (a Sausalito resident who teaches second grade in an Oakland school), Don Tronstein (who attended Berkeley in 1952-56 and played football), Herman Selvin, and Mr. and Mrs. Hu (real estate and land appraiser). After lunch, we walked or rode up to Memorial Stadium where we all watched the football game between Berkeley and Oregon State University from the Chancellor's quarters at the rim of the stadium on the west side. Berkeley won, 24-14. After the game, Helen and I walked back to University House where our two cars were parked, left the Bonneville in the Life Sciences Building parking lot for Dave who needs it to go to a picnic tomorrow, and rode home together in the station wagon.

Frances Heppe and Cathy Sherman went to the World Series game, which Oakland won, 3-1.

I spent about an hour hoeing weeds in our field and the side bank of the tennis court. Just before dinner we heard the amazing news over the radio that Attorney General Elliott Richardson has resigned and Deputy Attorney General Ruckelhaus and Special Watergate Prosecutor Archibald Cox have been fired by President Nixon, an aftermath of the refusal by Cox to drop his demand for the Watergate tapes on the basis of the President's plan to prepare a summary of their contents.

Sunday, October 21, 1973 - Lafayette - Oakland

I watched most of the Washington Redskins-St. Louis Cards football game on TV. Washington won, 31-13.

I drove to the Oakland Coliseum in the station wagon to see the World Series. Oakland won this seventh and decisive game, 5-2. Dianne went to the game also with Mrs. Sherman.

Helen, Frances, Bob and Marjorie Alexander went to Candlestick Park to see the San Francisco 49ers-New Orleans Saints football game. The 49ers won, 40-0.

Helen, Frances and I attended, from 5:30-7:00 p.m., a cocktail party at the home of Stanley and Diane Pedder in Lafayette--a fund-raising and publicity affair for Lafayette SOS. Some eighty people were present at \$5 per head. In a little speaking program, I made some introductory remarks, then introduced Bill and Ann Chilcote, Alice Johnson (who spoke about her precinct work), Mary Kelley (who spoke on fund-raising activities), Al Raeburn, George Ponomareff and Bob Gilliland (who described their various publicity activities), and Mayor Wally Costa (who described the origin of Lafayette SOS and my role in it). Besides these, Councilman Jim Davy, Art Unger, Jop van Overeen, Joanne Johnson, Lloyd Townley, and Richard Singer were among those present. Mary Kelley told me that Lafayette SOS, before this party, had \$3,600 in its treasury.

I read Chem 1A material during the evening.

Monday, October 22, 1973 - Berkeley

Helen drove me to work in the station wagon, then drove home in the Bonneville which Dave had used over the weekend.

I walked down to the campus, heard Professor Pimentel's Chem 1A lecture in PSL from 9:10-10:00 a.m., and walked back up to my office. Here I conferred with Sessler and Hyde about membership on the LBL Scientific Program Council. This will include Alvarez, Pitzer and perhaps Townes; I suggested that Ghiorso be included but Hyde opposed this.

I walked back down to the campus, held my office hour, then had lunch in the Howard Room of the Faculty Club with the Chemistry Department faculty. I sat near and talked to Professor Clifford Benton, on leave from Westmont College in Santa Barbara, spending a year's sabbatical in Berkeley. He told me he worked at the Lindsay Light Company in West Chicago in 1944 at the time they were furnishing the thorium carbonate used for our production of U-233 in Chemistry Section C-1 of the University of Chicago Metallurgical Laboratory. He avowed that he is a creationist and is thus on the opposite side from me in the controversy over evolution.

I taught my Chem 1A lab section in Room M Latimer Hall from 1:10-2:45 p.m. I will teach this lab section on Mondays and the lab section in Room 124 Lewis Hall, with Barbara Baron as my teaching assistant, on Wednesdays. I walked back up the hill.

I met with David Shirley, who recommended Bernard Harvey to be Deputy Director of the Nuclear Chemistry Division on a half-time basis in order to interest him. He tended to agree with me that Co-Directorship is not too feasible. I also discussed with him the prospects for the admission of Ritter and Watanabe as graduate students.

I met with Joe Cerny, who recommended Harvey to be Deputy Director of the Nuclear Chemistry Division on a half-time basis.

Glendenning also came by and recommended Harvey as Deputy Director of the Division.

I replied to a letter I had received from a student in Missouri named Bobby Salsberry, who wanted information about elements 104 and 105 (copy attached).

At 4:00 p.m., I presided over the regular every-third-Monday graduate student seminar. The first speaker was David Raich (working with Rasmussen) who spoke on "An Isomeric State  $^{213}\text{Ra}$ ." The  $^{213}\text{Ra}$  was produced by the bombardment of  $^{209}\text{Bi}$  with  $^{10}\text{B}$  in the Yale HILAC; other reactions were also used for its production. The  $^{213}\text{Ra}$  has a half-life of 2.1 milliseconds.

The second graduate student speaker was Arthur Olson (working with Templeton) on "Models for Bonded Hydrogen Electron Density." This seemed to be a discussion of a theoretical research problem--not an experimental problem.

I drove to Cablevision in Moraga and recorded with Lafayette Mayor Walter Costa a 30-minute TV show on the Lafayette Open Space bond issue; we used maps of Lafayette to illustrate the land, trails and concepts we have in mind. The show will be broadcast tomorrow night and a week from tomorrow night in the area south of Mount Diablo Boulevard.

Helen drove Frances to the Oakland Airport in the afternoon so she could catch a plane back home to Southern California. Dianne was home today on a school holiday (Veterans Day).

Tuesday, October 23, 1973 - Berkeley - Davis - Lafayette

I heard Elliott Richardson's news conference on the car radio on the way to work covering his resignation as Attorney General--he tried to defend Nixon to some extent.

I met in my office from 9:00-9:30 a.m. with Dr. Luis Mata Mollejas, Secretary of the Venezuelan Commission on Scientific and Technological Integration of the President's Office, Venezuela. He was accompanied by an escort-interpreter, Mr. Brooks Michel. We discussed the general set-up for science advising in the United States that has been discontinued--the Federal Council on Science and Technology, the Office of Science and Technology, the President's Science Advisory Committee, and the President's Science Advisor's relation to them. I described my ideas of a true American Association for the Advancement of Science to be followed by an International Association for the Advancement of Science and suggested that he might talk to the President of Venezuela about this. He was interested in the forthcoming meeting in Bogota. I told him that Venezuela has been invited to send a representative and suggested that he might contact him and urge him to go to Bogota. I gave him a copy of my Mexico City speech. He wanted to know who he could talk with here who gives courses on science and science policy, and I suggested he get in touch with Todd La Porte.

October 22, 1973

Mr. Bobby Salsberry  
 Novinger Avenue  
 Novinger, Missouri 63559

Dear Bobby:

This is in reply to your letter of October 16, 1973, asking for information about elements 104 and 105. I think the following will answer your specific questions.

	<u>Element 104</u>	<u>Element 105</u>
Symbol	Rf	Ha
Name	Rutherfordium	Hahnium
Atomic weights	radioactive isotopes 257, 258, 259, 261	radioactive isotopes 260, 261, 262
Valence	+4	+5
Electron distribution	Radon + $7f^{14}6d^27s^2$	Radon + $7f^{14}6d^37s^2$
How produced	Bombardment of Cf with C ions	Bombardment of Cf with N ions

I hope you will continue your interest in science.

With best regards,

Cordially,

Glenn T. Seaborg

GTS/zms

Tuesday, October 23, 1973 (con't)

Ann Chilcote phoned me at 10:05 a.m. I indicated that I would not be able to be at Thursday evening's Lafayette SOS meeting; we discussed the possibility of its being changed to Friday evening. She reported on our budget as follows. We have received a total of \$3,685 and have written checks for about \$2,100. They will hire a local teenager, plus another from Berkeley (recommended by Raeburn), who is experienced in telephoning, to call Lafayette residences during the dinner hour. She will also ask for more volunteers by posting a sign in the high school. She thinks we will require an additional \$500; she indicated that Raeburn's mileage costs were quite high. She said that she has mailed the materials to Deacon Anderson at Channel 2 Television. When I call him, I can indicate that their Community Affairs Director, Betty Ann Bruno, is aware of our campaign.

Jack Horton, Chairman of the Board of Southern California Edison Company, returned my call at 10:20 a.m. I described Jaime Merino's proposal for building a nuclear power plant in Baja California and Merino's desire to discuss with him and T. M. McDaniels, the President, a possible cooperative program with Southern California Edison. Horton indicated that he would probably want to have Bill Gould in on such a discussion and said that he will get in touch with Merino to arrange an appointment for sometime after the 1st of November. He said that they have had conversations for the past couple of years with two different groups concerning similar proposals and have done quite a bit of investigation on it. However, they have been running into the seismic problem and thus far have not found a suitable site in Baja. Sheila later called Merino to report on my conversation with Horton, including the earthquake problems. Merino noted that he would probably want to take Stanley Thompson with him to the meeting; Sheila indicated that this would be fine and he could mention this at the time of Horton's call to set the appointment.

I phoned Deacon Anderson (Editorial Director, KTVU, Channel 2 Television, Oakland) to solicit his support in connection with our Lafayette Bond election on open space. He suggested that they will probably endorse it and recommend a yes vote in their one-minute "KTVU Editorial" which will appear five times over a period of two days during prime times, probably during the week of October 29, so that they can provide the necessary 7-day lead period required for equal time. He had not yet received the mailing from Ann Chilcote; I promised that we would have something in his hands today. I inquired about the possibility of Wally Costa and me appearing on a show, and he will explore this with their Public Affairs person, Ian Zelick.

Colin Watanabe sent a message to my office, saying that he has turned in his application forms for admission to graduate work in the Department of Chemistry, has requested his transcripts, and three letters of recommendation will be forthcoming.

I left the office at 11:00 a.m. and drove to the Davis campus. On the way, I heard over the car radio that President Nixon has decided to release the Watergate tapes to Judge John Sirica. I also heard that Geoffrey Wilkinson is a co-recipient of the 1973 Nobel Prize for Chemistry.

Tuesday, October 23, 1973 (con't)

When I arrived at Davis, I drove to the Cyclotron Laboratory building, where I met Neal Peek (Assistant Professor of Physics), John Jungerman (Professor of Physics), and others. We walked across campus to the Faculty Club where we had a buffet lunch in the room next to the Library. Present were: Dean Lawrence J. Andrews, College of Letters and Science; Harold G. Reiber, Professor Emeritus of Chemistry (and Dean Emeritus of the Graduate Division); Thomas Allen, Chemistry; Tom Cahill, Physics; Jim Draper, Physics; John Jungerman, Physics; Bob Brinton, Chemistry; Gerd La Mar, Chemistry; Doug McCole, Chairman of Physics; Claude Meares, Chemistry; Jack Root, Chemistry; Paul Brady, Physics; and Neal Peek, Physics.

Peek told me that his beta spectrometer, which was originally as good as Jack Hollander's, has been disassembled due to lack of support and the solenoid part is now available should we want it. La Mar reminded me that Franz Lux had visited Davis two years ago when he spent two days and gave some talks. Brinton told me that his daughter Laurel, a junior at Davis, is living at Hammarskjold House.

After lunch, I walked back to the new wing of the Chemistry Building (which is also occupied by other disciplines) with Jack Root, who told me he obtained his Ph.D. at the University of Kansas, where he knew Vic Viola, and did some postdoctoral work with Libby at UCLA. I invited him to visit us at the LBL Nuclear Chemistry Division, which he will do. He is working in hot atom chemistry and photochemistry and showed me a couple of his large laboratories. Root told me that Tom Cahill is Director of the new Ecology Institute at Davis; he served as Acting Director of the Cyclotron Laboratory for one year during Jungerman's sabbatical.

We went to Root's office in the main Chemistry Building where we were joined by Claude Meares. Meares took his degree with Baldeschweiler at Stanford and has just been at Davis for a year; he spent some time at LBL working with Dave Shirley. They also told me that Doug McCole had spent six years at LBL (they said working with Perlman).

I then went to the office of Peter Rock, who got his Ph.D. at Berkeley with Dick Powell. He described to me his work on isotope exchange reactions. He measures such exchange reactions as  ${}^7\text{Li}(\text{s}) + {}^6\text{Li}(\text{aq.}) = {}^6\text{Li}(\text{s}) + {}^7\text{Li}^+(\text{aq.})$ . He measures the small millivolt potentials set up in electrical cells. He also works on exchange reactions such as  $\text{D}_2(\text{g}) + 2\text{HCl}(\text{g}) \rightarrow \text{H}_2(\text{g}) + 2\text{DCl}(\text{g})$ . I visited his laboratories to see the equipment, where I met Leonard F. Sylvester, the postdoctoral student who is working with him on this.

I then went to the office of Gerd La Mar, who works on magnetic resonance and related techniques for the determination of atomic structure. He used to work at the Shell Development Company Laboratory and while there worked with Streitwieser on the uranocene structure. He also worked with and is still working with Edelstein. They are presently collaborating on determining the structure of lanthanide biscyclooctatetraenyls.

Tuesday, October 23, 1973 (con't)

Dave Volman joined us and gave me a slide showing a special Mendeleev centennial 1969 stamp with interesting inscriptions concerning predictions of elements which had been altered.

We then went to the Physics Building, first to Peek's office and then, with Peek, upstairs to a room where coffee, tea and cookies were served, preparatory to my afternoon seminar. Here I met many faculty and graduate students. One of the graduate students was T. S. "Monte" Subramanian, who reminded me that I had met him during my visit to Bombay, where he heard my talk in January, 1967. Ray Kiefer, Chairman of the Chemistry Department, joined us here.

We then walked to Room 176 Everson Hall for my scheduled talk, "Recent Research in the Transuranium Elements," to the Joint Physics-Chemistry Department Colloquium. Eric attended the lecture and sat in the front row. I began my talk at 4:10 p.m., having been introduced by Neal Peek. Illustrated with slides, the talk was followed by a question period--in all lasting about 1-1/4 hours.

After my talk, Steve joined me--he had had a class until 5:00 p.m. and so had come just at the end of the talk. I talked to Gary Human of the Davis Enterprise and gave him a copy of my biography which had been promised to him by Sheila in their phone conversation this afternoon. A number of pictures were taken for the Enterprise.

We then went back to the Cyclotron Laboratory where Claude Meares showed Eric, Steve and me--accompanied by Jungerman--the apparatus he uses for analyzing air impurities collected on filter papers by bombarding them with helium ions in the cyclotron and detecting the induced x-rays with Kevex equipment. They were working on a sample of air from downtown Oakland at the time. Paul Brady also showed me his similar experiments for detecting impurities in water, also using Kevex equipment. I met F. Hegedus, who reminded me that he had met me during my visit to the Würenlingen Laboratory in Switzerland.

Steve, Eric and I then went to Hammarskjold House where I went up to see Eric's room (212). He and his roommate Bill Sprotte have made it into effectively a larger room by combining the beds into a bunk bed. I also met Steve's former roommate at Beckett Hall, Steve Belsley.

We then went down and met a group of students and Dr. and Mrs. San-Pao Li; he is in the Department of Anthropology and was there to hear my talk. Sally Bennett said she had been asked by Monti Reynolds to escort me to the Tercero Dining Hall, and here I had dinner at a table with Eric, Steve, Miss Bennett, Dr. and Mrs. Li, and Hammarskjolders David Wemmer (who told me he is going to start graduate work in Chemistry at Berkeley next quarter and will come and see me to talk about the possibility of working in the Nuclear Chemistry Division), Harvey Chinn and his father, Steve Hecht, Steve Morgan, Leslie Miller, and Bill Pianiste. Towards the end of the meal, Reynolds joined us, having had a little difficulty finding a projector carousel that would fit my thick 2" x 2" slides. We then walked back to Hammarskjold House where I met Ruthie Olson. The

living room was completely packed with people sitting on the floor and standing all the way through the two doorways. I was introduced by Monti and gave my talk, "Report on a Visit to the People's Republic of China," illustrated with slides, punctuated with questions throughout the talk at my request. It was very well received and ran about 1-1/4 hours.

After it was over, I was interviewed by Paulo Philo of the Davis Enterprise. I met Mike McBride, who said he had been in Oak Ridge for a while. After talking a little while with Eric, Steve, Ruthie, and their friend Janice, I drove back to Lafayette, arriving home a little after 10:30 p.m.

Wednesday, October 24, 1973 - Berkeley

I attended Professor Pimentel's Chem 1A lecture and went to David Shirley's office in Latimer Hall at his request. He said he had reflected on our conversation of Monday the 22nd and feels that he wouldn't want Harvey to be Director of the Nuclear Chemistry Division because we should consider a faculty member like Cerny more seriously. I said that there are some present problems of acceptability there also and that probably the best solution is not to take on this larger problem now but see whether Harvey would accept the Deputy Directorship on a half-time basis.

I walked up to the HILAC Building at 11:00 a.m. and met with Clarence Richardson, one of George Rogosa's associates in the Washington AEC; Ghiorso and Main were also present. We briefed him on the concept of the BEVALAC, progress to date and future schedule, after which we walked down to show him both ends of the connecting tube going through the hill from the SuperHILAC to the Bevatron. After I left around noon, Ghiorso and Main continued in their briefing of Richardson.

I had lunch in my office and then walked down to the campus at 1:00 p.m. to meet with my Chem 1A lab section in Room Y (actually Room 124 Lewis Hall) for the first time, where Barbara Baron is my Teaching Assistant. I stayed there until about 2:30 p.m. and then came back up the hill.

I called Alta Bates Hospital at 3:00 p.m. and was relieved to learn, by talking to Alice and Stan Thompson, that his operation yesterday turned out to be a successful and minor one.

Bernie Harvey met with me in my office at 3:30 p.m. He said that he has thought over the situation and feels now ready to accept the position of Deputy Director of the Nuclear Chemistry Division providing it can be on a less than fulltime basis. He would work up here in the mornings and stay as long as is needed to do the task. He would like to have a first-class administrative assistant/secretary, and I said I thought this could be arranged, although it might provoke some problems.

I received from Liu Jui-ting in Peking a letter (copy attached) acknowledging mine of August 16 and reflecting on our meeting in Mexico City.

## 中國科學院

10/24/73  
中國、北京  
PEKING, CHINA

ACADEMIA SINICA

Dr. Glenn T. Seaborg  
Lawrence Berkeley Laboratory  
University of California  
Berkeley, California 94720  
U.S.A.

October 19, 1973

Dear Dr. Seaborg:

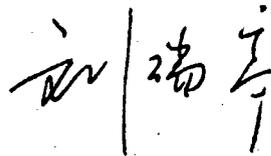
Thank you for your letter of August 16 as well as the picture enclosed.

We are greatly pleased to have the opportunity of meeting you in Mexico last time, by which the best friendship between us has already been established although time was quite short for us to get together with you. We hope that the scientific exchanges and friendly intercourse between the scientific workers of China and the United States will be further developed.

With best regards,

Yours sincerely,

Liu Jui-ting



I dropped by to see Norris and Binder and to discuss the status of their work.

At 4:00 p.m., Rasmussen came by; he said he favors Harvey to be Deputy Director of the Nuclear Chemistry Division and thinks a part-time basis is okay. I then saw Street and he said he favors Harvey and also thinks Diamond should be considered.

I drove down to the campus to hear Alvarez's talk on his visit to the People's Republic of China given in Room 1 Le Conte Hall. He showed an hour-long movie including many inside scenes taken with his Eastman movie camera with fast movie film (ASA 160). His movies are different from mine, emphasizing the non-scientific and cultural aspects--mine emphasize the people I met and a number of the scientific institutes I visited.

Suki and I took a hike to the water tank.

Thursday, October 25, 1973 - Berkeley - Santa Barbara.

From 9:30-10:30 a.m., I met in Ghiorso's conference room in the HILAC Building with the Planning Group. Present were Ghiorso, Matti Nurmi, Mike Nitschke, and Jose Alonso; Raunemaa also sat in on our meeting. The SuperHILAC is nearly ready to start up again but there is a pesky vacuum leak in Adam; a method for plugging the leak was discussed. We discussed possible thesis problems for Colin Watanabe and for Kim Williams if she decides to do her graduate work with me. We also discussed progress on designing a system for bombarding californium tetrafluoride with oxygen ions to look for the production of element 106.

After the meeting, I discussed with Ghiorso the status of Grunder joining him--this is still up in the air and the question of Grunder's potential authority with respect to debugging and operating the SuperHILAC is still a delicate one. I asked for summaries of the Users Program status and Eppley will prepare these.

I walked back down to my office in Building 70A, where I met with Earl Hyde. He and Andy returned last night from their visit to Washington AEC headquarters where they conferred with Hollingsworth, Teem, Wallenmeyer, Van Dyken, Jerry Johnson, Abbadessa, and many others on the LBL program and budget. Our request for \$2.4 million for the SuperHILAC has been reviewed with OMB and the prospects look good; the package also includes requests for heavy ion accelerators for ORNL and ANL. Teem still places highest priority on the SuperHILAC and next highest priority on the BEVALAC, so far as LBL operations are concerned. Because of this, Hyde said Sessler is going to ask me to serve on his Scientific Program Council.

I delivered to the Chemistry Department my evaluation of Colin Watanabe as a candidate for graduate study (copy attached).

At 11:45 a.m., Helen came by in the Bonneville and drove me to San Francisco International Airport (we left the station wagon parked at LBL which Helen will later exchange for the Bonneville, which Dave will use on Saturday), where I boarded Air West Flight No. 261. We

UNIVERSITY OF CALIFORNIA  
Department of Chemistry, Berkeley

REPORT ON CANDIDATE FOR GRADUATE STUDY

Name of Candidate..... Colin Kanji Watanabe.....

Report requested of..... Dr. Glenn T. Seaborg..... Date..... October 24, 1973.....

The Committee on Graduate Admissions would appreciate your opinion concerning the person named above, who is under consideration for admission to graduate work in chemistry, and for possible appointment to a teaching assistantship or fellowship in this department. What are your personal impressions of: (1) the candidate's character and personality, (2) his scholarship, (3) his capacity for graduate work and research in chemistry? A comparison of this candidate with other graduate students in this department whom you may have known would be particularly helpful to us. *Your report will be treated confidentially.*

Mr. Watanabe came to my attention when he applied for a position as a technician in the Nuclear Chemistry Division of the Lawrence Berkeley Laboratory. Upon looking at his background and his excellent scholastic record at UCLA, we felt that his ultimate potential would be greatly increased if he went on to graduate school to earn the Ph.D. degree.

I have talked to Watanabe several times and am very favorably impressed by his educational background, intelligence, and maturity. He has a very good gradepoint average and has taken the courses at UCLA which are of maximum value as preparation for graduate work in nuclear chemistry. In fact, he has an almost unique background in advanced chemistry courses and solid state electronics that would make him unusually well fitted for graduate work in our nuclear chemistry program. He would be working under my personal direction and I would be very pleased to have him as a student.

(Signed).....

Position or Title..... University Professor of Chemistry.....

Address..... University of California, Berkeley.....

Dated at Berkeley, California..... October 25 1973.....

Thursday, October 25, 1973 (con't)

left at 1:15 p.m. and arrived at Santa Barbara Airport at 2:00 p.m. I was met by Professor Glyn O. Pritchard, Chairman of the Department of Chemistry, University of California, Santa Barbara, and Professor Roger Millikan, Chemistry Department faculty (who obtained his Ph.D. at Berkeley in 1956 under Pitzer but also worked with Pimentel on laser problems and who spent about ten years with the General Electric Company before joining UC Santa Barbara).

They drove me to the Holiday Inn in Goleta, where I checked into Room 107, then to the UC Santa Barbara campus, where we went to the Physics Building to the office of Professor William Walker, Chairman of the Physics Department. Here I met Walker, Professor David Harris of Chemistry and the Quantum Institute (and who obtained his Ph.D. with Gwinn at Berkeley during 1961-65), and Professor Hal Lewis of the Physics Department (who obtained his Ph.D. in 1947 with Oppenheimer at Berkeley and Princeton and was discharged from his position at Berkeley in 1949 for refusing to sign the loyalty oath).

We then visited some laboratories on the third floor of the wing adjoining the Physics Building which houses the Quantum Institute. We went into the lab where I saw the work of Dr. Tanaka (a visiting professor from Japan), Bob Field (a postdoctoral), and Mike Revelli (a graduate student)--all working with Dave Harris on dye lasers. With these lasers, of energy 40-120 milliwatts, they study transitions in gaseous molecules such as BaO, CaF<sub>2</sub>(CaF), Sc<sub>2</sub>O<sub>3</sub>(ScO), etc. in a program of high resolution detailed spectroscopy.

We next visited some laboratories on the fourth floor where Professor Herbert Broida's research program is carried out (Broida was absent on a trip). In the first lab, Jay Ebersold, a graduate student, with a 10-12-year-old boy at work nearby, explained his work on the evaporation of small particles of such metals as Na and Zn from which light scattering from a xenon arc lamp was being measured.

In another room, Randy Jones, a visiting scientist from the Air Force, was measuring chemiluminescence from Ba-O vibrational (A-state) bands produced in a Ba + N<sub>2</sub>O (200°C) flame in an argon (8 torr) atmosphere. This has high efficiency and offers great hope for a visible chemical laser because they observe the highest quantum yield for any observations of this type.

In another lab, I saw the work on chemiluminescence of Bob Bradford, a graduate student, on Ba-F, Ba-Cl, Ba-Br, etc., vibrational bands produced in flames of Ba + F<sub>2</sub>, Ba + SF<sub>6</sub>, etc., in an argon atmosphere.

I then walked with Millikan to the nearby Chemistry Building (both the multi-story Physics and Chemistry Buildings were built in the 1960's) to visit Millikan's fourth floor lab. Here I saw his work on the infra-red fluorescence of CO (somewhat along the lines of Brad Moore's work at Berkeley). He observes collisional induced quenching. This work is applicable to a CO laser. We then visited the nearby lab of Mike Bowers (who was not present, obtained his Ph.D. at the University of Illinois) to see his apparatus and work with his Ion

Cyclotron Resonance Machine. Here I met graduate students Paul Chesnavich and Paul Kemper. We also looked into the nearby Microwave Resonance Laboratory of Dave Harris.

I then walked back to the Physics Building with Millikan and attended a coffee, tea and cookies reception preceding my scheduled talk. Here I met a number of students and faculty. This included an undergraduate student interested in biology named Mary Martini (who had lost one of her hands). I talked to David Caldwell (who had discussed this with me by phone) and Rollie Morrison about the problem of getting US and USSR permission for Moscow Lebedev Institute scientists to work on a joint project at the National Accelerator Laboratory at Batavia; the trouble arises from the jurisdictional disputes between the Academies of Science and the Atomic Energy Commissions.

We then walked to the adjoining Physics Auditorium where I gave to a full auditorium my talk, "Recent Research on the Transuranium Elements," illustrated with about 60 slides, followed by questions, including one on the fast breeder reactor. I was introduced by Hal Lewis and his references to my career enabled me to start with some jokes about my role as Faculty Athletic Representative, Chancellor, etc.

After my talk, I met Ted Donnelly (UCLA Chemistry Graduate of 1932 and now retired), who was very surprised that I remembered him, and Helen Silver, a member of the World Future Society whom I had met at the WFS First General Assembly in Washington in May, 1971.

I then walked over to the Faculty Club (a place with unusual architecture and no kitchen--the money ran out) where I attended a cocktail reception in my honor. Here I met Bill Palke (who is making atomic structure calculations and is interested in the calculations on the superheavy elements), Chancellor Vernon Cheadle (with whom I had a long talk about my career in Washington, re-entry to Berkeley as a professor, etc.), Executive Vice Chancellor John Snyder (who I later learned was Cheadle's choice and is not considered to be too competent), Dean of the Graduate Division Bob Collins, Dean of the College of Letters and Science (and member of the Chemistry Department), Bruce Rickborn, John Kennedy (Chemistry), Glenn Miller (polymer chemistry), Bob Eisberg (Physics), and Peter Ford (Chemistry), as well as Walker, Davis, Lewis, Pritchard, Harris, and Millikan.

After this, I rode with Millikan to downtown Santa Barbara, where I had dinner in the Casa Madrid Restaurant with Pritchard, Lewis, Harris, and Millikan. The conversation ranged around the Watergate affair--all are outraged at the recent firing of Archibald Cox--and the administration at UC Santa Barbara (some dissatisfaction was indicated), the support of science, etc. After dinner, Millikan drove me back to the Holiday Inn.

Friday, October 26, 1973 - Santa Barbara - Berkeley

I had breakfast in the Holiday Inn coffee shop, paid my bill, and was met by Millikan who drove me to the Santa Barbara Airport. (He is a grand nephew of Robert A. Millikan, whom he met only once or

Friday, October 26, 1973 (con't)

twice.) He suggested that I should visit UC Santa Barbara again, perhaps later this academic year, to meet with students and lecture to the freshman chemistry class. I boarded United Airlines Flight No. 800, which left at 8:00 a.m. and arrived at San Francisco International Airport at 8:50 a.m. Helen met me and drove me to LBL.

As soon as I arrived at my office, Norman Edelstein came in and talked with me about the Deputy Directorship of the Nuclear Chemistry Division. He indicated that he favored either Harvey or Cerny and raised the question of a Co-Directorship arrangement.

I went by to see Frank Stephens, and he indicated that his choice would lie between Street and Harvey. I dropped by to see Street to see whether he would be interested in the job and he indicated that he would not, that he would want to devote fulltime to his research.

Hyde and I talked with Asaro about the question that has arisen regarding the nuclear theory group moving into his space with the possibility that he and his group move to Rooms 145 and 157 in Building 70. Although not too happy with the prospects, he is willing to consider it, and I brought him down to explore it further with Norman Glendenning.

I met with Andrew Sessler and Earl Hyde, and we discussed further the membership of the Scientific Program Council (which is the Director's advisory council). They feel that I should be on the Council in order to represent the heavy ion program, particularly as it pertains to the SuperHILAC, and the Nuclear Chemistry theoretical group--and therefore I said I would serve.

Les Sipes of the Walnut Creek office for the Oakland Tribune phoned me at 11:30 a.m. for information about the Lafayette open space bond election. I indicated that we feel that this is one of the last chances to save the existing ridge lands for open space and that it is important that we do this to maintain the quality of life there. I noted that we find it may also pay off financially for the city. In response to his questions, I said that we have in mind a park-to-park concept with a green belt from Briones to Las Trampas Regional Parks--through Lafayette using the Sacramento Northern right-of-way. I also described the help we anticipate from the East Bay Regional Park District and my role in the EBRPD Citizens Task Force.

I talked with Luciano Moretto at 11:45 a.m. about the Deputy Directorship of the Nuclear Chemistry Division, and he first favored Street, Poskanzer, Diamond, and Harvey; but, after we discussed availability and other factors, he tended to go along with Harvey.

I had lunch in my office, then went down to the meeting of the Chem 1A teaching staff in 406 Latimer Hall.

After I returned to my LBL office, at 2:15 p.m., I called Bernard Harvey to inform him that my discussions concerning the Deputy Directorship of the Nuclear Chemistry Division led generally toward him. Bernie was pleased and indicated that he was ready to start

work. I asked him whether he wanted to have David Hendrie appear on the organization chart as Director of the 88" Cyclotron; he said he would but that he would like to feel out the rest of his key people before deciding definitely, which he will begin to do immediately.

I mentioned to him some of the problems facing us, such as: the need to go into a vigorous program in Energy and Environment, with which he said he agrees; the need to find an actinide chemist to bolster the Edelstein-Parsons-Streitwieser-Raymond-Ghiorso program, with which he agreed; and the space problem for the theoretical group involving a possible shift of Frank Asaro's work.

I then met with Eileen Eiland and told her about Hyde's new position and replacement by Harvey and discussed with her the secretarial adjustments that will have to be made.

At 2:45 p.m., I discussed with Jens Kratz my reply to John Unik's letter of October 15 (correspondence attached). In the course of this discussion, Jens told me that he has accepted the position at GSI--a three year appointment in lieu of an Assistant Professorship at the University of Mainz. He said that he is scheduling to start there in June but could remain here another month, or two or three, if the work required it.

I sent to Leonard Rieser, Roger Revelle and Bill Bevan the letter I had received from Ludwig Biermann, which is a step in our efforts in the international area (copy attached). I sent individual letters, asking them to write the Max C. Fleischmann Foundation in support of our AAAS request for funding a headquarters building, to James Conant (copy attached), Henry Eyring, Don Price, Emilio Daddario, John Knowles, and Detlev Bronk.

Bernie Harvey came up and had a cup of tea with me in my office at 3:15 p.m. We reviewed with Eileen Eiland our needs for him in terms of clerical support.

Suki and I took a hike to the water tank. I attended a meeting of the Lafayette SOS committee in the ticket office of the Lafayette Town Hall. Present were Bill and Ann Chilcote, Lloyd Townley, Charles and Mary Busso, Al Raeburn, Rick Ellis, Alice Johnson, George Ponomareff, and Bob Gilliland. We followed the attached agenda, with much discussion of use of newspaper ads.

When I returned home, I learned from a phone conversation with Bob Kramer that the Lafayette Junior Chamber of Commerce has voted to support the Lafayette Open Space bond election.

Saturday, October 27, 1973 - Oakland - Lafayette - Berkeley

Helen, Dianne, Cathy Sherman, and I drove to the Skyline Boulevard gate of Redwood Regional Park to meet a Sierra Club group for a hike south along the regional trail through Redwood Regional Park and Chabot Regional Park to the Willow Park Golf Course. Although the group (led by Don de Fremery) had already started when we arrived a little late at 8:50 a.m., we, along with Manda Bacon (who taught music at YMCA College in Chicago in 1940-45 and at UC Berkeley) and Carol



ARGONNE NATIONAL LABORATORY

October 15, 1973

1575 10/19/73

Dr. Glenn T. Seaborg  
Chemistry Division  
Lawrence Berkeley Laboratory  
University of California  
Berkeley, California 94720

Dear Glenn:

We have not had an occasion to discuss Argonne's further participation in the SHEIKS program for quite some time, primarily due to the difficulties experienced by the Super-HILAC in achieving fully operational beams of krypton or heavier projectiles. However, since several experiments are now being performed with the steadily improving krypton beams, we would like to renew our direct participation in the SHEIKS collaborative program.

One aspect of the SHEIKS program, the radiochemical search for short-lived super-heavy elements, seems to be on a firm footing at this time. As you know, Phil Horwitz from our laboratory has spent quite some time with Bob Silva, Kratz and Liljenzin developing the chemical separation scheme to be used which is primarily based upon the liquid-liquid extraction chromatographic system developed by Horwitz. I understand that he has also supplied the others with all the necessary experimental details as well as pre-calibrated chromatographic columns. Once searches for short-lived activities begin on a full-scale basis, Horwitz and others from our laboratory can travel to Berkeley to analyze targets from specific irradiations in collaboration with the other persons involved.

We would also like to begin work on another aspect of the SHEIKS program - the search for long-lived super-heavy elements. As we had discussed earlier, it is in this area that we at Argonne can make a strong contribution to the collaborative effort. By analyzing irradiated targets at Argonne, we can most effectively use the large number of researchers as well as the wide variety of highly sophisticated experimental counting equipment that we have available at Argonne. We sent a  $^{238}\text{U}$  target to Al Ghiorso in May for a short irradiation. A copy of the letter accompanying the target was sent to you at that time. Al Ghiorso told me that he would not irradiate the target before discussing the matter with you. Our target is still at the HILAC and we still would like to have an irradiation. Even a rather short irradiation of  $\approx$  8 hours

XC: Ghiorso  
Kratz

Dr. Glenn T. Seaborg

-2-

October 15, 1973

with the krypton beam currents that have been available in the past would be quite meaningful to us. With the first irradiated target, we would like to go through our extensive chemical separation procedure as a final check of the entire system - checking separation factors, interfering backgrounds, etc. We will count the super-heavy fractions. In spite of the anticipated low-beam currents in this first irradiation, we will be able to establish meaningful upper limits on production cross sections. We would also like to measure or set limits on the yields of many actinide isotopes produced. The last time I talked with Kratz in August, he told me that the heaviest isotope identified at LBL was  $^{239}\text{Np}$  and that there was no work done on heavier actinides. Therefore, our measurement of the yields of higher actinides would be complementary to the work at LBL. Also, we could measure additional fission or stripping cross section yields to add to your work if you feel this would be of value. As I mentioned in my letter of May 31, we would like to obtain a  $\approx$  8-hour irradiation with the highest krypton beam currents available. Even an integrated  $\geq 5$  particle-nanoampere-hours would be useful to us. We, of course, would have to work out a detailed time schedule to have the end of irradiation compatible with a convenient flight departure from Oakland or San Francisco to Chicago in order to be able to look for relatively short-lived activities with half-lives in the range of hours.

We at Argonne have been anticipating these collaborative experiments for several years now and are, of course, quite ready and anxious to begin. I hope to hear from you soon regarding this first irradiation.

Sincerely yours,



John P. Unik  
Chemistry Division

JPU:st

cc: P. R. Fields  
E. P. Horwitz

## LAWRENCE BERKELEY LABORATORY

UNIVERSITY OF CALIFORNIA

BERKELEY, CALIFORNIA 94720 □ TEL. (415) 843-2740

October 26, 1973

Dr. John P. Unik  
Chemistry Division  
Argonne National Laboratory  
9700 South Cass Avenue  
Argonne, Illinois 60439

Dear John:

This is in reply to your letter of October 15, 1973.

It is unfortunately premature to try to schedule an 8-hour irradiation with krypton ions of an integrated intensity  $> 5$  particle-nanoampere-hours. Jens Kratz and Jol Liljenzin have succeeded in obtaining during the last four months only a total of about 5 hours of 0.1 particle-nanoamperes of krypton ions.

I would still hope that when the Superhilac begins to operate with some reliability, we could have an integrated SHEIKS program in order to avoid duplication, because it is obvious that bombardment time will be at an extreme premium. This would best be accomplished, at least at the beginning, if Horwitz could spend some time at Berkeley, to take place when operation of the Superhilac permits more certainty in scheduling.

With best regards,

Cordially,

Glenn T. Seaborg

GTS/sms

cc: Paul R. Fields  
E. Philip Horwitz

bxc: Albert Ghiorso  
Jens Kratz, et al.

*American Association  
for the Advancement of Science*

GLENN T. SEABORG  
Chairman, Board of Directors

LAWRENCE BERKELEY LABORATORY  
UNIVERSITY OF CALIFORNIA  
BERKELEY, CALIFORNIA 94720

October 26, 1973

Leonard Rieser  
Roger Revelle  
William Bevan

I am enclosing a letter from Professor Ludwig Biermann (discoverer of the solar wind and Professor at the Institute for Astrophysics of the Max Planck Institute in Munich). He is referring to a conversation I had with his wife during a luncheon I had with her and Mrs. Seaborg here at the University last month.

My contact with the Biermanns emanates from the fact that their son is married (the wedding was performed in our home) to the sister of my son-in-law--if you can figure that one out.

This may open some new possibilities.

Cordially,

Glenn T. Seaborg

GTS/sms

Enclosure

## MAX-PLANCK-INSTITUT FÜR PHYSIK UND ASTROPHYSIK

INSTITUT FÜR ASTROPHYSIK

Prof. Dr. L. Biermann

Prof. Dr. Glenn T. Seaborg  
 University of California,  
 Dept. of Chemistry,  
Berkeley, Calif. 94720  
 U S A

8 MÜNCHEN 40, October 17, 1973

FÖHRINGER RING 6  
 TELEFON 327001-07  
 TELEGRAMMANSCHRIFT:  
 PHYSASTROPLANCK-MÜNCHEN  
 TELEX: 5215619  
 POSTFACH 401212

*10/24/73*

L J

Dear Dr. Seaborg,

From my wife I got your note mentioning your conversation with Dr. Raupach, President of our Bavarian Academy, and professor of economics and social structure of Eastern Europe at Munich University, and his comments on the role of the "Gesellschaft Deutscher Naturforscher und Ärzte" on one hand, and of the "Deutsche Akademie der Naturforscher LEOPOLDINA" at Halle/Saale (GDR) on the other, in relation to the American Association for the Advancement of Science.

At the meeting of the LEOPOLDINA last week I had a short discussion with its president, Dr. K. Mothes. When I mentioned your name he appeared to recall an earlier attempt of his to get into closer contact with you, which according to his recollection did not succeed, possibly because at that time you were still chairman of the Atomic Energy Commission. I told Dr. Mothes that on the basis of what my wife had reported on your discussion with her, that I would assume that by now you would welcome another attempt to get into closer contact. I asked him whether SCIENCE was available to him (I could not have brought the reprint of your article to Halle myself, since this is strictly forbidden), and after he said it is I mentioned your address as retiring president of the AAAS, contained in the issue of July 6 of this year.

*AC 10/24/73: L. Rieser  
 R. Revelle  
 W. Bevan*

I suggested that it contains some considerations which you would like him to give a little bit of attention to.

With best regards to you and to your wife, also from Ilse,

yours

Henry D. ...

*American Association  
for the Advancement of Science*

GLENN T. SEABORG  
Chairman, Board of Directors

LAWRENCE BERKELEY LABORATORY  
UNIVERSITY OF CALIFORNIA  
BERKELEY, CALIFORNIA 94720

October 26, 1973

Dr. James B. Conant  
200 East 66th Street  
New York, New York 10021

Dear Jim:

As the AAAS plan for a new building moves ahead, I am beginning to contact major foundations for support. We are now in the process of applying to the Max C. Fleischmann Foundation for a grant of \$1 million. A copy of our grant request letter is enclosed.

I am writing to ask if you would send a supporting letter to Julius Bergen at the Foundation. You would, of course, want to identify your relationship with the AAAS, but the letter essentially should be couched in the language of an independent observer. The letter might include an expression of esteem for the AAAS and its particular desire to increase the service of science to society.

If you are willing to do this, could you also send me a copy for our files?

I appreciate very much your helping us on this.

With warm regards,

Cordially,

Glenn T. Seaborg

GTS/sms

enc.

bxc: W. Golden  
L. Rieser  
W. Bevan  
F. Freeman

AGENDA OCT 26, 1973

- PRESENTATIONS ALCALINES, BORTON SPRINGHIA
- OPPOSITION
- ADVERTISING
- QUESTIONS & ANSWERS
- BUDGET
- ALICE/RICK
- AL RAEBURN
- TV
- SATURDAY & SUNDAY EFFORTS
- POST CARDS
- NEWSPAPERS (WHITINGHOUSE - TIMES)
- LETTERS
- PRIMER SERIES
- NEW MUSIC

Pulcifer (retired from the Oakland City Recreation Department), caught up with the main group in about two hours. Those in the hiking group are named on the attached list.

Florence Eisman, Clark Kerr's former secretary when he was Chancellor and now working with him at the Carnegie Commission on Higher Education, greeted us and left the group at this point to return to the starting point. We hiked to the Big Trees Camp where we all ate the lunches we had carried in our knapsacks, other bags, etc. We then continued on to the Willow Park Golf Course, about 14 miles in all, where we arrived at 4:00 p.m. and had some cold drinks furnished by Don de Fremery, then returned to the Skyline entrance to the Redwood Regional Park in cars that had been parked there. Cathy Sherman and I rode with Charles Boige (who works as controller in a San Leandro electronics firm).

It was a fine day throughout. Judy Sheppard wants to attend my talk on China to the Contra Costa Park Council and may get in touch with us about it. Helen, Dianne, Cathy, and I rode back home, arriving at 5:15 p.m.

Helen and I went to dinner at the Sesslers in Berkeley. Present, besides Andy and Gladys Sessler, were Helen Shevil, Dr. and Mrs. David Jackson, Dr. and Mrs. Bernard Harvey, Dr. and Mrs. Herbert Steiner, and Dr. and Mrs. Geoffrey Chew (and their one-month old son Pierre-Yves). I also met and talked with two of the Sessler children, Dan and Ruth. Dan and his brother Jonathan are students at UC Berkeley, Ruth a junior at Berkeley High School.

Sunday, October 29, 1973 - Berkeley - San Francisco - Lafayette

I hoed weeds on our field, cleaning up a few remaining spots, for about an hour in the morning.

I drove in to the Berkeley campus for my talk at the Campus Open House in Wheeler Auditorium, scheduled for 1:00 p.m. As I entered Wheeler, I met Christine Haselden Kelly, whom I had last seen in the fall of 1942, 31 years ago. She told me she had a stroke about ten years ago which has affected her walking a little. She retired about five years ago after working at the Pacific Telephone Company for 38 years (working for the same man the whole time). She looked fairly well and hadn't aged too much.

As the first speaker on the afternoon program, I was introduced by Professor Jerry F. Thomas, Co-Chairman of the Open House. I spoke for thirty minutes on "The Energy Problem and Science," billed as "Can Science Solve the Energy Crisis?" My talk was illustrated with about 25 slides. The auditorium was nearly full and the talk was well received (program attached).

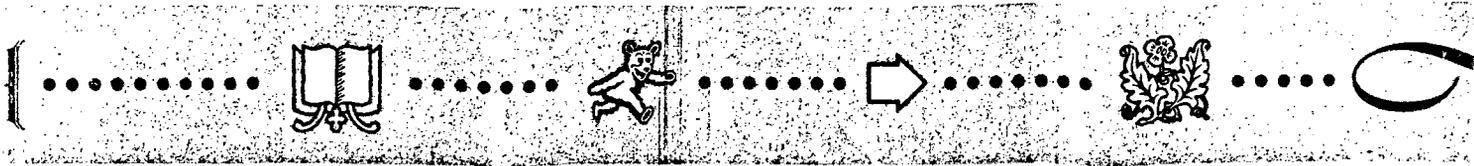
Before my talk, Thomas said he has become acquainted with David from seeing him at a lecture series and has asked him to serve as a student member of the lecture committee. The campus was teeming with activity, including about 15,000 visitors and motor-driven San Francisco cable cars.

# St. Mt. Diablo Group S/C

## Day Hiking Sign-up sheet

Down de  
Full '73  
Exp '73  
Hubot  
1/1 Rec  
Trail

NAME, ADDRESS, PHONE	MEMBER?	WISH TO JOIN	WHERE DID YOU LEARN OF HIKING?
Charlotte Watson 651 Moraga Rd Moraga 376-7880	yes		member
H. Robt. Funk 566 42nd Ave San Francisco Ca 94121 751-1359	YES		Yodler
Charles Boyle 879 Moraga Dr San Leandro 357-0495	yes		
Bill King 915 Alhambra Blvd. Oakland 591-3182	No		leader
OTTO HANSEN 214 Greenwood Dr. 931-2600	YES		Y. OLSON D. de F.
Jean Wellman 5951 Dam Rd. 223-0766	yes		
Bob Watson 36 arden Dr Sue Watson Orinda 254-4077	yes		Pipe line
Bill Satter 4050 Colton Ave Berkeley 845-1234	yes		
HAROLD ANDERSON	YES		SIERRA'S
Maria Hardy	yes		Yodler
Elmmer Freeman	"		"
Elizabeth Mitchell		yes	
Orin Hallander	yes		Yodler
Neil Southwick	yes		"
Bill Ebert	yes		EBRPD
WMA OLSON	no		Yodler
Jody Sheppard	yes		"
Carol Pulcafer	yes		Friend + Yodler
Carol Thompson	no		EBRPD



## TOURS, TALKS

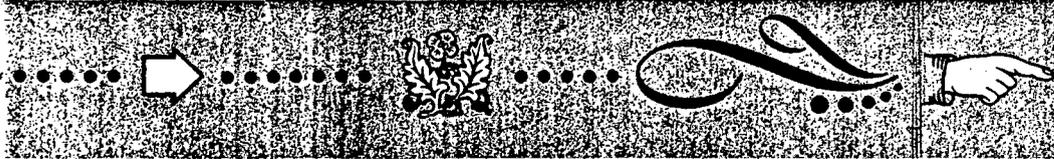
- NOON** Opening Ceremony, Sproul Plaza  
Cable Cars begin running, Sproul Plaza  
Mini-tour of exhibits, Lowie Museum
- 12:30** Mini-tour of Native California Plants, Botanical Garden  
Mini-lecture on archaeology, Lowie Museum  
Mini-tour of exhibits, Lowie Museum
- 1 p.m.** "Can Science Solve the Energy Crisis?", talk by Prof. Glenn Seaborg, Wheeler Auditorium  
Mini-lecture, Art Museum  
Mini-tour of exhibits, Lowie Museum
- 1:30 p.m.** "Natural Selection and Survival of the Fittest," movie and talk by Prof. Richard Eakin, Wheeler Auditorium  
Mini-lecture, Art Museum  
Mini-tour of succulent plant collection, Botanical Garden  
Mini-tour of exhibits, Lowie Museum  
Mini-lecture on archaeology, Lowie Museum
- 2 p.m.** Mini-lecture, Art Museum  
"Contemporary China," an illustrated lecture, Alumni House  
"Alcohol, Our Number One Drug Problem," lecture by Dr. H. Kregel, Wheeler Auditorium

## DANCE, DRAMA, MUSIC, SPORTS

- UC Jazz Ensembles' "Big Band Sound," Sproul Plaza
- Pipe Organ recital and demonstration by Lawrence Moe, Hertz Hall  
Jazz concert, UC Jazz Ensembles, Alumni House
- Gymnastics: Six-time Conference champs show how it is done, Harmon Gymnasium  
Live Concert of East Indian music, Lowie Museum  
Production rehearsals of Giraudoux's *Electra*, Polish absurdist *Tango*, Zellerbach Playhouse  
Open rehearsal by UC Symphony, Hertz Hall
- Production rehearsals of *Electra*, and *Tango*, Zellerbach Playhouse  
Gymnastics: Six-time Conference Champs show how it is done, Harmon Gymnasium  
Open rehearsal by UC Symphony, Hertz Hall  
Folk dancing, Kroeber Plaza
- Musical event: Francisco and his "Cosmic Beam," Art Museum  
Play basketball with the 1973 Bears, Harmon Gymnasium  
Folk Dancing, Kroeber Plaza  
Dramatic improvisations and scene studies, Zellerbach Playhouse

## SCIENCE IN ACTION

- Public Computer Use, Law Science
- Automated anatomy-physiology Hall of Science  
Chemistry experiments with tel, Frank Irvin, and Curtis f. Sciences Lecture Hall  
12:50 Glassblowing by Albert Sciences Lecture Hall
- How to Plant a Terrarium, E Science demonstrations, Law Science
- Planetarium Program, Lawrence  
Chemistry experiments with tel, Frank Irvin, and Curtis f. Sciences Lecture Hall  
1:50 Glassblowing by Albert Sciences Lecture Hall
- How to Plant a Terrarium, Law Science Demonstrations, Law Science



# Schedule

## ANCE, DRAMA, MUSIC, SPORTS

Jazz Ensembles' "Big Band Sound,"  
Kroeber Plaza

Organ recital and demonstration by  
Lawrence Moe, Hertz Hall

Concert, UC Jazz Ensembles, Alumni  
Center

Gymnastics: Six-time Conference champs  
show how it is done, Harmon Gymnasium

Concert of East Indian music, Lowie  
Museum

Production rehearsals of Giraudoux's *Electra*,  
Zellerbach Playhouse  
Production rehearsal by UC Symphony, Hertz Hall

Production rehearsals of *Electra*, and *Tango*,  
Zellerbach Playhouse

Gymnastics: Six-time Conference Champs  
show how it is done, Harmon Gymnasium

Production rehearsal by UC Symphony, Hertz Hall

Ballroom dancing, Kroeber Plaza

Special event: Francisco and his "Cosmic  
Dance," Art Museum

Basketball with the 1973 Bears, Harmon  
Gymnasium

Dancing, Kroeber Plaza

Comedic improvisations and scene studies,  
Zellerbach Playhouse

## SCIENCE IN ACTION

Public Computer Use, Lawrence Hall of  
Science

Automated anatomy-physiology model, Law-  
rence Hall of Science

Chemistry experiments with George Pimen-  
tel, Frank Irvin, and Curtis Bowers, Physical  
Sciences Lecture Hall

12:50 Glassblowing by Albert Drasky, Physi-  
cal Sciences Lecture Hall

How to Plant a Terrarium, Botanical Garden  
Science demonstrations, Lawrence Hall of  
Science

Planetarium Program, Lawrence Hall of Sci-  
ence

Chemistry experiments with George Pimen-  
tel, Frank Irvin, and Curtis Bowers, Physical  
Sciences Lecture Hall

1:50 Glassblowing by Albert Drasky, Physical  
Sciences Lecture Hall

How to Plant a Terrarium, Botanical Garden  
Science Demonstrations, Lawrence Hall of  
Science

## MOVIES

"Dough and Dynamite" (Charlie Chaplin,  
1914), 155 Dwinelle Hall

"The Golf Specialist," "The Dentist" (W. C.  
Fields), 145 Dwinelle Hall

"Ishi in Two Worlds," Lowie Museum

"His Trysting Place" (Charlie Chaplin, 1914),  
155 Dwinelle Hall

"The Barber Shop" (W. C. Fields), 145 Dwi-  
nelle Hall

"Nuclear Fingerprinting of Ancient Pottery,"  
Lowie Museum

"The Champion," "The Tramp" (Charlie  
Chaplin, 1915), 155 Dwinelle Hall

Betty Boop cartoons, 145 Dwinelle Hall

"Unseen World," "Leaf," Lawrence Hall of  
Science

"Chemistry and Chemical Engineering,"  
Physical Sciences Lecture Hall

"Ishi in Two Worlds," Lowie Museum

"President Kennedy at UC, 1962," "Basin  
Street," Pacific Film Archive

"The Band" (Charlie Chaplin, 1915), 155  
Dwinelle Hall

Roadrunner cartoons, 145 Dwinelle Hall

"Nuclear Fingerprinting of Ancient Pottery,"  
Lowie Museum

"The Floorwalker," "One A.M." (Charlie  
Chaplin, 1916-17), 155 Dwinelle Hall

"Ishi in Two Worlds," Lowie Museum

"LHS Story," a multi-media short, Lawrence  
Hall of Science

"Ho! Polloi" (Three Stooges), 145 Dwinelle  
Hall

"Chemistry and Chemical Engineering,"  
Physical Sciences Lecture Hall

# and Events



## TOURS, TALKS

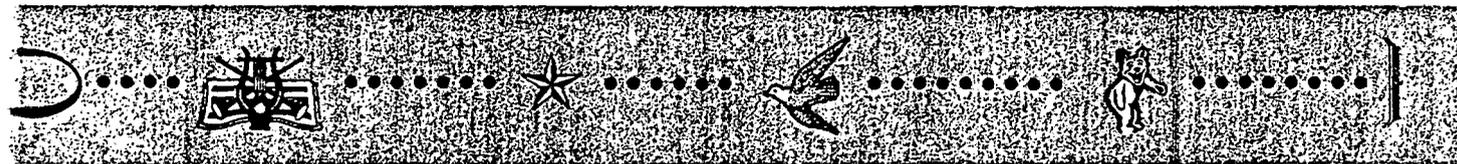
- 2:30 p.m.** "The Golden Gate and Other Famous Bridges on Stamps," illustrated talk by Prof. John Lysmer, Wheeler Auditorium  
 Mini-tour of native California plants, Botanical Garden  
 Mini-lecture, Art Museum  
 Mini-tour of exhibits, Lowie Museum  
 Mini-lecture on archaeology, Lowie Museum
- 3 p.m.** "Folklore in the Modern World," lecture by Prof. Alan Dundes, Wheeler Auditorium  
 Mini-lecture, Art Museum
- 3:30 p.m.** "Everyday Lessons From the Stars," an illustrated talk by Prof. David Cudaback, Wheeler Auditorium  
 Tour of herb collection, Botanical Garden  
 Mini-lecture, Art Museum  
 Mini-tour of exhibits, Lowie Museum  
 Mini-lecture on archaeology, Lowie Museum
- 4 p.m.** "25 Years' Evidence of Unidentified Flying Objects," an illustrated talk by Prof. James A. Harder, Wheeler Auditorium  
 Mini-lecture, Art Museum  
 Last Cable Car tour begins

## DANCE, DRAMA, MUSIC, SPORTS

- Dramatic Arts scene rehearsals, Zellerbach Playhouse  
 Play basketball with the 1973 Bears, Harmon Gymnasium
- Demonstration/performance by Bay Area Repertory Dance Theatre, Zellerbach Playhouse  
 Fashion show with African designs and textiles, Alumni House  
 Cal women's volleyball team vs. Oakland Y team; clinic, Harmon Gymnasium  
 Live Concert of East Indian music, Lowie Museum  
 Musical Event: Francisco and his "Cosmic Beam," Art Museum  
 Pipe Organ Recital and Demonstration by Lawrence Moe, Hertz Hall  
 Folk Dancing, Kroeber Plaza
- Olympic Winner Eddie Hart, Head Coach Erv Hunt, and other Cal athletes compete, hold clinic for young track hopefuls, Edwards Stadium  
 Open rehearsal of Stravinsky's "Les Noce," Hertz Hall  
 Folk Dancing, Kroeber Plaza
- "Stage Fighting," Zellerbach Playhouse  
 Olympic Winner Eddie Hart, Head Coach Erv Hunt, and other Cal athletes compete, hold clinic, Edwards Stadium

## SCIENCE IN ACTION

- "Chemistry of Change" (reactions), talk by Ken DiVitto, School of Science  
 Chemistry experiments with metal, Frank Irvin, and Curtis B. Sciences Lecture Hall  
 2:50 Glassblowing by Albee, Sciences Lecture Hall
- Science Demonstrations, Science  
 Tips on Plant Propagation
- Planetarium Program, Lawrence  
 Chemistry experiments with metal, Frank Irvin, and Curtis B. Sciences Lecture Hall  
 3:50 Glassblowing by Albee, Sciences Lecture Hall
- Teachers' Special on Science, Botanical Garden  
 Science Demonstrations, Science



## ANCE, DRAMA, MUSIC, SPORTS

atic Arts scene rehearsals, Zellerbach  
house

basketball with the 1973 Bears, Harmon  
nasium

onstration/performance by Bay Area  
ertery Dance Theatre, Zellerbach Play-  
se

ion show with African designs and tex-  
s, Alumni House

women's volleyball team vs. Oakland Y  
n; clinic, Harmon Gymnasium

Concert of East Indian music, Lowie  
useum

ical Event: Francisco and his "Cosmic  
m," Art Museum

Organ Recital and Demonstration by  
rence Moe, Hertz Hall

Dancing, Kroeber Plaza

mpic Winner Eddie Hart, Head Coach Erv  
nt, and other Cal athletes compete, hold  
ic for young track hopefuls, Edwards  
adium

on rehearsal of Stravinsky's "Les Noce,"  
tz Hall

Dancing, Kroeber Plaza

age Fighting," Zellerbach Playhouse  
mpic Winner Eddie Hart, Head Coach Erv  
nt, and other Cal athletes compete, hold  
ic, Edwards Stadium

## SCIENCE IN ACTION

"Chemistry of Change" (with demonstra-  
tions), talk by Ken DiVittorio, Lawrence Hall  
of Science

Chemistry experiments with George Pimen-  
tel, Frank Irvin, and Curtis Bowers, Physical  
Sciences Lecture Hall

2:50 Glassblowing by Albert Drasky, Physical  
Sciences Lecture Hall

Science Demonstrations, Lawrence Hall of  
Science

Tips on Plant Propagation, Botanical Garden

Planetarium Program, Lawrence Hall of Sci-  
ence

Chemistry experiments by George Pimentel,  
Frank Irvin, and Curtis Bowers, Physical Sci-  
ences Lecture Hall

3:50 Glassblowing by Albert Drasky, Physical  
Sciences Lecture Hall

Teachers' Special on Outdoor Education,  
Botanical Garden

Science Demonstrations, Lawrence Hall of  
Science

## MOVIES

"The Pawnshop" (Charlie Chaplin, 1916-17),  
155 Dwinelle Hall

"Dogs Is Dogs," "Pay as You Exit," "Rushin  
Ballet" (the Little Rascals), 145 Dwinelle Hall

"Nuclear Fingerprinting of Ancient Pottery,"  
Lowie Museum

"Ishi in Two Worlds," Lowie Museum

Porky Pig, Daffy Duck Cartoons, 145 Dwinelle  
Hall

"President Kennedy at UC, 1962," "Basin  
Street," Pacific Film Archive

"The Rink," "The Cure" (Charlie Chaplin,  
1916-17), 155 Dwinelle Hall

"Chemistry and Chemical Engineering,"  
Physical Sciences Lecture Hall

"Easy Street" (Charlie Chaplin, 1916-17), 155  
Dwinelle Hall

Woody Woodpecker, Bugs Bunny cartoons,  
145 Dwinelle Hall

"Unseen World," "Leaf," Lawrence Hall of  
Science

"Nuclear Fingerprinting of Ancient Pottery,"  
Lowie Museum

"The Adventurer" (Charlie Chaplin, 1916-17),  
155 Dwinelle Hall

"Brats," "Another Fine Mess" (Laurel and  
Hardy), 145 Dwinelle Hall

"Ishi in Two Worlds," Lowie Museum

"Chemistry and Chemical Engineering,"  
Physical Sciences Lecture Hall

After my lecture, I drove in the Bonneville to Candlestick Park in San Francisco to see the San Francisco 49ers-Atlanta Falcons football game. I arrived just as the second half was starting and joined Helen, who had driven over in the station wagon, and Bill and Carol Dauben who were there as our guests. The Falcons won, 17-3.

Helen and I drove home separately. I hoed weeds in our field for another hour. Helen, Dianne and I had dinner in the play room in front of the TV. During the evening, I went over Chem 1A material.

Monday, October 29, 1973 - Berkeley

I called Jack Winchester in Tallahassee, Florida at 8:45 a.m. and invited him to serve on the Outside Review Committee for the Nuclear Chemistry Division at LBL, which he said he would be glad to do. I indicated that the committee will meet only once a year for a two-day meeting here in Berkeley and that the first meeting will be in February, 1974. He asked me to let him know by the end of November the exact day of that meeting.

I walked down to the campus to hear Pimentel's Chem 1A lecture, then walked back up to my office to go over correspondence and make phone calls.

Molly Reeves called and invited me to participate in a three-day (two night) field trip into the Volpe-Wauhab area over Thanksgiving weekend. They will probably assemble at Sunol. I asked her to keep me posted as the plans develop but expected that I will not be able to join them.

I called Andy Sessler at 10:50 a.m., as he had requested, to discuss the draft of the memorandum on changes in the LBL administration which he will issue on November 1. I indicated that my only question had to do with his mentioning John Porter in the way that he did (that is, as an assistant to Pappas). We agreed that the appointment of Hermann Grunder as Bevatron Group Leader is probably consistent with his future broader responsibilities and that a change would be required at that time. Andy thanked me for the remarks I had made in connection with the Laboratory at the beginning of my talk at the Cal Open House on Sunday, which his wife Gladys had heard.

I walked back down to the campus to hold my office hour in 446 Latimer Hall. I had lunch in the Howard Room with the Chem Department faculty. I then taught my Chem 1A lab section in Room M from 1:10-2:45 p.m., then walked back up the hill to my office.

I asked Jane Kingston if she would like to stay on with me to help with some of my writing projects when her work with AAAS is finished next March, and she indicated that she would.

Frank Asaro came in at 3:15 p.m. to talk about the move we have requested that he make in order to accommodate the theoretical group in his present space. He said that, while not relishing the move, he would be willing to move in view of the manifest need of the theoretical group. He would prefer to move into Room 158, where the members of the faculty of the Department of Chemical Engineering on campus are

now situated, and into about 2/3 of Room 163. He prefers Room 158 because it adjoins Room 166 where he is presently located; he said he would have a door cut through to connect the two rooms. I indicated that I would look into this possibility, but it presents some complications because the chemical engineers are coming back to Building 70 to work in connection with their expected energy research program. I also indicated I thought that Newton has some environmental research going on in Room 163. I suggested that perhaps the chemical engineers could be accommodated in Room 145, the site of the He<sup>3</sup> cyclotron. Asaro said that he doesn't feel that he can make the move until March, due to his writing and other commitments.

At 4:00 p.m., I attended the Nuclear Chemistry Seminar in the conference room of Building 70A where Professor Kenzo Sugimoto of Osaka University spoke on "Nuclear Magnetic Resonance of Implanted Nuclei Following Nuclear Reactions and Electromagnetic Moments of Light Nuclei." Sugimoto reminded me that he had met me at the time of my visit to Osaka University to see Seishi Kikuchi (March 23, 1970). He said Kikuchi has been ill during the last year with water on the lung; his health is now stabilized at a steady state.

Suki and I took a hike to the water tank after I got home. We had to use a flashlight because it was after dark. Dave called a couple of times. He still hasn't found a supervising professor for his Ph.D. research and is becoming despondent to the point that he is unable to study with any efficiency.

Tuesday, October 30, 1973 - Berkeley

I called Congressman Craig Hosmer in Washington at 9:00 a.m. to inquire about status of the provisions for geothermal research in the budget which is now sitting at OMB. I indicated that the people here who are working on the hot brine approach are quite concerned about whether this will get into the budget. He said that he will see what he can find out on it and will give it a push. In response to his inquiries, I asked for more information from Jack Hollander and called Hosmer back to tell him that the hot brine temperature is around 200°C; it is under pressure. I noted that the budget is in two parts: \$4.7 million in the regular budget and \$7 million as part of the total \$115 million now under review.

Norman Edelstein came in at 10:15 a.m. He has been invited to spend two months next summer with David Brown at Oxford to finish up some work he started with him on Pa(IV) and U(V)--that is, 5f<sup>1</sup> compounds. I indicated that it might be hard to spare him at that time, but, on the other hand, I would hate to stand in his way. He will think about it and come to a decision later. We also talked about adding an actinide postdoctoral fellow, and he will give me a list of some people that I might write to in this connection.

I called Charles Wilke in the Department of Chemical Engineering at 11:05 a.m. to discuss our space problem in Building 70. He told me that Tom Pigford is using Room 158 in Building 70; however, Wilke thinks that Pigford wants to move to Lewis Hall on the campus upon Leroy Bromley's retirement. I suggested that we might be able to make the space in Room 145, where the He<sup>3</sup> cyclotron is located, available

Tuesday, October 30, 1973 (con't)

to the chemical engineering group. I indicated that we are talking about an approximately two-month timetable; we anticipate making these moves after the first of the year. Wilke said that he will talk with Pigford about this and doesn't expect any difficulty.

Bill Gould phoned me from Southern California Edison in Los Angeles at 11:20 a.m. They haven't been able to reach Jaime Merino, as a follow-up to my conversation with Jack Horton. (Sheila later reached Merino and gave him this information.) Gould told me that they expect to start construction at San Onofre as soon as they have cleared the State Coastal Commission.

Just before lunch, I dropped by to see Kratz and Norris, then walked over to have lunch at the table outside the lower level of the cafeteria with Vic Viola, Norman Edelstein, Reinhard Gradl, Jerry Bucher, and others. I told Viola about my visit with Jack Root at Davis on Thursday and Root's suggestion that Viola visit them there.

Norman Edelstein came back to my office at 1:15 p.m. and, after some discussion, we agreed that I would write to Basil Kanellakopoulos and Peter Laubereau, inviting them to come to LBL, and information about our actinide chemist opening will be sent to Fritz Weigel, Jean Fuger, Kenneth Bagnall, Monique Pages, and Ernst O. Fischer.

I called Gerald Johnson at the AEC in Washington at 1:40 p.m. to inquire about the status of the geothermal provisions in the \$115 million budget that is now being held at OMB. He anticipated no problem in the geothermal area. In response to my inquiry, he indicated that John Sawhill will play a critical role in this and suggested that I might even talk to Sawhill again. Of the \$4.7 million budget before the add-ons, \$3 million of that is for hot dry rock; \$1 million is designated for the work at Berkeley. For the five-year program, he told me that they are asking for \$110 million for geothermal which would envisage building five or six demonstration facilities. He expects to be in the Bay Area for the ANS-AIF meeting. He may be able to come to Berkeley on Wednesday, November 14. He will call my office to see if we can arrange an appointment.

I then called Jack Hollander to report on my conversation with Johnson.

I called Maynard Michel at 2:00 p.m. to discuss the space problem faced by the theoretical group's expanding into Asaro's space. I described my conversation with Wilke. I told Maynard that, in addition to Room 158, which connects with Asaro's present Room 166, he also needs 2/3 of Room 163. Maynard told me that the room is now used by the environmental group which is doing its studies on Bodega Bay and the Mare Island Channel--the advantage of the room is that they can unload equipment from their boat on the parking lot. Some of the space in Room 163 is also used by the NSF contract group with Hadeishi. The environmental group with Victor Anderlini is using the mercury detectors on shellfish. Room 157 is being used by Dick Marrus, who has already been relieved of Room 163; the room is used for the set-up of beam foil experiments at the SuperHILAC because they

need long distances to set up the long traveling system. I asked Maynard to look into the possibility of Asaro's getting part of Room 157 equivalent to 2/3 of 163. I noted that, in this case, Marrus would lose his space. Maynard didn't think Marrus would mind this if we could find similar space for him, and it might be possible to locate him in something like Building 53 near the SuperHILAC. Maynard told me that they are under some pressure to get Asaro's data storage moved out of the hall; he had temporarily planned to put it into Room 145. We agreed that some partitions might be required to effect all these changes but that this would be no problem.

I called George Pimentel at 3:30 p.m. about the meeting I had proposed of the Lawrence Hall of Science Planning Subcommittee for November 8. George and I discussed the fact that Matlin and White are no longer on the main committee. George suggested that we try to persuade White (who is the computer man) to continue to participate. After some discussion, we agreed to cancel this meeting and, at the Advisory Committee meeting on November 15, pinpoint ideas that the Planning Subcommittee ought to think about this year.

President Charles Hitch called me at 4:30 p.m., on behalf of Edmund G. (Pat) Brown, to ask if I would be a public member of the California Council for Environmental and Economic Balance. Their objective is to find a middle ground between the extremists among those who are pressing for more energy and those who are concerned about conservation. The Council consists of representatives from industry and labor as well as public members. I indicated that I had read about this in the press. He will have Brown send me more information about it.

I replied to a letter from Jack Root at Davis in connection with the possibility of his spending some time working here at LBL next summer (correspondence attached). The Futurist magazine which arrived today carried the picture of my meeting Chou En-lai in Peking (copy attached).

Suki and I took a hike to the water tank.

Wednesday, October 31, 1973 - Berkeley

I walked down to the campus to hear Professor Pimentel's Chem 1A lecture, then walked back up the hill.

I sent to Richard Eppley the SHEIKS group summary of research using SuperHILAC beams (copy attached). I sent the corrected proofs and manuscript of my article, "Transuranium Elements," to Robert Besancon for the second edition of the Encyclopedia of Physics. I wrote Geoffrey Wilkinson (copy attached) in connection with his receipt of the 1973 Nobel Prize for Chemistry.

I sent letters concerning the possibility of our having a postdoctoral position open for an actinide chemist to Ernst O. Fischer at Munich (also congratulating him on his co-receipt of the 1973 Nobel Prize for Chemistry--copy attached), Monique Pages in Paris, Kenneth Bagnall at the University of Manchester, and Jean Fuger at Liege.

## UNIVERSITY OF CALIFORNIA, DAVIS

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SANTA BARBARA • SANTA CRUZ

DEPARTMENT OF CHEMISTRY

DAVIS, CALIFORNIA 95616

October 24, 1973

Professor Glenn T. Seaborg  
3307 Building 70A  
Lawrence Berkeley Laboratory  
Berkeley, California

871 10/26/73

Dear Professor Seaborg:

It was a pleasure to have the opportunity to become acquainted with you during your recent visit to Davis. After reviewing our discussion, I have decided that if possible I would like very much to spend some time working at Berkeley.

Is there available any suitable visiting scientist program in which I could participate during the summer? I would like to have access to the CDC7600 computer in order to continue classical trajectory and molecular stopping power calculations that were initiated during my sabbatical at Brookhaven. My summer salary and computing costs could be paid from my own contract funds. I would probably want to move the family to Berkeley in order to eliminate the necessity for commuting.

Some reprints that illustrate the kinds of research I have been doing are enclosed.

✓  
to GTS'  
misc  
reprints

Sincerely yours,

*Jack Root*

John W. Root  
Associate Professor  
of Chemistry

JWR:lm

LAWRENCE BERKELEY LABORATORY  
UNIVERSITY OF CALIFORNIA  
BERKELEY, CALIFORNIA 94720 □ TEL. (415) 843-2740

October 30, 1973

Professor John W. Root  
Department of Chemistry  
University of California  
Davis, California 95616

Dear Jack:

In reply to your letter of October 24, 1973, we would be delighted to have you spend some time working with us at LBL next summer. Due to our budget stringencies, it would be necessary for you to pay your summer salary and computing costs from your own contract funds, as you suggest.

I enjoyed my visit to Davis very much. I have spoken to Vic Viola about your desire to have him visit you, and I believe he will get in touch with you about this--or if he doesn't, will be receptive to a personal invitation from you.

With best regards,

Cordially,



Glenn T. Seaborg

GTS/sms

10/30/73

**THE FUTURIST**, October 1973

Chinese Premier Chou En-lai greets Glenn T. Seaborg, Professor of Chemistry at the University of California and a member of the World Future Society's Board of Directors, during his recent visit to the People's Republic of China. Seaborg was a member of a delegation that laid the groundwork for the exchange of visiting groups of scholars in the natural sciences, the social sciences, and the humanities. He reports that "our reception was friendly everywhere."

October 31, 1973

To: Richard E. Eppley  
From: SHEIKS Group--G.T. Seaborg, J.V. Kratz, J.O. Liljenzin, A.E. Norris,  
I. Binder  
Re: Summary of Research Using SuperHILAC Beams

Uranium targets are being irradiated with heavy ions,  $Z \geq 18$ , for two reasons. One goal is to search for superheavy elements (SHE's) which might be produced in such reactions; the other purpose is to elucidate the mechanisms of heavy ion reactions with high Z targets.

- (1) The search for SHE's is based on a chemical separation of a SHE fraction from the actinide elements, including the bulk target material. Any SHE atoms that might be produced would be eluted from a cation exchange column as a group (elements 108 through 116) in the form of bromide complexes. The SHE fraction is counted for alpha particle and spontaneous fission activities. In the low intensity Kr bombardments that have been performed to date, there is no evidence for the formation of unknown activities. The sensitivity limit in these experiments was  $10^{-31} \text{cm}^2$  for a 1-week half-life activity.
- (2) To study heavy ion reaction mechanisms, the targets irradiated in the SHE program have been separated into various chemical fractions. Analyses of the gamma ray activities in these chemical fractions result in information about the formation of reaction products over a broad range of Z and A. In the reaction of Ar with U, independent or cumulative yields were measured for 136 nuclides distributed among 53 chemical elements. The data were evaluated in terms of mass and charge distributions in a three-dimensional iterative procedure. On the whole, the resulting cross sections seemed to imply at least three types of reaction channels:
  - (i) nucleon transfer reactions with maximum cross sections centered on the projectile and target masses ("rabbit ears");
  - (ii) a broad distribution of products originating from the binary fission of a composite system with a life-time long enough to permit complete charge and mass transfer (symmetric fission);
  - (iii) superimposed on the type (ii) distribution is a neutron-rich fission product distribution. The mass and charge distributions are similar to those from low energy fission of nuclei such as  $^{238}\text{U}$ . Perhaps this distribution results from a projectile-target interaction in which only a few nucleons and modest amounts of excitation energy are transferred.

In the reaction of Ar with U, the fission of the composite system yields about 50% of the total reaction cross section. In the reaction of Kr with U, only reactions of types (i) and (iii) have been observed thus far. Failure to observe products from symmetric fission may imply

either that the complete fusion of Kr and U is unlikely or that binary fission may be replaced by ternary fission as the main de-excitation channel. More intense Kr bombardments are needed to clarify these questions. When Xe beams become available at the SuperHILAC, they will be used in similar studies.

In addition, the program will include experiments with Au targets. With Au, the fission of nucleon transfer products close to the target mass will be hindered by high fission barriers. The yield distribution in the mass range  $80 < A < 150$  will be less complex than with U targets. Therefore, it should be possible to obtain information on mechanisms (i) and (ii) without so much interference from mechanism (iii).

/sms

## LAWRENCE BERKELEY LABORATORY

UNIVERSITY OF CALIFORNIA

BERKELEY, CALIFORNIA 94720 □ TEL. (415) 843-2740

October 31, 1973

Professor Geoffrey Wilkinson  
Department of Inorganic Chemistry  
Imperial College of Science and Technology  
London, S.W.7, England

Dear Geoff:

I was delighted to hear on my car radio as I was driving to Davis last Tuesday morning the announcement that you have been chosen to be co-recipient of the 1973 Nobel Prize for Chemistry. You certainly deserve this honor, and all of us who are interested in the field of work which is represented are also pleased at the recognition of this area of research.

You have covered a lot of ground since those busy days a quarter of a century ago when you were here in the Radiation Laboratory carrying on that tremendous research program with Harry Hicks, in which so many new radioactive isotopes were discovered.

With warm regards,

Cordially,



Glenn T. Seaborg

GTS/sms

LAWRENCE BERKELEY LABORATORY  
UNIVERSITY OF CALIFORNIA  
BERKELEY, CALIFORNIA 94720 □ TEL. (415) 843-2740  
U.S.A.

October 31, 1973

Professor Ernst O. Fischer  
Technischen Universität München  
Munich, Germany

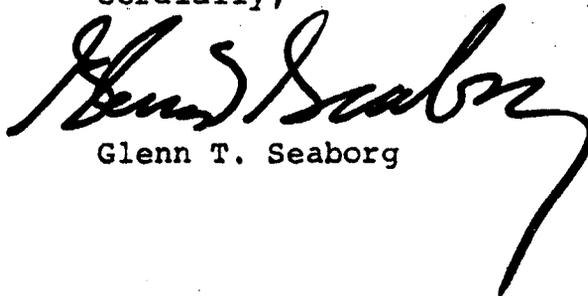
Dear Professor Fischer:

May I extend my congratulations on your being named to be co-recipient of the Nobel Prize for Chemistry for 1973. This is an honor that you fully deserve, and those of us who are interested in your field of research are especially pleased that this area of work has received this recognition.

May I take this opportunity to mention that there is a possibility that we might be able to add a post-doctoral fellow for a one- or two-year participation with our actinide chemistry group here at the Lawrence Berkeley Laboratory. Do you have any suggestions as to possible candidates?

With best regards,

Cordially,



Glenn T. Seaborg

GTS/sms

bxc: Bernard G. Harvey  
Norman Edelstein  
Eileen Eiland

I wrote to Basil Kanellakopoulos at Karlsruhe, inviting him to come to work with our actinide chemistry group. I also wrote Peter Laubereau at Weisbaden, inviting him to visit us at Berkeley for a week for consultation this year.

I had lunch at a table outside the cafeteria at the lower level, walked down to the campus to teach my Chem 1A lab section in 124 Lewis Hall, and walked back up the hill to my office.

At 4:00 p.m., I went down to David Shirley's lab (Room 1115D, Building 70A) to discuss with him the possibility of one of the assistant Professor appointments to be made in the Chemistry faculty next year being an actinide chemist. He said that this is a definite possibility. I told him of my impending contacts with Denis McWhan and Peter Laubereau in this connection.

I then called George Jura to ask for his evaluation of Denis McWhan. He indicated that McWhan has left the area of actinide chemistry since he went to Bell Labs. However, Jura thinks that if we could get McWhan back into the area, he would rate number one in the field. He suggested that I get McWhan's phone number from Mr. Berrardo at LBL, which I then did.

Suki and I took a hike to the water tank. I attended the last meeting of the Lafayette SOS Committee in the ticket office of Lafayette Town Hall. Present were Bill Chilcote, Al Raeburn, Lloyd Townley, George Ponomareff, Rick Ellis, and Jop van Overeen. A visitor, Lee Ann Lane, dropped in for a while to talk about the advertisement against the Open Space bond issue (Proposition A) by ACT (a taxpayers association, actually a front for a group of three or four people) in today's Lafayette Sun. We went over the ad which we will run in the Sun on Friday, arrangements to get pro voters to the polls next Tuesday, etc.

Tonight was trick-or-treat night and dozens of kids came by our house to get their handouts of candy. Dianne went out with Cathy Sherman and her daughter Yehudit.

Thursday, November 1, 1973 - Lafayette - New York City

Andrew Sessler officially assumes his duties as Director of the Lawrence Berkeley Laboratory today. His memorandum on Laboratory reorganization was issued this morning (copy attached).

Helen drove me to the San Francisco International Airport where I boarded TWA Flight No. 42, which left at 9:10 a.m. and arrived at Kennedy Airport in New York at 5:10 p.m. On the plane I sat next to Suren Saroyan, the San Francisco lawyer and cousin of William Saroyan, the author. He was on his regular trip to New York, which he has made every five weeks for the last 15 years, to greet groups of immigrants from Armenia. He told me a number of stories about his cousin William Saroyan, who often apparently went through his large payments of money for his writing at a high rate, apparently due to his gambling habits. Suren is a Democrat, has a very low opinion of Nixon's antics and also has a low opinion of Reagan. He is a graduate of the Stanford law class of 1929 and we talked about mutual friends.

November 1, 1973

MEMORANDUM

TO: The Staff of LBL

FROM: Andrew M. Sessler

In the weeks since my appointment as LBL Director, and indeed during several months prior to that time, I have had many personal discussions with LBL staff members regarding Laboratory programs and organization. In addition to these personal contacts, I have recently received extensive input via written communications and interviews held at my request. I deeply appreciate that so many of my colleagues have taken the time and effort to communicate their thoughts and ideas, which have helped me in formulating my own assessment of the "state of the Laboratory."

This analysis has reinforced the view expressed in my memorandum of September 24, that the Laboratory is basically strong and healthy, and that we are capable of meeting the challenges that lie ahead. I have also concluded that certain aspects of our program and organization require particular attention if we are to pursue with maximum effectiveness the Laboratory goal of scientific excellence and achievement. Several of these important areas are:

1. Scientific program. The most critical task facing the Laboratory is that of scientific program planning. Because of the realities of today's world, we cannot do all the things we would wish to do; therefore we must increasingly focus our resources and talent on research for which we have special capability: programs in the basic sciences that are new and exciting, and programs that contribute significantly to the solution of national problems. To do this will require setting of scientific policy and definition of programs at the Laboratory-wide level, and also critical review of our on-going programs.

2. Interdisciplinary research. The Laboratory is pursuing, and will pursue to an increasing extent, research programs that transcend disciplinary and divisional boundaries. To do our very best in these areas will require a greater degree of interaction and collaboration among the LBL Divisions than we have had in the past.

3. Management responsibility. The lines of management responsibility and authority in LBL have become diffuse in several areas, and it is necessary that these be clarified and strengthened.

4. Laboratory image. The public image of the Laboratory must be improved. It is more important today than ever before that the goals and programs of the Laboratory be appreciated in the public community, the University, and the State and Federal governments, as well as among our own staff. We must communicate better the excitement of scientific and technical research and its relevance to the world we live in.

5. Staff morale and spirit. It is important that there be no "credibility gap" between LBL administration and staff. In order for us to have an atmosphere at LBL in which we can do our best work, we must recreate a spirit of mutual trust and enthusiasm.

Although our efforts at improvement in all these areas will require some time, I have decided that certain administrative actions, taken at the outset, will facilitate these efforts. In this memorandum I am announcing several initial actions, effective immediately, which include: 1) changes in the LBL management structure, 2) changes of administrative departments and scientific programs, and 3) new three-year term appointments of LBL Deputy and Associate Directors. In addition to the descriptions that follow, I am including with this memorandum a skeletal organization chart in order to facilitate understanding of the new LBL administrative structure.

#### MANAGEMENT STRUCTURE

##### A. Deputy Director

I am creating this new position in order to provide strong line management of the day-to-day operation of the Laboratory, as well as effective liaison between the Director and administrative and programmatic Associate Directors. The Laboratory is fortunate that Dr. Earl K. Hyde, presently Deputy Head of Nuclear Chemistry Division, has accepted this responsibility.

##### B. Associate Director for Energy and Environment

No programs of the Laboratory are more important to its future than those in the fields of energy and environment. In order to facilitate their development, I am establishing an LBL Energy and Environment Division. This Division will have responsibility for the Laboratory's programs in geothermal, solar, and controlled thermonuclear energy, as well as for the other programs now included administratively under the present "Energy and Environment Programs" structure. The Division Director will serve also in the role of coordinating the development of energy and environment research in all LBL Divisions,

grand of providing assistance to the other Division Directors in this regard. Dr. Jack M. Hollander will head this Division, as LBL Associate Director for Energy and Environment. Dr. Hollander will be assisted by Mr. Dick A. Mack, who will continue also as Electronics Engineering Department Head.

C. Associate Director for Administration

The responsibilities of this Associate Director will include, essentially, those of the present position of Business Manager. Mr. George L. Pappas, LBL Business Manager, will assume this Associate Directorship. The title of Business Manager is discontinued.

D. Associate Director for Engineering and Technical Services

This position includes all the responsibilities of the present Associate Director for Support, plus responsibility for the Technical Information Department. I am very pleased that Mr. Walter D. Hartsough, presently Bevatron Group Leader, has accepted this position. Mr. Hartsough will be assisted by Mr. R. L. Hinckley, who has been serving as LBL Operations Engineer and Managing Engineer in Physics I Division. The positions of Associate Director for Support and Operations Engineer are discontinued.

E. Associate Director for Laboratory Relations

This new position will have the responsibility to lead and coordinate the activities by which the Laboratory interfaces with the outside world, principally visitor arrangements and public information. It will also include responsibility for the Laboratory's affirmative action program. Dr. Harold A. Fidler, presently Associate Director for Administration, has agreed to accept this position. I am most grateful for his participation both in this important activity and in the task of carrying out an effective and smooth administrative transition.

F. Scientific Program Council

In my belief that the LBL Director requires advice and counsel on scientific program planning and coordination from among the most outstanding scientists of the Laboratory, as well as from the Associate Directors, I am establishing this Council, whose members will speak not for programs of individual Divisions but for that of the entire Laboratory. The Council is not intended as a full-time activity, but I plan to meet on a regular basis with the group as well as with its individual members. Membership on the Scientific Program Council will be for a two-year (renewable) term. Initial members are: A. M. Sessler (chairman), L. W. Alvarez, J. A. Bassham, T. Elioff, F. S. Goulding,

-4-

J. M. Hollander, E. K. Hyde, J. D. Jackson, K. S. Pitzer, G. T. Seaborg,  
D. A. Shirley, H. M. Steiner, C. A. Tobias, and C. H. Townes (ex officio).

G. Administrative Advisory Council

This group will advise the Director and Deputy Director on Laboratory-wide administrative policy matters. Membership will be for a two-year (renewable) term, and initial members are: E. K. Hyde (chairman), I. R. Blake, B. B. Cork, T. B. Lewis, M. C. Michel, W. E. Nolan, C. V. Peterson, G. L. Pappas (ex officio), and W. D. Hartsough (ex officio).

H. Equal Employment Opportunity Council

In recognition of the continuing importance to the Laboratory of a strong and meaningful program in the field of employment opportunity, I am establishing an Equal Employment Opportunity Council, with two-year (renewable) terms. Initial members are: R. K. Wakerling (chairman), A. B. Galtieri, G. Gidal, J. A. Harris, D. L. Hendrie, T. B. Lewis, F. M. Mann, C. Nunnally, F. W. Temple, H. A. Fidler (ex officio), and H. A. Wilson (ex officio).

DIVISIONAL AND DEPARTMENTAL CHANGES

A. Affirmative Action Administrator

The creation of this post was included as part of the most recent LBL Affirmative Action Plan. I have asked Mr. Harold A. Wilson, presently Affirmative Action Coordinator, to accept the new position, and in this capacity he will report to the Associate Director for Laboratory Relations. The position of Affirmative Action Administrator replaces that of Affirmative Action Coordinator.

B. Public Information Department

Activities of the new Public Information Department will include Public Relations, Magnet, Research Highlights Report, Laboratory brochures, TV strips, and movie work. Ms. Yvonne Howell will head this Department, assisted by Ms. Christine Weber, Mr. James G. Halverson, and Mr. Ralph C. Dennis.

C. Visitor Arrangements Department

Functions to be carried out in this new Department include protocol, long- and short-term visitor arrangements, foreign visitors, and the school-visitor program. Ms. Pearl B. Cone will head this Department, and she will be assisted by Mr. Lee B. Davenport.

D. Technical Information Department

The functions of Technical Publications, Graphic Arts, and the Library will continue to be carried out by Technical Information Department. Dr. Raymond K. Wakerling and Mr. Theodore H. Kirksey will continue as Department Head and Assistant Department Head, respectively.

E. Accelerator Division

As a reflection of its major activities, the name of Physics II Division is being changed to Accelerator Division. Dr. Edward J. Lofgren will continue as LBL Associate Director for this Division, and he has appointed Dr. Herman A. Grunder to be Bevatron Group Leader. All activities of the former Physics II Division except controlled thermo-nuclear research will be performed in the Accelerator Division.

F. Physics Division

The name of Physics I Division will henceforth be Physics Division.

G. Nuclear Chemistry Division

Associate Director Dr. Glenn T. Seaborg, with the advice and counsel of the Division's program committee, has selected Dr. Bernard G. Harvey to become Deputy Director of Nuclear Chemistry Division, and Dr. David L. Hendrie to head the 88-inch Cyclotron Group.

H. Budget Department

Associate Director George Pappas has selected Mr. William J. Shanahan as Head of the Budget Department.

I. Personnel Department

Associate Director George Pappas has asked Mr. Elliott W. Amon and Mr. Robert E. Mortiboy, on an interim basis, to report directly to him concerning, respectively, Wage and Salary Administration and Personnel Affairs.

J. Laboratory Protection Department

The name of the LBL Security Department is changed to Laboratory Protection Department.

- - - - -

The actions I am announcing today are, understandably, concerned primarily with the top end of the LBL administrative structure. As we probe more deeply into the workings of the Laboratory, undoubtedly further changes will be implemented within Divisions and Departments. Such changes will come about as the result of careful study and analysis, carried out on a continuous basis, by the several Councils and Associate Directors, working closely with me. In this ongoing process I shall always welcome the thoughts and suggestions of the entire LBL staff.

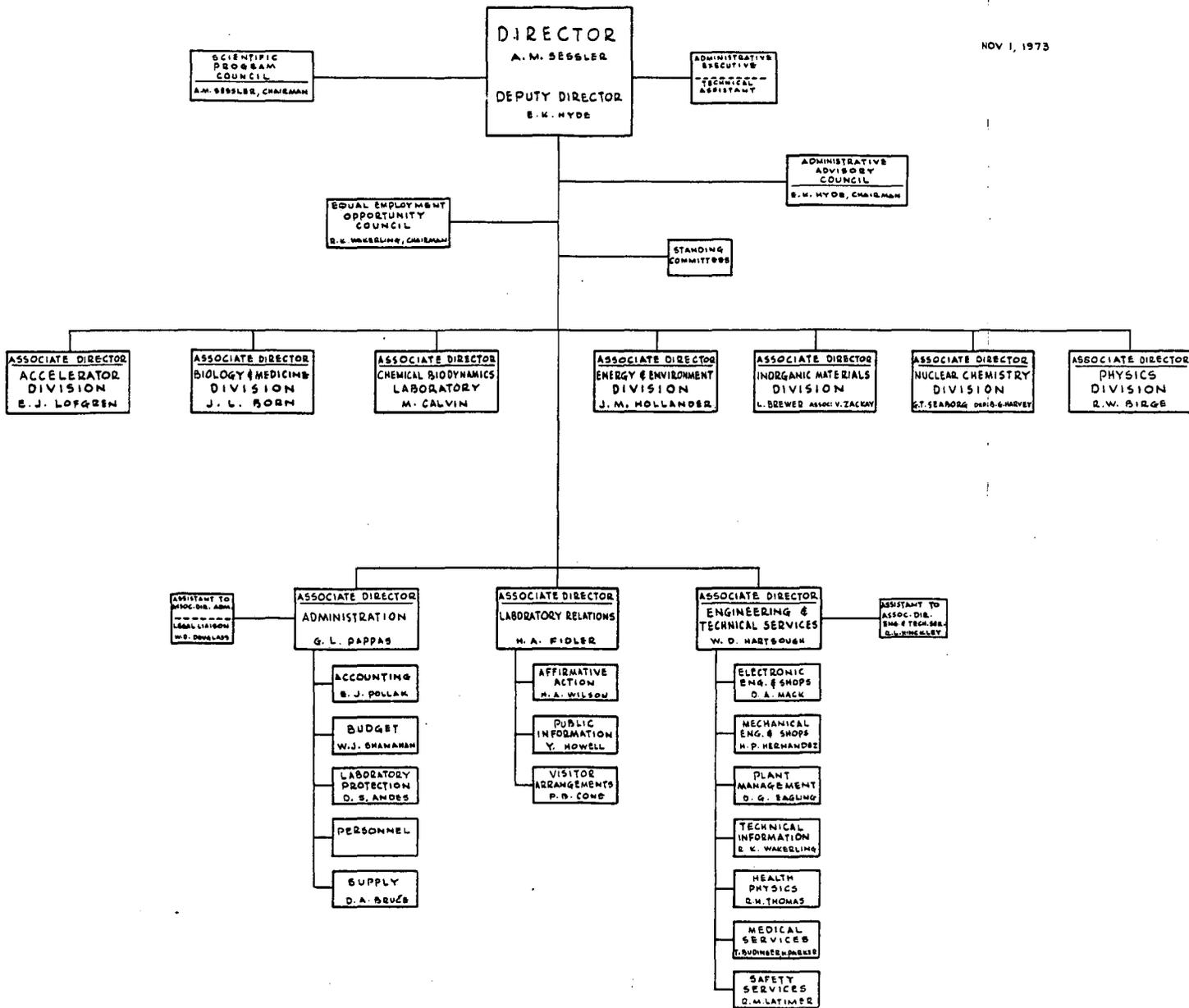
The actions announced in this memo have necessitated, in some instances, changes in personnel assignments. I want to take this opportunity to express my deepest thanks to the individuals involved, both for their dedicated past service to the Laboratory and for the fine spirit of cooperation with which they have accepted their new assignments.

Change is, of course, a natural and necessary part of growth and adaptation. But the purpose and the motivation for change at LBL is singular: to bring us closer to the goal that LBL "be employed to its fullest in the service of society, both on problems requiring near-term solution and on fundamental research that will contribute, both in specific ways and, in the longer term, in ways that we cannot now fathom."

*Andrew M. Sessler*

Andrew M. Sessler

NOV 1, 1973



I took a taxi to the Chemists Club and checked into room 522. I had dinner at the Club and took a walk down Broadway afterward.

Bob Pigford called the office at LBL, saying that he is agreeable to moving his two students out of Room 153, Building 70 as of January 1. However, he has no funds to move the equipment down to the campus and has asked if LBL can do this; I will follow this up.

Friday, November 2, 1973 - New York

I had breakfast in the Chemists Club, then walked to the headquarters of the Andrew W. Mellon Foundation (140 East 62nd Street) for my appointment with Nathan Pusey, President of the Foundation. Since he knew the purpose of my visit, to raise funds for the proposed AAAS building, he began by saying he had made some suggestions to Bill Golden and Bill Bevan when they visited him last May. He indicated to me that our best hope is people who made their fortunes through science-based industries and mentioned such people as Din Land, for whom Ed Purcell is the best approach; Hewlett and Packard; and the Texas Instrument Company people. I told him about our difficulties in approaching Land, that I have hesitated so far in approaching my friends Hewlett and Packard, and I have received a negative response from the Jonsson Foundation. He also mentioned the DuPont Company (Crawford Greenewalt) as a possibility and also added that Jim Killian should be a good source of advice in general because of his great success as a fund-raiser for MIT.

I described to him the fund-raising efforts I had made to date, including the names of the Foundations we have approached and the meager results to date. He repeated that the Andrew Mellon Foundation emphasizes support for the humanities and I again emphasized the recent expansion of AAAS activities into the broad fields of science for the promotion of human welfare, the public understanding of science, and the international arena.

He agreed that we should keep in touch and said that, if the Andrew Mellon Foundation participates at all, it would be in the last stages of any Foundation consortium proposal we might put together. I gave him a copy of our draft proposal and of the AAAS Handbook. In answer to a question, I said we hope to get started on our building next fall, but I fear this didn't sound credible in view of our lagging fund-raising efforts. Our meeting ran from 9:30-10:15 a.m.

I then walked to the headquarters of the Rockefeller Brothers Fund (RCA Building, 54th Floor, 30 Rockefeller Plaza) for my appointment with William Dietel, Vice President of the Fund. I was ushered into the office of Russell A. Phillips, Jr., with the statement that Deitel had suddenly been called to Arizona (presumably by one of the Trustees of the Fund). I met with Phillips from 11:00-11:40 a.m.

I described to Phillips the functions and scope of AAAS, our need for a new building, plans to start building it next fall, and the plans to raise money for it from foundations, mentioning a number of the foundations I have approached and the small results to date. He said that the Rockefeller Brothers Fund generally supports the social sciences, not the natural sciences, and does not generally provide

Friday, November 2, 1973 (con't)

funds for buildings; thus our request fails to meet their criteria on two counts. I emphasized the broadening interests of AAAS and the hope they could make exceptions to their criteria in our case.

Phillips said he thought we should approach foundations or individuals who have made their money from science-based industries. As examples of this, he suggested the Robert Wood Johnson Foundation (in nearby New Jersey), the Edna McConnell Clark Foundation (New York City), whose funds were derived from Avon Cosmetics, and the Rockefeller Foundation, which has a long history of supporting science projects. He also mentioned Din Land and Hewlett-Packard. He said the Kresge Foundation is our best bet for money for buildings.

I gave him a copy of our draft proposal and of the AAAS Handbook. He said he would bring our request to the attention of the officers and executive committee of the Foundation.

I called Michael Glass at the Dreyfus Corporation suggesting a luncheon date, then walked to the office of the Dreyfus Corporation (35th floor of the General Motors Building, 767 Fifth Avenue) to join Glass, Dave Burke, and Ken Oberman (who is now in charge of the Third Century Fund portfolio). We all went to lunch together at the nearby Plaza Hotel in the Oak Room. The conversation ranged around the Third Century Fund, which is doing well compared with the Dow Jones Index, the energy crisis, and the time scale for such energy sources as coal gasification and liquefaction, nuclear fission power, nuclear fusion power, solar power, and geothermal power. There was also a good deal of discussion about President Nixon and his viability in the face of the broadening scandal in his administration. A White House correspondent friend of Burke's thinks Nixon is still consulting Bob Haldeman on his key decisions.

After lunch, I took a taxi to the headquarters of the Research Corporation (Chrysler Building, 405 Lexington Avenue, 38th floor) for my appointment with Dr. Sam C. Smith, Vice President for Grants. Smith is a biochemist from the University of Wisconsin, a member of AAAS and the Chemists Club, has been with the Research Corporation just over 18 years, and lives in White Plains. I described to him the present status of AAAS, the need for a new building and its cost, and my attempts to raise money through foundations, but did not identify them.

Smith told me that the charter for the Research Corporation directs them to support "the advancement of science and technology through scientific research and experimentation." They have made only one exception to this in all the years he has been at the Research Corporation. I agreed that the granting of our request for funds would require another exception and pointed out that Warren Weaver had emphasized this in his supporting letter for our request.

He said he will present our request to their Board and appropriate advisory committee. (They have three advisory committees, for (1) physical sciences, (2) biological sciences, and (3) public health etc., the latter concerned with grants in Mexico.)

They have four area offices, the west coast office operated by Hal Ramsey (Research Corporation, 290 Bay Shore Drive, Burlingame, California). Ramsey has a Ph.D. in microbiology. The Research Corporation has an annual budget for support of research of about \$4 million and they give about 3-400 grants per year. A small portion of the income comes from laser patents and Charles Townes is on the advisory committee for the dispersal of this money, so far divided between Columbia University and Berkeley (a recent grant has been given to the Berkeley Physics Department). I gave Smith a copy of our draft proposal and of the AAAS Handbook. The meeting lasted from 2:00-3:00 p.m.

I walked back to the Chemists Club. Here I received a call from Lew Keller. He is concerned that the AEC may close down the transuranium program at ORNL, i.e., HFIR and TRU. He is preparing arguments for the need for further measurements on the transuranium elements--heats of sublimation, ionization potentials, magnetic susceptibilities, solid state measurements, Mossbauer measurements, etc. I agreed to support the need for continued operation of HFIR and TRU at the Heavy Isotope Committee meeting at LBL the week after next. He also said he has heard from Myasoyedov of the Soviet Union (who visited us last year), who told him about the proposed joint IUPAC-IUPAP Committee on the naming of elements 104 and 105. I told him about the analogy of the Soviet claims on elements 104 and 105 and the University of Illinois work on the production of element 61 by cyclotron bombardment of neodymium some 30-35 years ago; he will look this up so he can use it as an argument of analogy in connection with the Soviet work on elements 104 and 105.

I had dinner at the Chemists Club, then walked to the Minskoff Theatre on 45th Street just west of Broadway. Here I managed to get about the last ticket, turned in by a customer at curtain time, for "Irene," starring Debbie Reynolds, Patsy Kelly, Ruth Warrick, and Ron Husman. Debbie Reynolds made an outstanding, very versatile performance--I have seldom seen an audience so moved and the applause at the end was very moving.

Saturday, November 3, 1973 - New York - Houston, Texas

I had breakfast at a Howard Johnson restaurant (on 42nd Street between Park and Lexington), then went back to my room to read for a while.

I then took a taxi to La Guardia Airport, where I boarded Delta Flight No. 1063, which left at 1:30 p.m. and arrived at Houston Intercontinental Airport at 4:00 p.m. I was met by Dr. and Mrs. W. O. Milligan and George Beadle, and we rode in Milligan's car to the Rice Hotel, where the Milligans and I checked in. Milligan told me he is good friend of Leon Jaworski, the new Special Prosecutor for Watergate and who has his office in the Bank of the Southwest, where the Welch Foundation headquarters are located and where the Scientific Advisory Board meets. He was on the Welch Foundation Board for a short time; his law firm helped set up the Welch Foundation.

I had dinner in the Heritage Room (9th floor) of the Houston Club with W. O. Milligan and members of the Scientific Advisory Board Henry Eyring, E. J. Corey, C. S. Marvel, and George W. Beadle. W. O. Baker hadn't arrived yet. We discussed nominations for the Welch Award and the need for SAB members to nominate.

We then walked to the Bank of the Southwest Building to attend the meeting of the Scientific Advisory Board in the conference room on the 20th floor headquarters (suite 2010) of the Welch Foundation. Milligan introduced us to Dr. Warren C. Simpson (who worked with Shell Department Company for about thirty years), who is working on a chapter, describing the results of research work performed under Welch Foundation grants, of the proposed history of the Welch Foundation.

We discussed the problem of convincing the Internal Revenue Service to allow the Welch Foundation to continue to award grants for more than one year--this is the matter about which I wrote to the Texas law firm (Mr. Collie).

Baker joined us at 8:00 p.m. We discussed the proposals for renewal of research grants and the voluntary proposals for new grants. We had the difficult task of limiting the award of grants to the available total funds of \$4,550,000.

After the meeting, at 11:00 p.m., we (except Marvel, who took a taxi) walked back to the Rice Hotel. On the way, Baker told me about the dissatisfaction in the White House with Dr. Ray's performance as AEC Chairman. The conflict between Kriegsman and Ray contributes to the problem, as does the unacceptable performance on the planning for a national energy program.

Sunday, November 4, 1973 - Houston, Texas

I had breakfast in my room, then walked with Baker, Corey, Stanley, and Eyring to the Bank of the Southwest Building to attend, along with Marvel and Milligan, the continuing meeting of the SAB. We continued to discuss the renewal and voluntary research grant proposals in order to make a number of difficult choices. We discussed plans for future Welch Conferences. The 1975 Conference will be on "Photon Chemistry" and will be arranged by Bill Baker.

The 1976 Conference will be on "American Chemistry Bicentennial" and will be arranged by me. There will be twelve speakers, two for each morning and afternoon session during the three days. The Conference will be built around twelve American chemists, each with some related chemists, with twelve speakers to cover the work of each of the twelve (and their related people). The following suggestions for the scientists to be featured, related scientists, and speakers (underlined) were made:

- (1) G. N. Lewis, Pauling and Langmuir, Melvin Calvin.
- (2) Willard Gibbs, Lars Onsager, Eyring or a non-SAB person.
- (3) Moses Gomberg, Chevez Walling.

Sunday, November 4, 1973 (con't)

- (4) Wallace Carruthers, Julian Hill or Carl Marvel.
- (5) Wendell Stanley, Heinz Fraenkel-Conrat.
- (6) T. W. Richards, George Kistiakowsky or J. B. Conant.
- (7) Roger Adams, Ted Cairns or E. J. Corey.
- (8) A. A. Noyes
- (9) Joseph Priestley, a historian or philosopher.
- (10) Ira Remsen, a historian or philosopher.
- (11) To be chosen.
- (12) To be chosen.

The 1977 Conference will be on "Cosmochemistry," as suggested by John Pomeroy, and will be arranged by me. (I will write to John Pomeroy about this.)

After the morning meeting, we all walked to the Houston Club to have a buffet lunch in the Plantation Room (9th floor). I talked further with Baker about the problem Dr. Ray is having with her detractors. Ramey is waging a potentially effective war against her and this may undermine her viability. We also discussed the breakdown of the discussions for cooperation between Europe and the U.S. in uranium enrichment. Baker asked if I knew anyone who could assume the role of trying to get this back on the track; I said I will think about it and come up with a suggestion. (I have in mind suggesting Sol Linowitz.) Baker suggested that the only way to solve the confusion in the AEC relationships and the lack of coordination with other energy problems is for President Nixon to appoint a Special Assistant for Nuclear Energy reporting directly to the President. Baker said he thinks I would be the man for this assignment; I said I would not be interested in such a position on a fulltime basis. Baker said a decision might be made on this at the proper time in the future. He is optimistic about ERDA, said Dr. Ray has been told she will not be the head of ERDA; Foster's name may be on the list but may not be a front runner. I described the LBL Energy and Environment program and the past and future role of Andrew Sessler, and urged that Baker meet him. Baker told me it was Ed Teller that convinced the President (in a session when Baker was present) to make his famous statement about "leapfrogging the breeder" on the way to nuclear fusion. Dr. Ray reports to Shultz now.

After lunch, we all walked back to the Welch Foundation headquarters to continue our deliberations. We discussed the voluntary proposals further. I raised the question described in my letter from Watson Wise of July 11, 1973, and the SAB decided this was not a proper matter for support from the Welch Foundation; Milligan will write Wise informing him of this decision with a carbon copy to me. (I don't need to write Wise.)

Sunday, November 4, 1973 (con't)

After our afternoon session, I walked back to the Rice Hotel with Baker. He has to leave early this evening to return East to meet a commitment. He told me that Dr. Ray's chief assistant, Gorman Smith, is a retired general and presents somewhat of a problem. He said Chauncey Starr is unhappy with the lack of attention given him on his visit to AEC in September.

In my room, I watched on TV the football game between the Oakland Raiders and New York Giants; the Raiders won, 42-0. I then rode with the Milligans and Marvel, with the others accompanying in other cars, to the River Oaks Country Club. Here I had dinner in a 3rd floor dining room with Welch Trustees Roger Wolfe, Jack Josey, Pete Wehner, Bob Doherty, and the new Trustee, Marvin Collie. I sat next to Collie and he reminded me that we had occupied adjoining seats on an airplane flight from Houston to Washington (or vice versa) some ten years ago. The Trustees suggested that the members of the SAB describe their present research and other activities at the next joint meeting of the Trustees and the SAB. I mentioned my visit to the People's Republic of China and offered to show some of my slides at the next meeting.

Baker left us at 8:00 p.m. After dinner, we went down to the main dining room to meet the wives who were having dinner there. I met Mrs. Josey, Mrs. Collie, Mrs. Wolfe, Mrs. Doherty, Mrs. Wehner, as well as Mrs. Milligan, Mrs. Eyring, and Jack Josey's mother.

The Trustees and SAB members then rode to the headquarters of the Welch Foundation for our joint meeting. I rode with Jack Josey and he told me that he replaced Leon Jaworski on the Welch Board of Trustees; Jaworski only served a few months and was caught up in the big legal battle (lawyers' fees of about \$700,000 were paid by the Welch Foundation) involving, among other things, Settegast as a Trustee.

We submitted our report to the Trustees and it was accepted unanimously. There was some discussion of the present program of research grants with the conclusion that it should continue in about the present format.

I walked back to the Rice Hotel, went up to the 18th floor to the Tejas Room to attend the reception given by the Department of Chemistry of the University of Houston. Here I met Dr. and Mrs. George Watt and Tom Morgan. George told me he has left his consultantship with General Electric and now is a consultant (working with Greager and Manson Benedict) with Exxon-Nuclear (Bellevue, Washington), who pay him at twice the rate that G.E. did. He said that Exxon-Nuclear has a large fraction of all the nuclear fuel cycle business. He told me he plans to retire next year and offered his services to work for the Welch Foundation at that time.

I went back to my room and retired at midnight.

Monday, November 5, 1973 - Houston, Texas - Berkeley

I took a taxi to the Houston Intercontinental Airport, boarded Braniff Flight No. 20, which left at 7:10 a.m. and arrived in Dallas

Monday, November 5, 1973 (con't)

(Love Field) at 8:00 a.m. I then boarded Delta Flight No. 183, which left at 9:15 a.m. and arrived at San Francisco International Airport at 10:50 a.m. Helen met me and drove me to Latimer Hall where I held the remainder of my office hour until noon.

I had lunch in the Howard Room of the Faculty Club with the Chemistry Department faculty, then taught my Chem 1A lab section in Room M from 1:10-3:00 p.m. I then drove up the hill in the Bonneville (left on the campus by Dave) to start going over my mail, etc.

Paul Lochak called me from Washington at 3:25 p.m. He had just spent three hours in a meeting with Sol Linowitz, who has arranged for him to meet with Herman Pollack. He will also be talking with Dixy Lee Ray about the uranium enrichment problem. He asked for my guidance in connection with those meetings. He also met this morning with Bert Schwartz, Vice President of Con Edison in New York; he learned from him that Philip T. Sporn had formulated some time ago a plan for a consortium of activities. Apparently, Craig Hosmer has a plan for uranium enrichment. I indicated that, while Hosmer is knowledgeable, his only interest in such a plan would be that the United States would get a lot out of it. I indicated that, while he might mention my name in his conversation with Pollack, he should make it clear that I am not (nor will I be) directly involved and that I am giving advice on the broadest policy level only. I indicated that a visit to Paris in June looks increasingly possible, and there is a good chance that Mrs. Seaborg can accompany me.

This is effectively Bernie Harvey's first day as Deputy Director of the Nuclear Chemistry Division; he has moved into Earl Hyde's office. Bernie and I met over tea at 3:30 p.m. to go over a number of action items in the Nuclear Chemistry Division. We agreed to appoint a committee consisting of Shirley, Cerny and Diamond, with Harvey sitting in on the meetings, to evaluate the research programs of all the groups in the Nuclear Chemistry Division and to report their recommendations for any changes to Harvey and me. We also decided to appoint Edelstein to the Appointments Committee.

Harvey indicated that he would be glad to have dinner at his home for the Outside Users during their visit here at the end of the week, presumably Friday, November 16. We also agreed that there should be a dinner for the Visiting Committee when they are here on February 21-22, presumably on the evening of the 21st. We also decided that we would appoint Dave Hendrie to the program committee, making the final decision within a week or two.

Tom Parsons came in just before 4:00 p.m. with the bad news that Sherman Fried had a heart attack; he is still alive, but is in intensive care.

Marjorie Sproul phoned me at 4:45 p.m. to say that the ARCS Foundation would like to have a banquet at the time of the AAAS meeting to which they would invite some of the outstanding people who will be here at that time. I suggested that she consult Jane Kingston about my schedule for that week.

Mark Holtby, Executive Assistant to the Provincial Government in British Columbia, Canada, called just before 5:00 p.m. to invite me to speak at a one-day conference on Nuclear Energy which the Provincial Government is sponsoring on December 1. I declined because I will be presiding over the meeting of the AAAS Board in Washington at that time and suggested that he contact Dixy Lee Ray or her Assistant.

At 5:00 p.m., I phoned Steve Kalmon at Radio Station KWUN in Concord in response to Ruth Dixon's request for a brief statement from me in support of Proposition A in tomorrow's Lafayette election. I read and he recorded the attached statement. I responded to a few of his questions in this regard which covered our primary aim to preserve the open space with minimal improvements.

I received a letter (copy attached) from Francois David of Orsay, discussing the possibility of his coming to work with us at LBL.

I drove home in a driving rain. (This led to a massive traffic tie-up in San Francisco so that the driving time from the airport to downtown San Francisco was two hours in the afternoon; it is fortunate that I arrived at the airport in the morning.)

While reading my various correspondence and papers, I watched on TV the Washington Redskins-Pittsburgh Steelers football game; unfortunately, the Steelers won, 21-16. They stopped Larry Brown's running completely and Kilmer's passing was way off.

Dianne watched her own choice of programs on her new portable television set which she received from Helen and me as her birthday gift last Friday.

Tuesday, November 6, 1973 - Berkeley

I voted (on State Proposition 1 and Lafayette Open Space Bond Proposition A) on the way to work. I drove the Bonneville to work and left it for Dave to pick up to use to drive to Davis, where he is going to hear Dr. Eugene Odom, an ecologist from the University of Georgia, speak and to confer with him about his future.

I went up to the meeting of the SuperHILAC Planning Group at 10:00 a.m. Present were Al Ghiorso, Jose Alonso, Carol Alonso, Matti Nurmi, and Mike Nitschke. We discussed the present status of the SuperHILAC, which is pretty good. They have found and fixed the leak in Adam, but a problem has developed in Eve. We discussed an experiment for identifying  $106^{263}$  produced by bombarding  $Cf^{249}$  or  $Cf^{250}$  with  $O^{18}$  and using the yet-to-be-constructed LASSY for identification. This will cost about \$50-100,000, so we would need to find the funds. We will make a decision on this within a week or two. The work with LASSY would go on in parallel with the work on superheavy elements with SASSY. Nurmi is continuing the experiments on the production of volatile tungsten fluorides by the bombardment of dysprosium fluoride with oxygen ions.

After the meeting, I discussed with Ghiorso progress on getting Hermann Grunder to work at the HILAC and learned that the prospects look pretty good.

I want to urge the citizens of Lafayette to vote Yes on Proposition A at the election on Tuesday, November 6.

This is the bond issue for the acquisition by the City of Lafayette of about 2000 acres of open space comprising the scenic ridges which constitute the viewscape of all the citizens of Lafayette.

It is a miracle that this open space has not yet been built upon as is the case for our neighboring cities, and this may be our last chance to save it.

Besides preserving the view and the quality of life in Lafayette, this is a good investment for the property owners of Lafayette. The cost corresponds to a tax increase of only 5% whereas the increase in property value resulting from the preservation of this open space will, I believe, be many times' greater than this.

If we are able to acquire this open space, Lafayette can become a park-to-park green belt from Briones to Los Trampas Regional Park with hiking and riding trails. If we fail now, we can look forward to the scarred hillsides typical of development.

Voting Yes on Proposition A is the best way to meet the principal goals of the Lafayette Goals and Policy Commission, and to preserve and enhance the semi-rural character of Lafayette.

**Vote Yes on Proposition A.**

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FD/ml

October 31, 1973.

Professor G. T. SEABORG  
Lawrence Berkeley Laboratory  
University of California  
BERKELEY  
California 94700

Dear Professor Seaborg,

As I had the opportunity to expose you during your visits at the Institute of Orsay, we are interested in the comparative study of divalent state stability of 5 f elements. These researches carried out by electrochemical methods come up against difficulties : for trans-californium elements quantities of atoms produced with the Orsay cyclotron are small and it is quite impossible now to produce some transfermium elements.

That are the main reasons for which I should very glad to have the opportunity to work in your Laboratory.

Recently I knew the existence of CNRS-NSF Scholarship and I send the application sheet to the CNRS (the period proposed was september 1974 - june 1975). I hope that you will give a favourable answer to this request.

Now I am working with a Lebanese student, Kamal Samhoun, Doctor in Radiochemistry Speciality, who is preparing a thesis on redox properties of transplutonium elements. We plan to study Am, Cm and Cf by radiopolarography with an automatic apparatus which has been made at the laboratory. Thus we hope to be able to explain some disagreements between our first results and those obtained by Nugent.

It seems to be also interesting to apply this method investigating einsteinium and fermium elements and other electrochemical experiments could be undertaken with mendelevium.

.../...

I would like very much to undertake such experiments (or other which interest your laboratory) at Lawrence Laboratory and M. Samhoun, who dispose of a scholarship of Leban CNRS would like also work in your laboratory.

I hope that you should give us a favourable answer and I send you my best regards.

Faithfully yours,



François David

- Enclosures.

Tuesday, November 6, 1973 (con't)

I then went to see Kratz, Norris and Binder, who had received a couple of bombardments of gold with krypton ions last Friday night on the graveyard shift. The SuperHILAC is now operating 15 shifts a week--that is, three shifts a day for five days with shutdown on Saturday and Sunday. No chemical separation was made of the gold bombardments with detection of the radiation through the help of the new Hewlett-Packard 4,000-channel pulse analyzer which unfortunately has been giving them trouble.

I had lunch in the cafeteria with Jaime Merino and Stan Thompson. We discussed Merino's plan to form a company to plan a nuclear power (electricity and desalting) reactor in Baja California with some purchase of electrical power by the Southern California Edison Company.

Anders Wallmark phoned me from British Columbia at 1:20 p.m. He is making a film for Swedish television on Hannes Alfvén and asked if he could conduct a short interview with me for the program. I declined, but suggested he call John Harris at the USAEC in Washington.

From 1:30-2:00 p.m., I participated in the regular monthly telephone conference call on the superheavy elements. Bill Myers presided. The other participants were Stan Thompson, Luciano Moretto, Chin-Fu Tsang, W. Swiatecki, Al Ghiorso, Carol Alonso, Jose Alonso, and others at the SuperHILAC, from LBL; Arnie Sierk, Peter Möller and Phil Seeger at LASL; Franz Plasil at ORNL; and Mike Howard at the University of Illinois.

Jack Bunzel, President of California State University, San Jose, called me at 2:35 p.m. to discuss a problem that has developed in regard to the symposium he is arranging for the AAAS Meeting. He had gained the impression from Howard Greyber last year that AAAS would provide travel money to bring speakers for his symposium to the meeting. Accordingly, Bunzel has guaranteed such travel funds to Max Black of Cornell, Richard Rudner of Washington University in St. Louis, Charles Frankel of Columbia, and Robert Moorish of Northwestern. He has to mail to AAAS by tomorrow his final program. He has just learned, however, that AAAS will provide no such travel funds. They did promise to make \$850 available for the travel of Rey Medvedev, who is now unable to come. Jack asked if he could at least get the \$850 for the travel of others and I said I would follow this up.

I then called Jane Kingston (at Frank Koch's office today where they were meeting at Syntex) to review this with her.

I next called William Hewlett and described Bunzel's problem. We agreed to provide the \$850 out of local funds. I indicated that I will call Bevan's office to be sure there is no problem about this. He told me that, as of today, the local committee has \$19,850. He suggested that a key question will be whether I can get AAAS/Washington to pay part of Jane's salary; he would like to try for half.

I met with Ken Ericson at 2:45 p.m. to answer a few further questions he had about aspects of my China trip.

I responded to a letter from Orval Hansen (copy attached), asking for a copy of Man and Atom inscribed for Albert Carlsen. I invited him to visit us at the Lawrence Berkeley Laboratory. I wrote Herman Mark, in response to his request that I participate in the Voluntary Nominating Group for C. G. Overberger for membership in the National Academy of Sciences, explaining that I have used up my privileges for the year. I wrote Sherman Fried at Hinsdale Hospital in Illinois, wishing him an early recovery from his heart attack.

At 3:30 p.m., I met with Bernard Harvey, over tea, to discuss further Nuclear Chemistry Division matters including the letter from Francois David asking if he and a colleague can come spend a year at LBL with me. This looks reasonable, but he will discuss this with the Division's Appointments Committee.

On the way home, I stopped off at Zellerbach Hall to attend a reception for the Cal Open House speakers, hosted by Chancellor Bowker.

Suki and I took a hike to the water tank. Helen and I gave a reception for the participants in the Lafayette Open Space bond election (Proposition A). Present were Mayor and Mrs. Walter Costa, Councilman Ned Robinson, Councilman Donn Black, Dr. and Mrs. [Jeanette] Gordon Holmes, Dr. and Mrs. George Ponomareff, Bill McKee, Mr. and Mrs. Al [Adele] Raeburn, Mr. and Mrs. [Mary] Kelley, Mr. and Mrs. Jop van Overeen, Mr. and Mrs. [Alice] Johnson, Bea Whiteside and her husband, Ann Chilcote, Lee Pfautch, Mr. and Mrs. Charles Busso, Mr. and Mrs. Art Unger, Richard Singer, Thayer and Joanne Johnson, Harold and Mary Paige, Yehuda and Cathy Sherman, Isabel Stagner, Mary Kreider, Stan and Diane Pedder, Richard Ellis, Ed Tomlinson, Shirley Hanssen and her husband, Mr. and Mrs. Frank Baxter, and Mr. and Mrs. Frank Williams.

Ann Chilcote brought a birthday cake for Anne Townley and Bea Whiteside. We called the election headquarters at Martinez repeatedly, beginning at 10:00 p.m., but no substantial results on Proposition A were available by the time the group had left, gradually in small groups, by about 1:00 a.m. (Only the results from three precincts were available and the total was even--about 600 "yes" votes and 600 "no." This didn't look good.)

Wednesday, November 7, 1973 - Berkeley

I came in to my office early for a phone conference meeting of the DATRAN Board of Directors, starting at 8:00 a.m. PST. Those participating were: Sam Wyly (Chairman), Glenn Penisten (President), Harry G. Bowles (Senior Vice President--Finance), Dean D. Thornton (Senior Vice President and Director, Wyly Corporation), Erwin D. Canham, and Charles J. Wyly, Jr. (President and Director, Wyly Corporation). The purpose of the meeting was the approval of an 8% guaranteed interim note to be entered into by DATRAN, Wyly Corporation, and Walter Haefner in connection with Mr. Haefner's \$10 million investment in DATRAN. Mr. Haefner has requested such a note, pending approval of

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**Congress of the United States**  
**House of Representatives**  
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October 30, 1973

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Dr. Glenn T. Seaborg  
Lawrence Livermore Laboratory  
University of California  
P. O. Box No. 808  
Livermore, California 94550

Dear Glenn:

It was certainly a pleasure to see you recently on the occasion of the observance of the anniversary of the International Atomic Energy Agency.

You will recall during our conversation that I mentioned Mr. Albert Carlsen, Chairman of the Board-President of the Idaho Power Company, is a great admirer of yours and has spoken to me frequently of your leadership in nuclear energy matters.

I would be most grateful, therefore, if you could send me a copy of your book, "Man and Atom", inscribed for Mr. Carlsen.

I hope that it will be possible for me to schedule a trip to the Laboratory within the next few weeks. I was much impressed by the report of work being done and would welcome the opportunity to see you and to tour the Laboratory.

Warmest regards and best wishes.

Sincerely yours,

  
ORVAL HANSEN  
Member of Congress

Wednesday, November 7, 1973 (con't)

his investment by the FCC and the Wyly Corporation stockholders, and the note will mature April 1, 1974. We also passed some other resolutions modifying previous resolutions having to do with the Haefner investment in order to bring the situation up-to-date.

I called Molly Reeves at 8:45 a.m. for information about the McGuire Peak hike on Saturday. She will be on her way to Portland and Seattle at that time and suggested that I call Walt Goggin in the EBMUD Land Department.

I called Martinez to learn the results of the Lafayette Proposition A open space bond election. The proposition lost: 3,396 "yes" and 3,717 "no"--a total of 47.8% "yes." This, of course, is a big disappointment and we'll have to see what we can do next. Fortunately, the State Proposition 1, Governor Reagan's tax initiative, lost by a good margin.

Sheila followed up a phone call of Fran Freeman at AAAS on some inquiries in connection with their fund-raising activities.

I walked down to the campus and attended Professor Pimentel's Chem 1A lecture from 9:10-10:00 a.m.

Jack Horton, Chairman of the Southern California Edison Company, called me from Los Angeles at 10:30 a.m. He asked for my help in connection with their attempts to get their proposed expansion on the San Onofre Nuclear Power Plant approved by the State Coastal Zone Commission. They have received approval from the AEC and San Diego. The State Board, however, has brought out Henry Kendall of MIT, who has made a strong impression on everyone, opposing the expansion. Horton asked if I would talk with one or more members of the Board or the Chairman of the Coastal Committee in their support. I indicated that it is necessary for me to decline. After some discussion, we agreed that perhaps Bill Libby or Bill Doub might be called upon for this. He asked if he could send me a copy of Kendall's testimony; I indicated that he could, with the understanding that it does not represent any commitment.

I called Dick Trumbull at AAAS in Washington at 10:35 a.m. (since Bevan is on his way back from Columbia) to discuss Jack Bunzel's problem. I asked if there is any problem in our local committee's providing the \$850 to pay for the travel of Bunzel's symposium speakers, as Hewlett and I would like to do, and he said that this would be all right.

I then called Jack Bunzel to tell him that I had talked with Hewlett and with the AAAS and that we will provide the \$850 for his speakers. He will have his assistant call Jane to discuss the mechanics.

Kathy Tallyn of the Contra Costa Times called me at 10:50 a.m. and asked for my reaction to the defeat of Proposition A in the Lafayette election. I recorded over the telephone to her the remarks which I had prepared in this regard (copy attached).

Wednesday, November 7, 1973 (con't)

Len Nugent called at 10:55 a.m. to tell me that Ken L. Vander Sluis and G. K. Warner at ORNL have been transferred from actinide work and that Dick Haire is in danger of being transferred. He also said there is some danger of shutting down TRU and I described to him my proposal to prevent this. These transfers raise questions as to whether he can continue actinide chemistry when he returns to ORNL next September, and therefore he would like me to consider the possibility of his having a permanent position here or some academic position at a California university.

Arthur Poskanzer and Maynard Michel met with me in my office at 11:00 a.m. We discussed the possibility of collaboration with Claude Stephan in his mass spectrographic identification of superheavy elements in nature. We agreed that Poskanzer will write Stephan to offer to run some of his samples on Michel's mass spectrograph and to invite him to later visit us in this connection if he wishes. Poskanzer will also say that we might later do chemistry on Stephan's ore samples before they are put through the mass spectrograph; chemistry after the mass spectrographic separation introduces too much uranium impurity which at that stage must be kept below  $10^{-14}$  grams.

Beverly Rowan, of the Western Center of the American Academy of Arts and Sciences in Palo Alto, came in to my office at 11:30 a.m. She invited me to introduce Carl Djerassi (the main speaker at the China dinner at the AAAS Annual Meeting) and the two people who will comment on his talk at a dinner on Thursday, February 28 at the Mandarin Restaurant in Ghirardelli Square. The introduction will be about 5 minutes. She also asked me for ideas they might study at the Western Center of the American Academy. I mentioned my involvement in open space, the East Bay Regional Park District and its Master Plan, CUWA, etc.

I ate lunch in my office. At 12:20 p.m., Paul Lochak called to say that he had had an "immensely satisfying" meeting with Chairman Dixy Lee Ray at the AEC in Germantown this morning. He reported that she was very interested in learning about the European organization and understands the advantages that this would have. He said that she wants to discuss this at more length and therefore Paul will stay in Washington to meet with her in the presence of Commissioner Larson on Monday morning. He said that she told him that it would probably take a decision of the whole Commission to postpone the deadline in question for two or three months. He did not mention my name in his conversation; I indicated that he could do so Monday, but asked that it be only in a low-key, casual way. In the meantime, he wants to visit the Nuclear Safety Information Center at Oak Ridge.

As Paul requested, I called William B. Cottrell, the Director, to tell him of Lochak's decision to visit the Center at Oak Ridge. Cottrell indicated that he would be happy to see Lochak this week. I reported this back to Lochak.

After some discussion in response to Lochak's questions, I suggested that it would be wise for him to mention to Dixy Lee Ray his possibly discussing the same subject with Herman Pollack. I told him

*Kathy Tallye - Lafayette SOS*

521a

November 7, 1973

STATEMENT ON DEFEAT OF LAFAYETTE OPEN SPACE BOND ISSUE  
(PROPOSITION A):

We are of course disappointed with the overall results of the Lafayette open space bond election, but at the same time gratified that more than 3000 voters--nearly 50% of those who voted--are in favor of this important concept.

I want especially to thank all those who worked so hard to try to ensure the success of our objective.

I would hope that we can continue to strive for means to maintain and improve the quality of living in Lafayette.

I haven't had the opportunity to consult with our Lafayette SOS Group and other interested people, so I am not in a position to say what direction our future efforts will take.

G.T.S.

GTS/sms

that I had received some indication that the White House is more interested now in this kind of cooperation than they were in the past. Lochak and Felix had discussed this with Jonathan Ross, General Counsel in International Affairs to Pat Flanigan.

I walked down to the campus and taught my Chem 1A lab section in Room 124 Lewis, beginning at 1:10 p.m. The section was given the second quiz of the quarter (copy attached).

Manfred Lindner called to confirm the arrangements for my speech to the Contra Costa Park Council on Monday night.

I responded to a letter from Sir Harold W. Thompson (President of IUPAC), suggesting the names of people he might contact to serve on the IUPAC Committee on the naming of elements 104 and 105 (copy attached). I wrote John Pomeroy, reporting that his suggestion of "cosmochemistry" as a subject of a Welch Foundation conference was accepted for the 1977 conference.

Suki and I took a hike to the water tank.

Thursday, November 8, 1973 - Berkeley

I called Ann Chilcote at 9:15 a.m. to discuss with her the kinds of letters of appreciation which we shall send out in connection with the Lafayette SOS campaign. She will bring stationery, stamps, names, and addresses so that Sheila can get all of these letters written and mailed before she leaves the office tomorrow.

I attended, at 9:30 a.m. (an hour earlier than usual), the meeting of the SuperHILAC Research Progress group in the conference room of the HILAC Building.

Moretto described his and Babinet's new considerations concerning penetration of the barrier in the spontaneous fission process. These introduce the concept of moment of inertia change during the process and lead to a reduction of the fission barrier of the order of a factor of two. However, the immediate effect of these considerations on theoretical predictions of spontaneous fission half-lives is not clear because these calculations have been normalized to known experimental data. Longer term effects in calculations taking Moretto's considerations into account may be more important. He believes there is also some effect on induced fission.

Kratz reported on our argon and krypton bombardments of uranium including the latest treatment of the data. No spontaneous fission events have been observed in the superheavy element fraction in the last three months, setting a limit of  $10^{-31}$  cm<sup>2</sup> on the production cross section. He described the yield of reaction products (determined by gamma ray measurement) produced in the argon bombardments--the three classes of products, rabbit ears (600 mb), complete fusion-fission, and double humped fission. For krypton on uranium there are the rabbit ears and double humped fission, but no fusion-fission. The latest bombardments, krypton on gold, will give information in the absence of double humped fission.

35'

Section 2

Chemistry 1A-Second Quiz

Nov. 7, 1978

Name

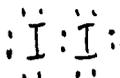
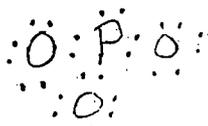
Room

Instructor

--	--	--

Show all work.

1. (Credit 8) Give the electron dot formula for:

(a)  $I_2$ (b)  $PO_3^{-3}$  (phosphite ion). The three oxygens are attached to the phosphorous.

2. (Credit 10) The solubility of rubidium iodate,  $RbIO_3$ , in 0.150 M  $NaIO_3$  solution is 0.040 moles per liter of solution. What is the solubility product of  $RbIO_3$ ?

$$(0.040)(0.150 + 0.040) = 7.6 \cdot 10^{-3}$$

3. (Credit 10) An unknown is made up of one or more of the following solids. On the basis of the observations given below write + for those substances certainly present, - for those certainly absent, and ? for those not determined by the observations.

 $BaSO_4$ 

-

 $Pb(NO_3)_2$ 

+

 $Ca(OH)_2$ 

?

 $MgCO_3$ 

+

 $ZnSO_4$ 

-

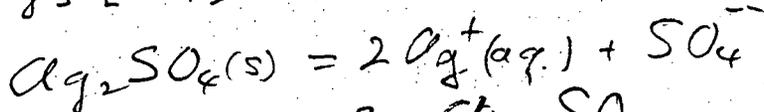
The solid dissolved readily in 1M  $HNO_3$  with the evolution of a gas. The resulting solution gave a dark precipitate when  $H_2S$  gas was bubbled through it.

-2-

4. (Credit 12) Calculate to 10% accuracy the concentration of  $\text{Ag}^+$  when excess  $\text{Ag}_2\text{SO}_4(\text{s})$  is added to a 0.030 M solution of  $\text{Na}_2\text{SO}_4$ . The solubility product of  $\text{Ag}_2\text{SO}_4$  is  $1.6 \times 10^{-5}$ .

$$(2 \times 10^{-2})^2 (0.01 + 0.03) \\ = 4 \cdot 10^{-4} \cdot 4 \cdot 10^{-2} \\ = 1.6 \cdot 10^{-5}$$

$$[\text{Ag}^+]^2 [\text{SO}_4^{2-}] = 1.6 \cdot 10^{-5}$$



$$\text{Let } x = \text{moly. Ag}_2\text{SO}_4$$

$$2x = \text{conc. Ag}^+$$

$$x + 0.030 = \text{conc. SO}_4^{2-}$$

$$(2x)^2 (x + 0.03) = 1.6 \cdot 10^{-5}$$

$$\text{Assume } x + 0.03 = 0.03$$

$$(2x)^2 (0.03) = 1.6 \cdot 10^{-5}$$

$$x^2 = \frac{1.6 \cdot 10^{-5}}{4 \cdot 0.03} = \frac{1.6 \times 10^{-5}}{1.2 \times 10^{-1}} = 1.33 \cdot 10^{-4}$$

$$x = 1.15 \cdot 10^{-2}$$

$$\text{Check } x + 0.03 = 0.0115 + 0.03 = 0.0415 \approx 0.03$$

$$\text{Assume } x + 0.03 = 0.0415$$

$$(2x)^2 (0.0415) = 1.6 \cdot 10^{-5}$$

$$x^2 = \frac{1.6 \cdot 10^{-5}}{4 \cdot 0.0415} = \frac{1.6 \cdot 10^{-5}}{1.66 \cdot 10^{-1}} = 0.96 \cdot 10^{-4}$$

$$x = .98 \times 10^{-2}$$

$$\text{Check } x + 0.03 = 0.0098 + 0.03 = 0.0398 \approx 0.0415$$

$$\text{Assume } x + 0.03 = 0.0398$$

$$x^2 = \frac{1.6 \cdot 10^{-5}}{4 \cdot 0.0398} = \frac{1.6 \cdot 10^{-5}}{1.59 \cdot 10^{-1}} = 1.01 \cdot 10^{-4}$$

$$x = 1.5 \cdot 10^{-2}$$

$$\text{Check } x + 0.03 = 0.015 + 0.03 = 0.045$$

$$\text{Ag}^+ = 2x \quad (-2) \\ = 2(0.98 \cdot 10^{-2}) \\ = 1.96 \cdot 10^{-2} \text{ M}$$

## LAWRENCE BERKELEY LABORATORY

UNIVERSITY OF CALIFORNIA

BERKELEY, CALIFORNIA 94720 □ TEL. (415) 843-2740

U.S.A.

November 7, 1973

Sir Harold W. Thompson  
President, International Union of  
Pure and Applied Chemistry  
St. John's College  
Oxford OX1 3JP, United Kingdom

Dear Sir Harold:

This is in reply to your letter of October 30, 1973.  
Following are the correct names and addresses of the people  
that you identified:

Dr. Earl K. Hyde, Deputy Director  
Lawrence Berkeley Laboratory  
University of California  
Berkeley, California 94720 U.S.A.

Dr. George A. Cowan  
Division Leader, Nuclear Chemistry Division  
Los Alamos Scientific Laboratory  
P. O. Box 1663  
Los Alamos, New Mexico 87544 U.S.A.

Dr. Robert A. Penneman  
Group Leader, Inorganic Chemistry  
Los Alamos Scientific Laboratory  
P. O. Box 1663  
Los Alamos, New Mexico 87544 U.S.A.

Dr. Darleane C. Hoffman  
Associate Group Leader, Nuclear Chemistry  
Los Alamos Scientific Laboratory  
P. O. Box 1663  
Los Alamos, New Mexico 87544 U.S.A.

I suggest that you include Earl Hyde and at least one of the  
three from the Los Alamos Scientific Laboratory in this order  
of priority: (1) Hoffman, (2) Penneman, (3) Cowan.

I don't know whether your list was meant to be  
complete. Our discussions in Hamburg included, from the

Sir Harold W. Thompson - 2 -

November 7, 1973

United States in addition to the above, such names as  
O. Lewin Keller (Oak Ridge National Laboratory, Post Office  
Box X, Oak Ridge, Tennessee 37830 U.S.A.).

With best regards,

Cordially,

Glenn T. Seaborg

GTS/sms

Thursday, November 8, 1973 (con't)

Ghiorso next reported on the status of the SuperHILAC. They have fixed the air leak in Adam, but they now have new electrical and other problems. The Eve magnet has burned out and therefore Eve won't be operating again until next week. The realignment of the magnets in the pre- and post-stripper tanks during the shutdown was accomplished successfully.

Harvey and I conferred with Ghiorso after the meeting. We agreed to place emphasis on krypton and argon ions during the next few months, with only a little effort on xenon ions in view of the huge demand. We also discussed the proposal to go ahead with LASSY and a program to try to reach the Island of Stability via production and identification, successively, of elements 106, 107, 108, etc. We discussed possible research assignments for Colin Watanabe and Kim Williams.

I attended the first biweekly luncheon meeting of the actinide chemistry group in Room 1147 of Building 70A (the library of our actinide chemistry area). Also present were Professor Andrew Streitwieser, Norman Edelstein, Len Nugent, Tom Parsons, David Starks, William Kolbe, Reinhard Gradl, Ted Baker, and Gordon Halstead.

Starks, working with Streitwieser, described his recent production of  $\text{PaCOT}_2$  by the reaction  $\text{PaCl}_4 + 2\text{K}_2\text{COT} \rightarrow \text{Pa}(\text{COT})_2 + 4\text{KCl}$ . He is also interested in preparing  $\text{Am}(\text{III})\text{CpCOT}$ .

Gradl then described his planned program to produce metallic (M) compounds with the ligand,  $\text{NaS-C-R}$

||  
 $\text{NaS-C-R}$ , dithiolate, where R stands for CN.

Gordon Halstead, working with Professor Raymond (with salary paid by LBL), described his work on the crystal structure of  $\text{UCp}_3\text{C}_3\text{H}_5$  and related compounds.

At 2:00 p.m., I met with Joe Cerny to discuss possible moves to increase the influx of graduate students into our Nuclear Chemistry Division program. We may have a summer program for undergraduate juniors next summer as we had a year ago.

I sent a copy of my China Journal to Isidor Rabi and two copies to Justin Bloom for people who work on East Asian scientific matters and for the PRC desk at the State Department.

I met from 3:00-3:30 p.m. with Ann Chilcote. She brought in the names and addresses of a large number of people to whom I will write letters of appreciation for their work on the Lafayette Open Space Bond election--letters to be signed by William Chilcote and me.

Suki and I took a hike to the water tank.

Friday, November 9, 1973 - Berkeley

Earl Hyde dropped in at 9:00 a.m. to discuss events during the first days of his new job. We also discussed the program for the high level visitors next week, including AEC Chairman Ray.

Linda De Lucia dropped by at 10:30 a.m. to discuss the possibility of working on her graduate student thesis research with me. I described to her my research program, then took her by to see Kratz and Norris. I then took her up to the SuperHILAC where Ghiorso and I gave her a tour of the SuperHILAC and the experimental equipment, including SASSY and FAKE. I then walked back down with her to Building 70 to again visit Kratz and Norris, and this time also Binder, so they could describe their research program more thoroughly.

I had lunch with Earl Hyde in the cafeteria. We discussed further his problems during his first week as LBL Deputy Director. He told me that Sessler has learned from President Hitch that Hyde, as LBL Deputy Director, needs to be appointed at the Regential level. Apparently, his appointment will be considered at the next meeting of the Board of Regents.

I walked down to the campus for the regular meeting at 1:10 p.m. of the Chem 1A instructional staff. Following this meeting, Kim Williams talked to me to say that she would like to do graduate student research under my direction; I told her I am glad to accept her as a student and suggested that she go up to the HILAC Building next Monday afternoon and we will put her to work.

I checked in the Department of Chemistry office and found that the applications for admission to graduate work of Christopher Ritter and Colin Watanabe are nearly complete, and their prospects for admission very soon are good. I called Ritter at his home in Portland to give him this news.

I met from 2:30-3:30 p.m. in my office with Louis Lazaroff (Asia Foundation, San Francisco) and B. R. Deolalikar (Sarabhai Enterprises, Ahmedabad, India; formerly at the Harvard Center for Population Studies). We discussed the barefoot technologist program planned for the 1974 AAAS Annual Meeting. I told Lazaroff that I had invited a Chinese delegation to attend the meeting and may have mentioned the barefoot technologist program (it turned out that I didn't). I told them about my AAAS Retiring President's address at the Mexico City meeting and gave them reprints. They were extremely interested in my proposal for an International Association for the Advancement of Science and wanted to take immediate steps concerning the involvement of Asian countries. Lazaroff said that he would be glad to provide a grant (\$8,000 was mentioned) to bring about six representatives of Asian countries to the AAAS Annual Meeting to explore this, for example at a luncheon meeting. He thought that countries such as India, Indonesia, Malaysia, the Philippines, Korea, Thailand, Bangladesh, and Pakistan might be represented. Deolalikar suggested as an Indian representative M. G. K. Menon, Director of the Tata Institute of Fundamental Research in Bombay, and Abdus Salam was mentioned as a Pakistani representative. They also told me that Roger Revelle is going to attend the U.S.-India Pugwash meeting in Hyderabad, India, on

January 9-13 and might explore this idea there. I said that I would put it up for discussion at the meeting of the AAAS Board of Directors in Washington in about three weeks. Lazaroff also raised the question of the investigation of indigenous energy sources that could be applied at a local level at a country like India, and I said that if I had any ideas about this, I would get in touch with him. (I also gave them reprints of my memorial on Vikram Sarabhai; Deolalikar will give a copy to Vikram's mother when he returns to India.)

I then wrote Bill Bevan, reporting on my visit with Lazaroff and Deolalikar (copy attached).

Sheila typed and I signed 57 personal letters to Lafayette SOS and other people, thanking them for their assistance in connection with our campaign (list and sample attached). Letters were sent to the Committee Members, the Precinct Captains, those who contributed over \$100 to the campaign, the office workers, and Alice Johnson, Bea Whiteside, Mary Kelley, Jane and Jim Moore, and Albert Raeburn--each of the latter having worked especially hard on the campaign.

During the evening I called Colin Watanabe to tell him his transcript from UCLA is missing from his application file material for admission to graduate work. I suggested he phone UCLA, which he said he will do.

Saturday, November 10, 1973 - Sunol Regional Park - Lafayette

I drove to Sunol Regional Park to participate in a hike sponsored by the Mount Diablo Regional Group of the Sierra Club. The other participants were Walter Goggin, leader of the hike, and Neil Southwick (an uncle of Rod Southwick). We started at 9:30 a.m. and hiked on a narrow trail, made very slippery by the rain, up and over Flag Hill, then down a fire road to Welch Creek Road which we followed for a short distance, then along another fire road around Maguire Peaks, going via a trail to the top of the higher of the two peaks (altitude 1,688 feet). Here we ate the lunch we had carried in our knapsacks. After lunch, we headed back down to the fire road, continued along this on our encirclement of the Maguire Peaks, followed Welch Creek Road a short distance, then hiked along still another fire road around Flag Hill back to our starting point at Park Headquarters. We arrived back at 2:30 p.m. after hiking a total of about 10 miles.

We then visited with Dick Angel, Sunol Park naturalist, for a while. After this, I drove back to Walnut Creek where I stopped at Binnewig's Boot Shop to look at some boots with the eye to later purchase when they obtain a pair of Redwing boots in my size.

Arnie and Betsy Fritsch, visiting the Bay Area to attend the AIF-ANS meeting next week, came by our house at 6:00 p.m. After some drinks and conversation, including Dianne (on the conversation), Helen, Arnie, Betsy, and I went to La Rue in Lafayette for dinner. We found this to be a rather nice place to eat. We ran into Dr. and Mrs. John Huizenga who were also eating there.

After dinner, we all came back to our house for a while for further conversation. The nuclear fuel fabrication company of which

*American Association  
for the Advancement of Science*

GLENN T. SEABORG  
Chairman, Board of Directors

LAWRENCE BERKELEY LABORATORY  
UNIVERSITY OF CALIFORNIA  
BERKELEY, CALIFORNIA 94720

November 9, 1973

Dr. William Bevan  
American Association for  
the Advancement of Science  
1515 Massachusetts Avenue, N.W.  
Washington, D.C. 20005

Dear Bill:

I had an interesting visit this afternoon in my office with Louis Lazaroff of the Asia Foundation in San Francisco and B. R. Deolalikar of Sarabhai Enterprises in Ahmedabad, India (formerly with the Harvard Center for Population Studies).

They were quite excited when I mentioned to them the concept of an International Association for the Advancement of Science, particularly as it might apply to the Asian countries. Lazaroff suggested that the interest of Asian countries might be explored during a meeting of representatives from such countries--perhaps a luncheon meeting--at the time of the 1974 AAAS Annual Meeting in San Francisco. He indicated that he could probably provide a grant from the Asia Foundation (he mentioned \$8,000) to cover the travel expenses of such Asian representatives. The countries suggested were India (M.G.K. Menon, Director of the Tata Institute of Fundamental Research in Bombay was mentioned), Pakistan (Abdus Salam was mentioned), Indonesia, Malaysia, the Philippines, Korea, Thailand, and Bangladesh.

They were acquainted with the fact that Roger Revelle is going to attend the U.S.-India Pugwash meeting in Hyderabad on January 9-13, and suggested that this might be a good opportunity for Roger to further discuss these ideas.

William Bevan

- 2 -

November 9, 1973

I think that this might be an item that we could discuss either on the formal agenda or informally at the time of the Board of Directors' meeting at the end of this month.

With best regards,

Cordially,

Glenn T. Seaborg

GTS/sms

cc: Leonard Rieser  
Roger Revelle

November 9, 1973 525c

PERSONAL LETTERS OF APPRECIATION FOR HELP ON LAFAYETTE OPEN SPACE  
BOND ELECTION, signed by GTS and WMC:

1. Gail Bicker
2. Robert Bridges
3. Lea Brook
4. Barbara Bupp
5. Mr. and Mrs. Charles Busso
6. Mrs. William Chilcote
7. Jeanne Christy
8. Mrs. Walter Costa
9. Barbara Craig
10. Margaret Dann
11. Fred A. Davies
12. Arthur DiGrazia
13. Carmel Dixon
14. Margie Dunbar
15. Fran Dyer
16. Ric Ellis [cc of Raeburn]
17. Barbara Falconer
18. Barbara Galla
19. Mr. & Mrs. Robert Gilliland
20. Mrs. Pat Gorshe
21. Don Gralnek
22. Dolores Green
23. Dr. and Mrs. Carl Helmholtz
24. Happy Valley Improvement Assn.
25. Hidden Valley Improvement Assn.
26. Charlotte Hockett
27. Mary Ann Hoisington
28. J. Gordon Holmes
29. Falu Hutson
30. Alice Johnson [GTS only]
31. Joanne Johnson
32. Mary Kelley [GTS only]
33. Lafayette Design Project
34. Cashy Lehto
35. Mr. and Mrs. Ray Lundgren
36. Claire Masters
37. William D. McKee
38. Mr. and Mrs. James R. Moore
39. Betsy Page
40. Dolly Pfautch
41. George Ponomareff
42. Linda Porter
43. Albert Raeburn
44. Louis Repetto
45. Barney Rocca, Jr.
46. Christine Schreiber
47. Helen Seaborg
48. Mr. and Mrs. Richard Singer
49. Irene Torngren
50. Lloyd Townley
51. Mr. and Mrs. Art Ungar
52. Valley Garden Club
53. Jop Van Overveen
54. Evelyn Westlye

continued

LAFAYETTE SOS PERSONAL APPRECIATION LETTERS

55. Bea Whiteside [GTS only]

56. Charles Williams

57. William Zion

**!SOS!**

525e

**LAFAYETTE SAVE OPEN SPACE**

Glenn T. Seaborg,  
Chairman

P.O. Box 673  
Lafayette, CA 94549

November 9, 1973

13  
etc

Mr. and Mrs. Charles Busso  
8 Crest Road  
Lafayette, California 94549

Dear Marge and Charlie:

We want to express our appreciation for your tremendous efforts on the Lafayette open space bond election.

While we must of course be disappointed with the overall results, at the same time we can be gratified that we have received so much support. The fact that more than 3,000 voters agreed with our objective should give us hope for some kind of continuing effort toward our goal to maintain and improve the quality of living in Lafayette.

With warm regards,

Cordially,



Glenn T. Seaborg

William M. Chilcote

GTS/sms

Arnie is president is going to be sold by Gulf and thus the Fritches will be moving to another location where Arnie will have another assignment.

Sheila Saxby flew to Denver today for a short visit; she will return to the office next Thursday.

Sunday, November 11, 1973 - Lafayette

I watched on TV the Washington Redskins-San Francisco 49ers football game; the Redskins won, 33-9. Suki and I took a hike to the water tank. On the way, we ran into Dr. Percy Jennings, who served as pediatrician for our kids from 1951-1961 in Lafayette.

In the afternoon, I went to a meeting at the Chilcotes' for an assessment of the aftermath of the Lafayette Open Space bond election and to discuss future plans. Bill Chilcote was in bed so he didn't participate. Wally Costa, Mary Kelley and her husband were present in addition to Ann Chilcote and me. We discussed the financial situation. We are short by about \$4-500, including a \$340 "extra" bill from Al Raeburn. We will try to get Raeburn to settle for half of his bill and will raise the rest of the deficit by contributions from the members of the Lafayette City Council and another \$100 from me if necessary.

We then discussed future plans. We decided that we should try to have another open space bond election next August. First priority is the election of Lafayette Councilmen at the election next March 5 who are favorable to open space; I mentioned Holly Okonski as a possibility. Councilmen Donn Black and Jim Davy, whose terms expire, are not planning to run for re-election, but Ned Robinson is (all five present members of the council--the other two are Wally Costa and Bob Fisher--are in favor of open space). We decided not to be very active on open space matters in a public way until after the March 5 election.

We discussed a number of possible paths for future action. We might obtain options on a large share of the needed property before the election, using some \$50,000 of Lafayette City money (available from sales tax, etc.). We might try for only a \$4-5 million total instead of \$6 million. We might see if a number of land owners will sell their land to the city at a greatly reduced price (essentially a gift) in order to have the advantage of a tax write-off. Bill McKee has offered his 90 acres to the city for about \$50,000 (the magnitude of his mortgage on the land) with the expectation that he can get a tax write-off on the true value, which may be as high as \$300,000. Costa may try to get the Council to accept this offer. Another possibility is to acquire a large proportion of the land on a long-term payment plan using city funds. Still another possibility, not considered to be too feasible, would be for the Lafayette City Council to vote a tax override to obtain funds for the land purchase. Perhaps a combination of these methods may be best. Costa will draw up a memorandum summarizing these possibilities. We will also consider possibilities for City Councilmen; the filing date deadline is December 27. Lafayette SOS will be inactive in the immediate future.

Monday, November 12, 1973 - Berkeley

Sheila is in Denver, so Jane Kingston and Sylvia Kihara are minding the office in her absence. I attended Professor Pimentel's Chem 1A lecture, then walked back up to my LBL office to read my correspondence. I received a nice letter (copy attached) from Geoffrey Wilkinson, commenting on his receipt of the 1973 Nobel Prize for Chemistry. I also received a letter from Ralph J. McCracken, Acting Administrator of the Agricultural Research Service in Washington, informing me that George Harrar (who I nominated) will receive the 1974 W. O. Atwater Memorial Lectureship award (copy attached).

I then walked back down to my office for my office hour in Room 446 Latimer Hall from 11:00 a.m. to noon. Ann Thor, whose father is Eric Thor (an Assistant Secretary of Agriculture for the last four years), dropped in for help with some problems. She told me that her family was well acquainted with Tommy Thompson and she attended, along with her family, the memorial services for him at which I spoke. Mary Canning also dropped in; she is worried about her low quiz scores due, at least in part, to the fact that she has to work for a living--her parents are separated and her mother, who lives in Lafayette, is ill.

At noon, I attended the regular luncheon meeting of the Chemistry Department faculty in the Howard Room of the Faculty Club. I taught my Chem 1A lab section in Room A from 1:10-2:45 p.m.

I walked back up the hill to my LBL office. Paul Lochak called to report on his meeting with AEC Chairman Dixy Lee Ray. The meeting went very well, lasting an hour and forty-five minutes and included a hamburger lunch in her H Street office. She continues to be very interested in cooperating with the European utility group on uranium enrichment. She suggested that Lochak discuss this further with Peter Flanigan and John Sawhill and also with Craig Hosmer (or Mel Price). She said she will discuss it with me.

Lochak told me he also had a two-hour discussion with Herman Pollack. Pollack was more cautious, but interested. He said that the discussions will have to include the governments of the European countries involved and should be conducted so as not to undermine Eurodif and Urenco. Lochak will keep me informed.

At 3:30 p.m., George Rogosa, acting head of the Nuclear Sciences branch of the AEC's Division of Research, and John Burnett of that branch, dropped in to talk to Harvey and me in my office. Rogosa said the Division of Research is providing the hoped-for \$150,000 (actually \$168,000) for the SuperHILAC budget for this fiscal year. He said he also feels they can supply some extra funds for ion source work and also some for equipment. He encouraged us to put in a line item in the FY76 budget for the SuperHILAC booster (some \$7-9 million) and for the cryogenic cyclotron in the 88" cyclotron laboratory (\$3 million). He said he believes we should create a Policy Committee with outside members for the SuperHILAC. He also indicated that the HFIR-TRU program is not in trouble but will almost certainly be continued.

200 Skelton

## IMPERIAL COLLEGE OF SCIENCE AND TECHNOLOGY



DEPARTMENT OF CHEMISTRY

South Kensington, London SW7 2AZ

Telephone 01-589 5111 Ext. 1203 Telex 261503

Geoffrey Wilkinson, FRS

Professor of Inorganic Chemistry

xc Eileen

1570 11/12/73

6 Nov 73

Dear Glenn

Many thanks for your letter  
 - it was very nice indeed to hear from you.  
 I must say it was all a great surprise  
 & I never expected to be following in your  
 footsteps to Stockholm. How ever, doubtless  
 will survive.

Nice to have seen you again last October

Best wishes  
 Geoff

UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURAL RESEARCH SERVICE  
WASHINGTON, D.C. 20250

NOV 9 1973

Dr. Glenn T. Seaborg  
Chairman, Board of Directors  
American Association for the  
Advancement of Science  
Lawrence Berkeley Laboratory  
University of California  
Berkeley, California 94700

JMS 11/12/73

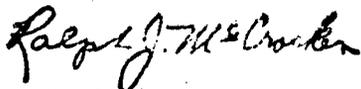
Dear Dr. Seaborg:

I am pleased to inform you that Dr. J. George Harrar, whom you nominated for the 1974 W. O. Atwater Memorial Lectureship, has accepted the award.

Dr. Harrar is a scientist and foundation executive with an international reputation of the highest accomplishment. I feel sure that members attending the 140th Annual Meeting of the American Association for the Advancement of Science will profit from his address.

Thank you for your kind assistance in helping us select a splendid Lecturer.

Sincerely,



Ralph J. McCracken  
Acting Administrator

xc: William Bevan  
Jane Kingston

I presided over the regular Nuclear Chemistry Seminar (every third week) for talks by graduate students. Meir S. Rapaport (Perlman's finishing student) spoke on "The Shakeoff of K-Electrons in Alpha Decay" and Arthur J. Soinski (Shirley's student) spoke on "Alpha Partial Wave Amplitudes and Phases in the Decay of  $^{253}\text{Es}$ ."

I learned that Chris Ritter has been accepted by the Chemistry Department for graduate work with me. I phoned him in Portland to convey this news; he will be here to start next Monday.

I received a letter from Dr. Kurt Mothes, President of the German Academy of Sciences--Leopoldina (East Germany), renewing their invitation of July 17, 1962 (which I declined upon advice from the U.S. State Department) to membership. (His invitation is attached, together with my letter of acceptance dated 11/16/73.)

Harry Whitmore called as Chairman of the ACS Nominating Committee to invite me to run next year for the position of ACS President in 1976; I will let him know on Friday the 16th. He is working on the four names to be submitted to the Council; at present he has only one acceptance for the roster--Henry Hill (on the ACS Board of Directors, a private businessman in Boston). The ACS Council will choose two nominees out of the four names at the Los Angeles meeting in April, 1974. Election takes place in November and the winner takes office on January 1, 1975, as President-Elect, and as President on January 1, 1976. He also serves one more year as immediate past President, but there is no work involved during that year. We discussed previous elections and candidates, proposed both by the Council and by general petition (Bill Bailey, Emerson Veneble, Bernard Freeman, Alan Nixon).

Suki and I took a hike to the water tank. I watched on TV the Kansas City Chiefs-Chicago Bears football game while doing some work; the chiefs won, 19-7.

Tuesday, November 13, 1973 - Berkeley - San Francisco - Berkeley

I attended the meeting of the USAEC Transplutonium Program Committee in the HILAC Conference Room from 9:00 a.m. to noon. Present were A. R. Van Dyken (Chairman), Albert Ghiorso, J. E. Bigelow (ORNL), D. E. Ferguson (ORNL), Paul Fields (ANL), Seymour Katcoff (BNL), Bob Penneman (LASL), Dick Hoff (LLL), Jim Nehls (AEC, Oak Ridge), Lew Keller (ORNL), C. H. Ice (SRL), Ralph Hungate (PNL), plus George Rogosa (AEC), John Burnett (AEC), Matti Nurmi, Norman Edelstein, Jim Harris, Dick Wilde (LLL), Richard Heckman (LLL), Ken Hulet (LLL), and others. George Cowan (LASL) joined us later.

The agenda (copy attached) was followed. Van Dyken first called on Ghiorso, who in turn introduced Andrew Sessler, who made some welcoming remarks, including the statement that the SuperHILAC has top priority at LBL.

It was agreed that Pu-244 is a crucial isotope. There are 3.25 gm available now--it was agreed that some of this should be kept in reserve after allocation to the various laboratories. There is another 4 gm (20.9 gm of 19.6% composition) unseparated at Savannah River which could be chemically separated and put through a calutron

S-A 11/12/73

Translation of attached letter.

Dear Dr. Seaborg:

On July 17<sup>th</sup>, 1962 I wrote you that our Academy elected you as a member. You <sup>replied</sup> ~~answered me~~ at that time that you were not able to accept this election. I heard from one of your colleagues that your negative answer was related to the official functions which you had to carry out at that time.

Several articles that you published recently in "Science" reminded me how deeply we regret that we cannot count you as one of our members. Another member, Prof. Biermann-Munchen met you recently somewhere in California and told me--without knowing about our relation--that by now you might be interested in our Academy. Therefore, I send you a copy of our annual meeting 1971 "Informatik" and I want to assure you that our old vote to have you as a member is still valid. If you should be able or willing to accept our election today, we would welcome you as one of our most popular members. There is no doubt about the fact that our Academy, being one of the oldest and completely liberal institutions, does not get its reputation from the efficiency of its institutes--because we don't have institutes--but only from the scientific and personal greatness of its members.

With best regards...

jk

DEUTSCHE AKADEMIE DER NATURFORSCHER  
LEOPOLDINA  
DER PRÄSIDENT  
PROF. DR. KURT MOTHES

DDR - 401 Halle, den 31. Oktober 1973

August-Bebel-Straße 50a — Telefon 25014

Bankkonto: Industrie- und Handelsbank, Halle.

Klement-Gotwald-Straße 2, Nr. 3781-32-114

Postcheckkonto: Leipzig 106 41

Betr.-Nr.: 92380024

Herrn  
Prof. Dr. Glenn T. SEABORG  
University of California  
BERKELEY, Calif, 94720, USA

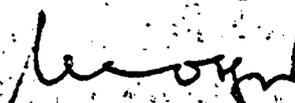
BS 11/6/73

Sehr verehrter Herr Kollege Seaborg!

Am 17. Juli 1962 habe ich Ihnen geschrieben, daß unsere Akademie Sie zum Mitgliede gewählt hat. Sie haben mir daraufhin geantwortet, daß es Ihnen leider nicht möglich ist, diese Wahl anzunehmen. Ich hörte von einem Ihrer Kollegen, daß die Gründe für dieses ablehnende Schreiben mit Ihrer amtlichen Funktion zusammenhängen, die Sie damals innehatten.

Durch einige Aufsätze, die Sie in letzter Zeit vor allem in der "Science" veröffentlicht haben, wurde ich erneut daran erinnert, wie sehr wir hier bedauern, Sie nicht zu unseren Mitgliedern zählen zu dürfen. Eines unserer Mitglieder, Prof. Biermann-München ist Ihnen vor kurzem irgendwo in Californien begegnet und hat mir - ohne etwas über unsere Beziehungen zu wissen - gesagt, daß Sie sich wahrscheinlich doch für unsere Akademie interessieren. Deshalb erlaube ich mir, Ihnen den Band unserer vorletzten Jahresversammlung (1971) "Informatik" zu senden und Ihnen zu sagen, daß für uns der alte Beschluß, Sie zum Mitglied gewählt zu haben, weiter besteht. Sollten Sie heute in der Lage oder geneigt sein, diese Wahl anzunehmen zu können, würden wir Sie als eines unserer angesehensten Mitglieder begrüßen, denn es ist kein Zweifel, daß unsere Akademie als eine der ältesten und als völlig freie Institution ihr Ansehen nicht aus der Leistung ihrer Institute gewinnt - denn wir haben keine Institute - sondern lediglich aus der wissenschaftlichen und charakterlichen Größe ihrer Mitglieder.

Mit freundlichen Empfehlungen  
Ihr Ihnen sehr ergebener



U.S.A.

November 16, 1973

Professor Dr. Kurt Mothes  
President  
Deutsche Akademie der Naturforscher  
Leopoldina  
August-Bebel-Strasse 50a  
Leipzig 166 41, Germany

Dear Dr. Mothes:

In reply to your letter of October 31, 1973,  
I am pleased to accept membership in the Deutsche  
Akademie der Naturforscher Leopoldina.

I am looking forward to my association with  
your Academy.

I was especially interested in your reference  
to my article in Science because I look forward to  
the implementation of my suggestion for the creation  
of an International Association for the Advancement  
of Science.

Cordially yours,

Glenn T. Seaborg

GTS/sms

NOV 13

USAEC  
TRANSPLUTONIUM PROGRAM COMMITTEE MEETING

AGENDA

MEETING 19

November 13-14, 1973

Berkeley, California

November 13

HILAC Conference Room, LBL

9:00 am	Call to Order	A. R. Van Dyken
	Welcome	
	Announcements	
9:15 am	Executive Session of Members and Official Observers.	
	1. Minutes of Meeting 18	A. R. Van Dyken
	2. Review of Requirements and Availability of Transplutonium Elements	D. E. Ferguson J. E. Bigelow
11:00 am	Long Term Needs for Transplutonium Elements Summary by	J. E. Bigelow
12:00 noon	END OF SESSION	
1:30 pm	Special Topics*	
	1. Biological Behavior of Transplutonium Elements and Isotopes	R. Hungate
	2. Theory of Superheavy Elements	Dr. Swiatecki
	3. SuperHILAC Progress	A. Ghiorso R. Main
	4. Fast Chemistry at the SuperHILAC	K. Hulet
	5. Chemical Studies of Actinide Compounds	N. Edelstein
	6. Spectroscopic Studies of Actinide Compounds	Dr. Worden
4:30 pm	END OF SESSION	

November 14

HILAC Conference Room, LBL

9:00 am	1. Ratification of recommended allocations	
	2. Cu-250 Target Material	G. Cowan
	3. Recovery of Hutch Debris	R. Heckman
	4. Research Highlights*	
	ANL, BNL, ORNL, PNL, SRL, Idaho, LASL and LLL	

AGENDA

- 2 -

## 5.3 Special Topics

12:00 noon

END OF SESSION

The afternoon will be available for individual discussion and visits.

\*Those people requiring visual aids should contact the host concerning their needs.

Tuesday, November 13, 1973 (con't)

in about 1-2 years. There is another 20-30 gm in fuel elements at Savannah River. Beyond this, it would be necessary to again devote a Savannah River reactor entirely to transplutonium production, an unlikely eventuality. At the present, there is only an irradiation hole for transplutonium production in one of the Savannah River plutonium production reactors, and this only makes it possible to stay even on transplutonium production (compensating for radioactive decay, losses, etc.). Rogosa suggested that the reserve supply of Pu-244 be kept at Berkeley in the custody of Jim Harris.

We took a coffee break at 10:30 a.m. At 11:00 a.m., I received a phone call from Justin Bloom, from the AIF meeting in San Francisco, who inquired about Paul Lochak and his efforts to bring about U.S.-European cooperation in uranium enrichment. I described my behind-the-scenes role in this, including my talk with Bill Baker. I emphasized the negative attitude of the French CEA (especially Goldschmidt) and the counteracting plan to operate through a consortium of European utilities.

After the intermission, the Transplutonium Program Committee meeting proceeded to a discussion of the allocation of Cm-248. It was agreed that the presently available 40 mg will be divided equally among six labs. The next 60 mg, available next summer, will be kept flexible for possible use, at least in part, as SuperHILAC target material.

We also discussed the allocation of Bk-249 and Cf-249, including the allocation of some to Kanelokopulos for measurement of the magnetic susceptibility of Bk and Cf metals and to Jean Fuger for heat measurements. When we pointed out that we could do the magnetic susceptibility measurements at LBL if we had the manpower, Rogosa volunteered to find the extra funds to support such a man and asked Burnett to do this. This will make it possible to hire Kanelokopulos if he fails to get a fellowship to support him.

I had lunch in the room at the lower level of the cafeteria with the Transplutonium Committee, joined by John Huizenga, Hartmut Freiesleben (Huizenga's postdoctoral man from the University of Rochester), Vic Viola, Jens Kratz, and Ted Norris.

Norman Borlaug called from Mexico City at 1:30 p.m. to ask my opinion of his suggesting in a letter to Henry Kissinger a combination nuclear electric and desalting plant to be built in the Israel-Egypt area. I said I approved and agreed that he might use my name in his letter to Kissinger.

I received a letter from P'an Ch'un (Director, Bureau of Foreign Affairs, Scientific and Technical Association of the People's Republic of China, Peking), declining our invitation for them to send a delegation to the AAAS Annual Meeting (copy attached). I forwarded copies to Bill Bevan, Len Rieser and Roger Revelle.

I received from Helmut Wakeham a copy of his letter to Ted Sherburne, indicating that Philip Morris will contribute \$5,000 to

中华人民共和国科学技术协会  
THE SCIENTIFIC AND TECHNICAL ASSOCIATION OF  
THE PEOPLE'S REPUBLIC OF CHINA  
ER LI GOU, PEKING, CHINA

Dear Prof. Sealong,

Nov. 3, 1973

Your letter of Oct. 28, 1973 to President Kuo Mo-jo has been received. We are very much grateful that you have invited us on several occasions to send a delegation to attend the Annual Meeting of the American Association for the Advancement of Science to be held in San Francisco from Feb. 24 to March 1.

We have consulted with the institutions concerned. It seems difficult to send some people to your AAAS Annual Meeting. However, we would like to tell you in advance that the Scientific and Technical Association of China will send a visiting group of Seismologists to Canada and the United States of America during April--May next year.

It is my firm belief that the Chinese Seismologists will surely have a chance to meet their American colleagues and to exchange scientific ideas with them.

Thank you again for your kind invitation.

With best regards.

P'ien Ch'un  
Director, Bureau of  
Foreign Affairs, the  
Scientific and Technical  
Association of the  
People's Republic of  
China

中华人民共和国科学技术协会  
THE SCIENTIFIC AND TECHNICAL ASSOCIATION OF  
THE PEOPLE'S REPUBLIC OF CHINA

ER LI GOU, PEKING, CHINA

西博格教授：

一九七三年九月廿八日给郭沫若院长的来信已经收悉。我们十分感谢你几次邀请我们派代表团参加一九七四年二月廿四日到三月一日在旧金山召开的美国科学促进协会年会。

我们会与有关研究单位进行了商洽，看来难以派人参加你们的年会了。但是我愿意预先告诉你，中华人民共和国科学技术协会于一九七四年四~五月间将派遣地震考察组访问加拿大和美国。我相信中国的地震学家一定有机会与美国的同行们见面，并和他们进行学术交流。

再次感谢你的好意邀请。

顺致良好的问候。

中华人民共和国科学技术协会

外事局局长 潘纯

一九七三年十一月三日

Tuesday, November 13, 1973 (con't)

Science Service. I sent to Bill Golden, Bill Bevan, Leonard Rieser, and Fran Freeman a status report on my efforts to raise funds for the AAAS building project (copy attached).

I called Melvin Calvin to ask his advice about running for President of the American Chemical Society; he urged me to do so.

I returned to the meeting of the Transplutonium Committee in the HILAC Conference Room. The afternoon program consisted of talks on special topics. Swiatecki spoke on "Theory of Superheavy Elements" and Ghiorso on "SuperHILAC Progress."

Next there was a coffee break, after which I walked back to Building 70A, joined Helen who had just arrived, and rode with her in the station wagon to San Francisco. (Dave was to pick up the Bonneville to drive to Davis to hear an evening lecture by Professor Odom.)

Helen and I went to the St. Francis Hotel to attend the AEC Awards Citation ceremony. We arrived at 5:00 p.m. and met and talked to AEC Commissioners William Doub, Clarence Larson and William Kriegsman. Kriegsman said he still finds the situation vis-a-vis Chairman Ray intolerable.

We went up to the Grand Ballroom where I met, as arranged, with Roland Lindner, head of the European Institute for Transuranium Elements at Karlsruhe and arranged for the 4th International Transplutonium Element Symposium to be held at Baden-Baden, Germany, September 15-18, 1975. He asked if I would give an opening talk on the state of science and I declined. He suggested that we try to arrange for increased cooperation, and exchanges, between U.S. and European scientists in the transuranium field and in science in general, and I agreed; he will presumably be in touch with me about this. I described my idea for the creation of an International Association for the Advancement of Science. We also discussed his proposed program for the Baden-Baden meeting, and I suggested more emphasis on electronic structure and unusual oxidation states.

Helen and I then went to the Elizabethan Room where we saw a ceremony presided over by Bill Gould, Chairman of the Atomic Industrial Forum, honoring Charles Robbins upon his retirement as Executive Officer of the AIF.

We then went back to the Grand Ballroom where we met many old friends. We invited Justin and Robbie Bloom to have dinner with us at our home on Friday night. Jim Ramey was there and we talked to him.

We viewed the ceremony of presentation of AEC Citation Awards to Walker Cisler (by Larson), Sherman Knapp (by Doub) and Maurice Goldhaber (by Kriegsman), presided over by Chairman Ray. We met and talked to all three.

I had a talk with Chairman Ray about her meetings with Paul Lochak and Fremont Felix. She said she hopes that cooperation between U.S. and Europe in uranium enrichment can be arranged and feels that

*American Association  
for the Advancement of Science*

GLENN T. SEABORG  
Chairman, Board of Directors

LAWRENCE BERKELEY LABORATORY  
UNIVERSITY OF CALIFORNIA  
BERKELEY, CALIFORNIA 94720

November 13, 1973

To: William Golden  
William Bevan  
Leonard Rieser  
Fran Freeman

From: Glenn T. Seaborg *BSB*

Re: Status Report on Fund-Raising for AAAS Building Project

I have now met (on November 2, 1973) with officials of the three remaining foundations on our list.

Andrew w. Mellon Foundation. I met from 9:30 to 10:15 a.m. with Nathan Pusey (president), who reiterated that the Mellon Foundation emphasizes support for the humanities. He agreed that we should keep in touch and said that if the Foundation participates at all it would be in the last stages of any Foundation consortium proposal we might put together.

He suggested other foundations and people (he said our best hope is people who made their fortunes through science-based industries), such as Din Land (Ed Purcell best approach), Hewlett and Packard, Texas Instrument Co., DuPont Co. (Crawford Greenewalt), Jim Killian (for advice).

Rockefeller Brothers Fund. I met from 11:00 to 11:40 a.m. with Russell A. Phillips, Jr., (my appointment was with William Deitel, Vice President of the Fund, but he had suddenly been called to Arizona). He said the Rockefeller Brothers Fund generally supports the social sciences, not the natural sciences, and does not generally provide funds for buildings. He said he would bring our request to the attention of the officers and executive committee of the Fund.

He suggested we approach foundations or individuals who have made their money from science-based industries, such as the Robert Wood Johnson Foundation in New Jersey, the Edna McConnell Clark Foundation of New York City (funds derived from Avon Cosmetics), the Rockefeller Foundation (long history of supporting science projects), Din Land, Hewlett-Packard, and the Kresge Foundation (best bet for money for buildings).

Status Report

-2-

November 13, 1973

Research Corporation. I met from 2 to 3 p.m. with Dr. Sam C. Smith, Vice President for Grants. He said the charter for the Research Corporation directs them to support "the advancement of science and technology through scientific research and experimentation", and they have made only one exception to this in his 18 years there. He said he would present our request to their Board and appropriate advisory committee (they have three). Their West Coast office is operated by Hal Ramsey (Research Corporation, 290 Bayshore Drive, Burlingame, California).

I left copies of our draft proposal with each of the three.

GTS/jk

direct cooperation between utilities may be a good route to go. She said she has arranged for Lochak to talk to John Sawhill; when I mentioned Peter Flanigan, she indicated that she finds him more difficult to deal with. She seemed to agree that it is difficult to deal with the French CEA.

We met and talked to a large number of friends at the reception following the Citation Ceremony, including the Gerald Tapes, Bill Perkins, the Roger Coes, the John Teems, Roger Batzel, Duane Sewells, the Jerry Johnsons, Ed Fleming, Dan Wilkes, and the Charles Robbinses.

After the reception, Helen and I drove back to Berkeley and went to the Potluck Restaurant to have dinner with the Transplutonium Committee. Present were essentially all of those who attended the meeting today (except Swiatecki), a total of 27, and including Mrs. Ken Hulet, Mrs. Matti Nurmia and Mrs. Dick Hoff. I sat between George Rogosa and Mrs. Nurmia, Helen between Al Ghiorso and Bob Penneman.

Wednesday, November 14, 1973 - Berkeley

Helen drove me to work in the station wagon and drove back home in the Bonneville (which Dave drove to Davis last night).

At 9:00 a.m., I attended the continuing meeting of the Transplutonium Committee in the HILAC Conference Room. Present were A. R. Van Dyken (presiding), Albert Ghiorso, Robert Penneman, C. H. Ice, John Burnett, Paul Fields, J. E. Bigelow, Seymour Katcoff, Ralph Hungate, Lew Keller, Tom Parsons, Mike Nitschke, Jose Alonso, Carol Alonso, Bernard Harvey, Don Ferguson, Darleane Hoffman, Ken Hulet, Matti Nurmia, Walter Nervik, Dick Wilde, Jim Harris, George Cowan, Dick Hoff, Norman Edelstein, Dick Heckman, Irwin Binder, and others.

After discussion of the allocation of isotopes, Cowan described his plans to recover Cm-250 from the debris of the Hutch explosion in Nevada. He estimates the isotopic percentage of Cm-250 in the Hutch curium to be about 6.4%. He estimates a recovery of 22 micrograms of curium from 64 tons of debris and calculates a yield in the SuperHILAC of about 93 events per day of a superheavy element from  $\text{Cm}^{250} + \text{Ca}^{48} \rightarrow 116^{291} + 7n$ . He estimates they can handle 1 ton of debris per day (0.35 micrograms Cm per ton). He described the proposed mining operation for which the cost is estimated as \$2,575,000 by Bob Sharp. This corresponds to 1,000 tons. The radioactivity is now about one half curie per ton. It is possible to protect the miners.

At this point, Chairman Dixy Lee Ray arrived (the program of her visit to LBL is attached) and was escorted to the little conference room just off Ghiorso's office. With Dr. Ray were David Jenkins, John Teem and Robert Thorne; and the LBL group consisted of Andrew Sessler, Earl Hyde, Cornelius Tobias, Edward Lofgren, Hermann Grunder, Arthur Poskanzer, Albert Ghiorso, and me.

Ghiorso opened with a description of the SuperHILAC using the model; Lofgren described the BEVALAC, Tobias the biomedical, and Poskanzer the nuclear chemical and physical work planned with the BEVALAC. We then took Dr. Ray on a tour of the SuperHILAC during

## MEETING WITH CHAIRMAN RAY, WEDNESDAY 14th NOVEMBER

10:00 - 10:45 at SuperHILAC

10:00 - 10:30 In Conference Room. Present will be:

G. T. Seaborg  
 A. Sessler (he wants the group kept small)  
 E. K. Hyde  
 A. Ghiorso  
 C. Tobias Biomedical Research  
 H. Grunder } Machine Design  
 E. Lofgren }  
 A. Poskanzer Physical Sciences Research  
 (Steiner not available, Chew will already have  
 talked to her)

10:30 - 10:45 Tour of SuperHILAC (Ghiorso, Main)

Suggested Program:

1. Ghiorso to describe SuperHILAC (5 min)
2. Grunder to describe Bevalac (5 min)
3. Tobias: Expected Biomedical work with heavy ions (10 min)
4. Poskanzer: Expected Physical Science Research (5 min)

Ray  
 David Jenkins  
 John T. ...  
 John Harris  
 Bob Thomas  
 Gale Coste

Room: Bldg.: Ext.:

November 6, 1973

MEMORANDUM

TO: Bob Birge  
Melvin Calvin  
Al Ghiorso  
Jack Hollander  
Earl Hyde  
Glen Seaborg

FROM: Andy Sessler

SUBJECT: Visit to Laboratory, on November 14, 1973, of Dixy Lee Ray and Party

Nov. 14  
GTS 10<sup>00</sup> a.m.

Participants: Dixy Lee Ray  
Dave Jenkins (assistant to Chairman)  
John Teem  
John Harris (Head of Public Information, Washington)  
Bob Thorne (SAN)  
Dale Cook (Public Information, SAN)

Schedule: Pick-up at San Francisco hotel 8:45 a.m.  
Arrive LBL 9:15 to 9:30 a.m.  
Arrive Faculty Club 11:45 a.m.  
Leave for L<sup>3</sup> at 12:30 p.m.

Luncheon: Involves AEC people, SAN people, Batzel from L<sup>3</sup>, UC-Berkeley people, and then a few places for LBL. I will invite some LBL people, when the number of available places is clear.

Program: I understand that Chairman Ray is primarily interested (these days) in energy and environmental problems. Of course, she has a background in biology. She is also quite concerned about public information policy. Furthermore, she does not like long presentations, but prefers to see things and, even more, to engage in discussions with a small group.

With all that as a background, and in view of our activities at the Laboratory and the brief length of time for the visit, I suggest the following schedule:

9:15 - 10:00. Meet in my office and after very brief formalities, discuss elementary particle research. Perhaps Birge, plus one or two other

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people, with emphasis on some aspect of on-going program and on PEP. Discussion should be without slides or blackboard; emphasize excitement and recent progress in high energy physics (neutral currents, for example). Lina Galtieri and Geoff Chew might be good participants. Bob will arrange this part.

10:00 - 10:45. Visit Superhilac - brief machine tour by Ghiorso, and then retire to conference room to hear about Superhilac program and Bevalac. Participants, besides Ghiorso, Seaborg and Tobias (or Budinger), might be Lofgren or Grunder and Steiner or Poskanzer (Note Hyde will be along). Will Glen and Al please arrange this part?

10:45 - 11:20. Visit Biodynamics Laboratory. Here Ms. Ray should have technical interests. Melvin, will you organize this?

11:20 - 11:40. Remain at Biodynamics, but talk about energy and environment programs. Perhaps start with solar energy. Emphasize a few major programs. Jack will organize this, with perhaps one or two others involved.

11:40. Walk over to Faculty Club for luncheon.

Remarks: I suggest keeping the number of actors small (and we must devote some effort to keeping the important characters in the center of the stage). I also recommend emphasis on those few things which it is important that Chairman Ray remember after she leaves. (Such as our scientific strength, the social significance of our work, and our painfully tight budgets. Perhaps the last point can best be left to me, but if it logically comes up -- seize the opportunity!)

cc: H. Fidler  
Y. Howell

Wednesday, November 14, 1973 (con't)

which Ghiorso showed her SASSY and I showed her FAKE. We told her about our program to try to synthesize and identify superheavy elements. I mentioned the need for a booster to add to the SuperHILAC and Ghiorso mentioned the idea to recover Cm-250 from nuclear explosion debris.

Dr. Ray and her contingent left us at 10:45 a.m. to go down to visit Calvin and the Chemical Biodynamics Laboratory. I returned to the Transplutonium Committee meeting. Heckman was describing the plan for mining Cm-250 from the Hutch debris.

Fields then described some work at ANL, including the work on recovering actinides from spent nuclear fuel, Osborne's work on the low temperature heat capacity of Pu using Pu-242 and Pu-244, and Horowitz's work on solvent extraction chromatography for superheavy element separation. He can make very complete separations in a minute or so. He uses Zipax as a substrate. He hopes to develop a one-meter column with one million theoretical plates capable of separating Ca-48 from natural calcium. They are studying Md(I). They reduced with zinc in water and tried to adsorb Md in zirconium phosphate with no adsorption observed. However, reduction in alcoholic solution with magnesium leads to adsorption of Md on  $ZrPO_4$  showing the presence of Md(I).

At 11:30 a.m., I walked down to the campus to the Faculty Club where I attended a reception in the library (second floor) for Dr. Tadmor, new Consul General for Israel. Besides Dr. Tadmor, who is familiar with Iz Perlman's move to Jerusalem, I met Les Packer (Physiology-Anatomy), with whom Rolf Mehlhorn is working on an environmental problem, and Mike Culbert (editor of the Berkeley Gazette).

From here I went to the O'Neill Room to attend a luncheon for AEC Chairman Ray. Present were Andrew Sessler, Sanford S. Elberg, Provost George Maslach, Melvin Calvin, Robert Thorne, John Harris, Dale Cook, David Jenkins, John Teem, Yvonne Howell, Lena Galtieri, Jack Hollander, Edwin McMillan, Earl Hyde, Robert Birge, and Roger Batzel.

Before the luncheon, McMillan and Calvin demonstrated a five-watt machine operating with expanding and contracting metal strips motivated by regions of hot and cold water.

At the luncheon, Calvin and I sat across from Dr. Ray and Sessler. This gave us a chance to talk to Dr. Ray about a number of things. She is more optimistic now about the chances for ERDA to come into being. She thinks the previous scientific advisory apparatus in Washington cannot be reestablished, thinks the National Academy of Sciences is not suitable (she thinks the National Academy of Engineering is better), the AAAS is not suitable (the recent disruption at annual meetings has resulted in loss of confidence by Congress), and thus perhaps the use of NSF is the best approach. She has no real approach for access to President Nixon because of the present confusion in the White House and fears the next three years could be no more than a caretaker regime for the President.

I went to Latimer Hall to teach my Chem 1A lab section (in Room 124 Lewis) at 1:10 p.m. We gave them a 60-minute midterm exam (copy attached). I left my teaching assistant, Barbara Baron, in charge at 2:00 p.m. to walk back up the hill.

At 2:30 p.m., I walked up to the HILAC Building to help Ghiorso and Harvey brief and show the SuperHILAC and attendant equipment to William Taft (of OMB; his program attached--he reports through Hugh Loweth to John Sawhill) and Mervyn Greer of AEC Budget Office. We were accompanied by George Rogosa and Tony Tiritilli (of the San Francisco Operations Office). We explained to Taft the need for ion source development and for the booster for the SuperHILAC.

I returned to my office at 3:15 p.m. to meet with Bob Penneman and Len Nugent regarding the revision of Chemistry of the Actinide Elements. We agreed that Penneman would remain part of the project on the basis that he will do a part of the primary writing--specifically the sections on crystal structure, unusual oxidation states, etc., especially in the chapters on the individual elements.

In the late afternoon, Van Dyken, then Fields, Rogosa, and Burnett dropped in to see me in my office for a sort of a rap session. We discussed the need for the SuperHILAC booster, my China trip, the situation at the AEC in Washington, Chairman Ray's visit to LBL, etc. Rogosa and Burnett will be here tomorrow. Van Dyken will visit LLL tomorrow, then LBL again on Friday.

After I got home, Suki and I took a hike to the water tank.

Thursday, November 15, 1973 - Berkeley

Sheila returned to the office today after her visit to Denver.

Richard Frankel, President of the Kevex Corporation, called me at 9:20 a.m. in connection with a meeting they had yesterday with Farno Green of General Motors. The Occupational Safety and Health Administration (OSHA) has set new limits on the hazards of materials to which workers can be exposed--this would include noxious gases, etc. One of GM's first anticipated problems is that of sampling; they want the equivalent of an AEC-type film badge so that a representative sample can be taken. They are thinking of a battery-powered air filtering device. Dick and I agreed that this would be tremendously difficult. In response to my queries, he indicated that GM is not specific as to what they want to detect, but "have to comply with these regulations." I surmised that this is basically a chemical problem, though we agreed that the logistics are intricate. Dick told me that Philips will be getting in touch with Kevex in a couple of weeks. He reported that the first quarter's results are in and that the sales and earnings are up about 40%--he had predicted a 20-25% increase.

At 9:30 a.m., Bernard Harvey and Maynard Michel dropped in to discuss the situation with regard to the new space for the theoretical group and the accompanying moves of Asaro's group, etc. The cost of the necessary alterations is about \$15,000, raising a problem of the source of so much money. It would presumably come from General Plant Projects funds. Harvey suggested that maybe we should use such funds

Wednesday, November 14, 1973

Midterm, Chem 1A, Lab. Section 2

Name \_\_\_\_\_

150 points

OPEN BOOK

Fac. Instr. \_\_\_\_\_

NO CALCULATORS

T. A. \_\_\_\_\_

60 minutes

SHOW ALL WORK

Room \_\_\_\_\_

1. (10 points) Benzene,  $C_6H_6$ , is a good automobile fuel. The combustion reaction is:

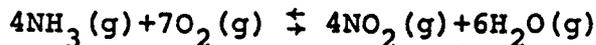
$$C_6H_6(l) + \frac{15}{2} O_2(g) \rightarrow 6CO_2(g) + 3H_2O(g)$$

How many moles of  $CO_2$  are produced by burning 1.00 liter of benzene (879 grams)?

$$\frac{0.879}{78} \times 6 = 67.5 \text{ moles}$$

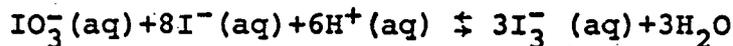
2. (32 points) Write the Equilibrium Law for each of the following balanced equations. Denote gas concentrations as pressures (e.g.,  $P_{O_2}$ ,  $P_{H_2O}$ , etc.) and solution concentrations in moles/l ( $[H^+]$ ,  $[Fe^{2+}]$ , etc.).

a) A possible reaction in the combustion of ammonia:



$$K = \frac{[P_{H_2O}]^6 [P_{NO_2}]^4}{[P_{NH_3}]^4 [P_{O_2}]^7}$$

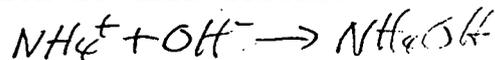
b) A reaction used to standardize iodide solutions:



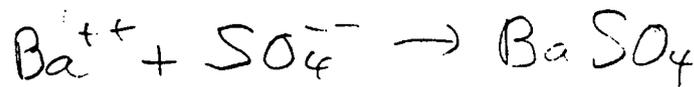
$$K = \frac{[I_3^-]^3}{[IO_3^-] [I^-]^8 [H^+]^6}$$

Balance the equations for the net reactions that occur when, in Experiment S,

c) Sodium hydroxide solution is added to an unknown containing ammonium chloride,  $NH_4Cl$ , which is then heated.



d) Sodium sulfate solution,  $Na_2SO_4$ , is added to an unknown solution that contains magnesium chloride,  $MgCl_2$ , and barium chloride,  $BaCl_2$ .





5. (20 points) 0.010 moles of solid  $\text{CaCO}_3$  is dissolved in acid. If all of the  $\text{CO}_2$  is expelled and collected over water in a volume of 600 ml and at  $27^\circ\text{C}$ , what will be the total pressure? The vapor pressure of water at  $27^\circ\text{C}$  is 26 torr. Neglect the solubility of  $\text{CO}_2$  in water.

$$PV = nRT$$

$$P = \frac{nRT}{V} = \frac{0.010 \cdot 82.05 \cdot 300}{600} = 0.41 \text{ atm}$$

$$0.41 \cdot 760 + 26 = 358 + 26 = 384 \text{ torr}$$

6. (24 points) An unknown is made up of one or more of the following solids:

$\text{BaSO}_4$	$\text{Pb}(\text{NO}_3)_2$	$\text{Ca}(\text{OH})_2$	$\text{Mg}(\text{OH})_2$	$\text{ZnSO}_4$
(+)	(-)	(?)	(?)	(-)

The following observations were made:

- (A) When 5 ml 1 M  $\text{HNO}_3$  was added to a small amount of unknown, solid remained.
- (B) The mixture was centrifuged and the liquid removed. To this liquid was added 10 ml of 1 M acetic acid/2 M sodium acetate solution and  $\text{H}_2\text{S}$  was bubbled in. No precipitate appeared.

a) On the basis of the observations (A) and (B), write (+) for those substances certainly present, (-) for those certainly absent, and (?) for those not determined by the observations.

b) Indicate how each observation (A) and (B) contribute to your conclusions about the identity of the solid.

7. (26 points) a) Calculate the concentrations of  $[Ag^+]$  and  $[SO_4^{2-}]$  when excess  $Ag_2SO_4$  is added to 0.040 M  $AgNO_3$ . Assume the solubility is negligible compared to 0.040 M.

$$K_{sp} = 1.6 \cdot 10^{-5} \quad \text{Let } x = \text{solubility of } Ag_2SO_4$$

$$(2x + 0.040)^2(x) = 1.6 \cdot 10^{-5}$$

$$\text{Assume } 2x + 0.040 \approx 0.040$$

$$x = \frac{1.6 \cdot 10^{-5}}{(0.04)^2} = \frac{1.6 \cdot 10^{-5}}{1.6 \cdot 10^{-3}} = 10^{-2} M$$

$$2x + 0.040$$

$$= 0.02 + 0.04 = 0.06 \approx 0.04$$

$$\text{Error } \frac{0.06 - 0.04}{0.06} \times 100 \times 2 = 66\% \quad (3 \text{ sig}) \quad SO_4^{2-} = 1 \cdot 10^{-2} M$$

b) Which of the following ranges indicate the % error in  $[SO_4^{2-}]$  incurred in the assumption? (circle one). Show how you made your choice.

0-9%

10-25%

26-50%

51-100%

&gt;100%

c) State what you would assume  $[Ag^+]$  to be if you were to carry out a second approximation. Show how you decided on the choice. (It is not necessary to calculate the second approximation.)

$$0.06 M$$

$$x = SO_4^{2-} = \frac{1.6 \cdot 10^{-5}}{(0.06)^2} = \frac{1.6 \cdot 10^{-5}}{3.6 \cdot 10^{-3}} = 0.443 \cdot 10^{-2}$$

$$2x + 0.04 = 0.009 + 0.04 = 0.049 \approx 0.06$$

$$x = SO_4^{2-} = \frac{1.6 \cdot 10^{-5}}{(0.049)^2} = \frac{1.6 \cdot 10^{-5}}{2.4 \cdot 10^{-3}} = 0.67 \cdot 10^{-2}$$

$$2x + 0.04 = 0.013 + 0.04 = 0.053 \approx 0.049$$

$$(2 \cdot 0.0067 + 0.04)^2 (0.0067) = (0.053)^2 (0.0067) = 1.85 \cdot 10^{-5}$$

*7:10  
Nov 14  
JCC*

PROPOSED AGENDA  
VISIT TO THE LAWRENCE BERKELEY LABORATORY  
NOVEMBER 14, 1973

Mr. Taft, OMB Chief Budget Examiner for  
AEC Appropriations

Mr. Mervyn Greer, Assistant Controller for  
Budgets

8:00 - 9:00 a.m.	LCB <i>iodine</i>
→ 9:00 - 10:00 a.m.	Superhilac
10:00-11:00 a.m.	Bevalac - Bevatron
11:00-12:00 noon	Energy and Environment
12:00 - 1:30 p.m.	Lunch (and ?)

Per George Pappas to B. G. Harvey

Thursday, November 15, 1973 (con't)

to build new office space for the theoretical group in the 88" cyclotron building. We will investigate this as an alternative.

David Starks came in at 10:00 a.m. and asked me to write letters of recommendation in connection with his applications for faculty positions, beginning with one at Cal Tech. I said I would be glad to do so. He described the context of his research program and thesis and some of his ideas for future research.

John Rasmussen came in at 10:30 a.m. to report that he has been in contact with Sandelescu, a Romanian who is investigating the possibility of coming to LBL under a fellowship in connection with the U.S. National Academy of Sciences-Romanian Academy of Sciences exchange agreement. Sandelescu is an expert in alpha decay theory and would work in this area with Rasmussen. These visits are for 3-12 month periods, and the hope would be that this would be for the longer period. I said that I foresee no problems but that he should keep me informed and that we should approach the Director's Office and the AEC in a timely fashion.

Adrian Kragen called me at 11:15 a.m. to invite me to serve as a member of the Alta Bates Hospital Advisory Board. This would involve attendance at one meeting a year plus membership on a committee. They would particularly like me to serve on the Long-Range Planning Committee, which meets five or six times a year, each lasting 1-1-1/2 hours (he indicated that I would not have to make all of those meetings). When I inquired as to what good I could do them, he cited my experience in running large operations and the fact that the health field is getting increasingly into the nuclear area. I indicated that my time is very limited; in the meantime, I would be glad to help by phone. He will have the hospital send literature to me, after which I will give him my response.

Andrew Sessler dropped in at 11:30 a.m. He told me he saw Bob Hollingsworth a few weeks ago during his visit to Washington. Hollingsworth told him, very confidentially, about his plans to retire from the AEC and gave some indications of interest in a position at Berkeley. Since Sessler will see him again next week, I suggested he tell him that I will explore with President Hitch the possibility of a position for him in the University of California statewide administration. We also discussed Teem's session with Sessler and Hyde yesterday which focused on the problems of administration at the SuperHILAC. Teem expects some action toward the solution of this problem soon.

I went by to see Kratz and we went to lunch together in the room at the lower level of the cafeteria. Also present were Hyde, Viola, Huizenga, Nugent, Edelstein, Nitschke, Bucher, Diamond, Stephens, and others. Hyde came back to my office with me to discuss further the problem of SuperHILAC administration.

At 1:00 p.m., Rick Schmitt came by to discuss with me his preliminary examination to be conducted on December 6.

I wrote Jack Root at Davis in response to his letter (copy attached), inviting him to make an appointment to visit LBL.

At 2:00 p.m., I went to the first meeting of the Scientific Program Council in the little conference room in the area of the LBL Director's Office in Building 50A. Present were Sessler, Hyde, Alvarez, Shirley, Tobias, Bassham, Goulding, Steiner, Hollander, Jackson, Elioff, and Pitzer. We discussed (1) the meeting of the Townes Committee next week, (2) the time of meeting which was set at 2:00-4:00 p.m. every second Thursday beginning November 29, (3) the work on the 5-year plan (1976-1980) to submit to the AEC, (4) the need for internal and outside reviews; each Division will conduct an internal review to be followed by a presentation to the Scientific Program Council, (5) plans for collaborative work with SLAC on PEP, (6) the future plans for biomedical clinical work at the BEVALAC and the 184" cyclotron if the latter continues in operation, and (7) the LBL energy program and the need to arrange for more funding within the LBL budget.

At 3:30 p.m., I left and drove up to the Lawrence Hall of Science to attend the meeting of the Advisory Committee of LHS. Present were George C. Pimentel (Chairman), George Briggs, James Cason, Marvin Chachere, J. Desmond Clark, Howell V. Daly, Jr., John A. Helms, Robert E. Jones, Jonas Langer, Todd La Porte, Thomas V. McEvelly, Edwin McMillan, Frank Oppenheimer, Lester Packer, Frederick Reif, Lloyd F. Scott, Wilbur H. Somerton, David B. Wake, R. Brady Williamson; and W. M. Laetsch (Director), Robert Content (Assistant Director), Leon Henkin, John D. Miller, and George Moynihan (Manager of LHS). Somerton, a resident of Lafayette, told me he worked with Bill Chilcote on the Lafayette Open Space Bond Election.

The minutes of the meeting are attached. The meeting opened at 3:45 p.m. with a report by Director Laetsch. In executive session, Pimentel appointed Scott and Somerton to the Planning Subcommittee. It was decided that the Planning Subcommittee meet early in the winter quarter--the Subcommittee will decide whether there should be a meeting of the entire Advisory Committee during the Winter Quarter. The Advisory Committee will meet during the Spring Quarter in any case.

Suki and I took a hike to the water tank. Helen and I went shopping in Walnut Creek to buy me hiking boots, a rain-proof jacket, a robe, and caps.

Friday, November 16, 1973 - Berkeley

I walked up to the HILAC Buildig with Harvey for a meeting, starting at 9:00 a.m., in the conference room of the SuperHILAC Users Executive Committee. Present were Bob Vandenbosch (chairman), Jack Miller, H. C. Britt, Dick Diamond, plus Bernie Harvey (whom I have appointed to replace Earl Hyde as my representative on the Committee) and Earl Hyde.

The first item was the reading of the minutes of the last meeting by Diamond. Next, Rogosa's visit here this week was reviewed and his offer of more midyear money for equipment was discussed.

## UNIVERSITY OF CALIFORNIA, DAVIS

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SANTA BARBARA • SANTA CRUZ

DEPARTMENT OF CHEMISTRY

DAVIS, CALIFORNIA 95616

November 12, 1973

Professor Glenn T. Seaborg  
3307 Building 70A  
Lawrence Berkeley Laboratory  
Berkeley, California

1-20 401373

Dear Professor Seaborg:

Thanks very much for your letter of October 30. I am anxious to explore the possibility of spending time at LBL next summer, and I wonder whether it will be convenient for me to make a preliminary visit in the near future. In addition to providing an opportunity for me to see the lab, I would also hope to obtain information about the summer housing situation. Since I currently have a computing problem that needs to be completed during the next few months, perhaps I could also investigate the possibility of getting that research started right away. The necessary A.E.C. contract funds to cover computation costs are available.

I have also been thinking about your remarks concerning your need for an assistant. If you are willing to consider applications from individuals not now on the LBL staff, I would greatly appreciate an opportunity to learn more about this position.

We will be contacting Vic soon. Thanks again for your interest and best regards.

Sincerely yours,

A handwritten signature in cursive script that reads "Jack".

John W. Root  
Associate Professor  
of Chemistry

JWR:lm

Minutes of the Meeting of the Advisory Committee to the  
Lawrence Hall of Science

November 15, 1973

ATTENDANCE

Advisory Committee

George C. Pimentel, Chairman

George Briggs

James Cason

Marvin Chachere

J. Desmond Clark

Howell V. Daly, Jr.

John A. Helms

Robert E. Jones

Jonas Langer

Todd LaPorte

Thomas V. McEvilly

Edwin M. McMillan

Frank Oppenheimer

Lester Packer

Frederick Reif

Lloyd F. Scott

Glenn T. Seaborg

Wilbur H. Somerton

David B. Wake

R. Brady Williamson

LHS Executive Committee

W. M. Laetsch, Director

Robert Content

Leon Henkin

John D. Miller

George Moynihan, Manager LHS

Absent

John Addison

C. Don McNeill

Harvey E. White

The meeting was called to order at 4:45 p.m. Professor Pimentel talked about the great success of the first LHS Memorial Lecture in May. He said that another committee will be needed to select the 1974 LHS Memorial Lecturer.

Prof. Laetsch introduced the new members of the Advisory Committee, Marvin Chachere, University Extension, Dr. Robert Jones, University Hall and Professor Thomas McEvelly Geology/Geophysics and, as well, the members of the LHS staff and Executive Committee who were present.

Prof. Laetsch talked about the benefit from and continuing need for input from the University faculty and departments in the displays and use of LHS. As a specific example, he described how the Engineering Department had become involved in LHS programs.

### Director's Report

All the members of the Advisory Committee received copies of the Annual Report. Prof. Laetsch discussed its contents.

1. New Staff: Dr. Jennifer White, a graduate of the Berkeley Biology Department, has joined the staff. Her familiarity with the campus will help her work on building relations between LHS and the campus biology department.

Dr. Allen Friedman has been appointed as Planetarium Director. (His extremely successful planetarium lecture on Stonehenge was demonstrated to the Advisory Committee at the end of the meeting.)

2. Funding: Reductions in federal funding, fortunately, have not affected the federal funds for LHS. Research and development funds were increased. AESOP Program funds were renewed and the outdoor biology project was renewed and increased. A National Institute of Education grant for evaluating elementary science teaching and a National Museum Act grant for evaluating public activities were also awarded.

3. New Programs: Two of the new and extremely successful programs last year are now booked up for a year in advance: the Discovery Van which goes into school districts and the School Visit Program which brings students into LHS. LHS was open every day in the summer and carried out an extensive advertising campaign to encourage visitors. Classes were increased and a food service added.

4. Finances: In spite of the increase in federal funds, there was a deficit at the end of the year. The new financial arrangements with the University are less flexible and involve more overhead. LHS staff is now trying to encourage the University to reorient the LHS endowment fund so that more interest money would be available. They are also working with the campus development office to develop ways to raise more funds. For example, a committee has been formed to sell business memberships, a membership which a company would pay for to make all its employees members. In addition, the staff is talking directly to industries and giving them presentations in order to encourage funding as well as use by the industries of LHS. Finally, a membership drive is underway. At present, the Hall has 1000 members.

5. Space: While present facilities are adequate for the programs now in progress, the growing research and development and new public programs will soon require more space in the Hall. Several possibilities are now being investigated.

6. Student Activities: Public programs such as lectures and computer education are run by students. LHS could not offer so many programs without these students in responsible positions. They have now become involved in the long-range planning and direction of LHS and in evaluating programs.

7. Time-Sharing Computers: With 40 outside users, the two smaller time-sharing computers are almost filled. However, the Hewlett-Packard 3000 is still open for use. There is growing interest in use by campus departments. Thus, the chemistry department is buying time for inventory purposes and in the winter quarter, the biology department students will be using it for class assignments. Prof. LaPorte mentioned the use of a computer in the Landscape Architecture Dept. for developing data on land use and ecology in the Lake Tahoe and Santa Cruz areas. Prof. Laetsch said that the United States Mint is interested in the computer system for the Mint in San Francisco.

The cost of a CRT Terminal is \$68 per month. A teletype terminal can cost from \$45 to \$75 per month. Time charges can be paid by the hour or by the day. A book of the programs which the computer handles is now available.

Prof. Pimentel raised the problem of the need for encouraging minority and disadvantaged children to use LHS. Perhaps memberships could be made available to disadvantaged families by offering a special membership classification which would include paying for the membership of one's own family as well as that of a disadvantaged family. Another possibility would be to give science teachers tickets to award to their best students - possibly the ticket to include admission to UC sporting events.

Prof. Laetsch said that they are trying to reach a larger audience. As of the first of next year, a shuttle bus from the BART station will be available, financed jointly by ASUC and BART. Prof. LaPorte suggested that industries could also donate memberships for academically achieving minority students.

Dr. Oppenheimer said that they could consider selling tickets that would be valid for a year, available at a low price and Prof. LaPorte suggested selling a ticket that would admit two others in addition to the buyer.

Prof. Laetsch noted that the main users of LHS are children and students up to junior high school age, college students and adults, but fewer high school students.

-4-

Prof. Somerton described the MESA Program now operating at Oakland Tech and Kennedy High Schools. The purpose of the program is to encourage black students to stay in science and math courses. The incentives include field trips, tutoring and \$100 a quarter for maintaining a B average for juniors and seniors. Evaluations of the program have shown that it has been successful for the four years it has been offered. They are now trying to expand the program. About 1/3 of the students in it are women.

In discussing the need to encourage women to enter science fields, Dr. Henkin mentioned that a sociology study of entering UC freshman showed that 57% of the men had had four years of high school math while only 8% of the women had.

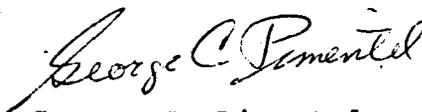
The meeting went into executive session at 4:45 p.m.

#### Executive Session

Prof. Pimentel pointed out that Dr. Richard White and Prof. Matlin had left the Planning Sub-Committee and suggested that Lloyd Scott and Wilbur Somerton be appointed to replace them. Profs. Scott and Somerton accepted.

Prof. Pimentel then asked for discussion on the suggestion that the Planning Committee meet in the winter and the Advisory Committee not meet again until the spring unless called by the Planning Committee. Prof. LaPorte remarked about the value of the meetings to inform the Advisory Committee about new activities and suggested that if the Advisory Committee met less often, perhaps informative memos on events at LHS be mailed to the Advisory Committee members. Prof. Laetsch agreed that the communication is valuable but felt the two meetings might suffice in view of the many commitments of the members on the Advisory Committee. The Committee finally agreed to have the Planning Sub-Committee meet in the winter and to hold the Advisory Committee's next meeting in the Spring.

The meeting adjourned at 5:00 p.m. Members were invited to participate in a demonstration in the Hall Planetarium.



George C. Pimentel  
Chairman, Advisory Committee  
to the LHS

Friday, November 16, 1973 (con't)

Van Dyken and Ghiorso joined us at 9:30 a.m. Ghiorso then gave a status report on the SuperHILAC. He told us about his meeting with John Teem yesterday afternoon, during which a number of people described their successful experiments and Teem seemed well satisfied. This reaction is at variance with the dissatisfaction Teem expressed earlier this week during his meeting with Sessler and Hyde. Rasmussen joined us at 9:45 a.m.

I was interrupted at 10:30 a.m. by a phone call from Harry Whitmore, who called again to ask for my response to his invitation to me to run for ACS President. He told me that there are large plans for the observance of the U.S. Bicentennial by the ACS in 1976, when I would be President, and of the ACS Centennial in 1976 as well. The main, spring meeting of the ACS will be held in New York that year and the smaller fall meeting in San Francisco in 1976. My potential opponents include Henry Hill (industrialist from Boston) and Anna Harrison of Mount Holyoke; the fourth candidate to be considered by the Council at the Los Angeles meeting in April is still pending. I agreed to serve as a candidate. He will have Rodney Hader confirm this and give me the details in the near future.

I left the meeting at 11:00 a.m. along with Ghiorso. He wants me to try to obtain about \$25,000 from the Nuclear Chemistry Division's equipment funds to help construct LASSY for use in the element 106 experiment. I again urged Ghiorso to expedite his attempts to arrange for help from Grunder and others in physics on the SuperHILAC.

John Nassikas called me at 11:45 a.m. to arrange a visit with me when he is in the Bay Area on Thanksgiving in order to discuss the energy crisis. After some discussion, we agreed to meet at my house on Friday morning, November 23. I then called Glenn Werth, Associate Director for Plowshare at Livermore, and arranged for him to join our meeting. I also called Jack Hollander and Andrew Sessler, who will also participate.

I had lunch in the lower level of the cafeteria with members of the SuperHILAC Users Executive Committee: Vandenbosch, Diamond, Miller, Britt, Harvey, and Hyde.

I then walked down to the campus (in a drizzle of rain) to attend the meeting of Chemistry 1A instructional staff in Latimer Hall from 1:10-1:30 p.m.

After the staff meeting, I dropped in the Chemistry Department Office to check on the status of Watanabe's admission to graduate school; now they want two letters of recommendation from his professors in the Electrical Engineering Department of UCLA where he started graduate work and then dropped out.

I sent to President Hitch a letter (copy attached) suggesting William Bevan as a candidate for the Chancellorship of the Santa Cruz campus. I wrote Andrew Streitwieser concerning the support which the Nuclear Chemistry Division can provide him in FY74, his dollar costs not to exceed \$5,000. I received and replied to a letter from Ken

## UNIVERSITY OF CALIFORNIA, BERKELEY

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SANTA BARBARA • SANTA CRUZ

DEPARTMENT OF CHEMISTRY

BERKELEY, CALIFORNIA 94720

November 16, 1973

President Charles J. Hitch  
714 (SC) University Hall  
Berkeley Campus

Dear President Hitch:

I would like to suggest the name of William Bevan for the position of Chancellor at Santa Cruz.

Dr. Bevan is the Executive Officer of the American Association for the Advancement of Science. Before assuming this position in 1970, he was the Vice President and Provost of Johns Hopkins University (1966-70). He served as Vice President for Academic Affairs at Kansas State University from 1963 to 1966. I am enclosing a copy of his curriculum vitae.

I have become very well acquainted with Bill Bevan during the last three years in which I have served as President-Elect, President, and currently Chairman of the Board of the AAAS. He possesses a rare combination of scholarly background, executive ability and administrative experience which would suit him admirably for the position at Santa Cruz. He is a very dynamic person, is decisive, and relates well to people both above and below him in the administrative ladder. He is energetic, gets things done on schedule, and is very articulate. He has a good reputation in his academic specialty, experimental psychology.

I believe that he would be a very good bet for the Chancellorship at Santa Cruz.

Cordially yours,

Glenn T. Seaborg

GTS/sms  
Enclosure

Bagnall (copy attached), indicating that the best student he has ever had might be a good candidate for our actinide chemist.

I wrote Francois David inviting him to come to work with our actinide chemistry group at the Lab. In response to the questions in his letter, I agreed to write a supporting letter for his scholarship application. I wrote Fritz Weigel in connection with his attempts to get Man and Atom translated into German and about our actinide chemistry opening. I sent a letter (copy attached) to the Cosmos Club, supporting Charles Hitch's and Albert Bowker's nomination of Andrew Sessler for membership in the Club.

At 3:00 p.m., I went by to see Binder to discuss progress on his work on the identification of products found in the bombardment of gold with krypton ions.

At 3:30 p.m., Stan Thompson dropped in to have a cup of tea with me. We discussed Jaime Merino's project. Stan is having some dental surgery performed next Monday.

I called David Hendrie to invite him to be a member of the Nuclear Chemistry Division Program Committee, and he accepted.

I had a discussion with Harvey regarding the agenda for the meeting of the Nuclear Chemistry Division's Program Committee next Tuesday.

I called Colin Watanabe at 4:30 p.m. in connection with his papers to complete his application for graduate work in the Chemistry Department. I suggested that he call the people in Electrical Engineering at UCLA, and he indicated that he will follow it up immediately. I invited him to join the Seaborg family for dinner on Thanksgiving day at 5:00 p.m. He was charmingly speechless and accepted my invitation.

At 5:00 p.m., Kathy Arnold, who is in my freshman chemistry section, came in with her sister Karen (age 13) and their father. Karen interviewed me in connection with a school paper she is writing. She asked me a lot of questions about nuclear energy, fusion, the transuranium elements, the possibility of nuclear war, and so forth. I gave her copies of Peaceful Uses of Nuclear Energy and Nuclear Milestones--one for her school and one for the Arnolds to keep at home. Mr. Arnold recorded her interview on his portable tape recorder.

Suki and I took a hike to the water tank. Justin and Robbie Bloom came to our house for dinner. They are on a month's vacation, much of it to be spent in California. We had a good evening of talk about our time together at AEC. We also discussed the ongoing discussions of Paul Lochak with Herman Pollack and others.

Saturday, November 17, 1973 - Lafayette

It rained all day. I read articles, office papers, etc. I spent some time putting together an exercise bicycle that Helen bought for me yesterday. Helen and I also viewed our China movies as a prelude



University of Manchester  
 MANCHESTER, M13 9PL  
 ENGLAND

TELEPHONE 061-275 2222

RSJ 11/8/73

KWB/ALJ.

Professor Glenn T. Seaborg,  
 Lawrence Berkeley Laboratory,  
 University of California,  
 Berkeley,  
 California 94720,  
 U.S.A.

5th. November, 1973.

Dear Glenn,

Many thanks for your letter of October 31st. I was very pleased to hear that you have the possibility of a post-doctoral fellowship position in the lab., a sign of better times again I hope. The only man who might have been suitable has already got a job with the UKAEA here, so there is no chance of him wanting to move, but I will have another really good man finishing in 1975 (a little far ahead I admit) who will, I think, turn out to be my best yet. So it would be worthwhile keeping him in mind for the future.

On the chemical front, you will be interested to hear that we have isolated a monoxo-uranium(VI) halide species,  $\text{Pu}_2\text{P}[\text{UOCl}_5]$ . This is quite a dark red, with a charge transfer band at about 600 nm and the  $\text{UO}$  stretch in the infrared spectrum is at  $838\text{cm}^{-1}$ . The corresponding bromide is even darker, which is hardly surprising, but the fluoride is giving us trouble, so we have abandoned it pro tem for the neptunium(VI) system.

With very best regards,

Cordially,

Kew

LAWRENCE BERKELEY LABORATORY  
UNIVERSITY OF CALIFORNIA  
BERKELEY, CALIFORNIA 94720 □ TEL. (415) 843-2740

November 16, 1973

Admissions Committee  
The Cosmos Club  
2121 Massachusetts Avenue, N.W.  
Washington, D.C. 20008

Gentlemen:

I am writing in support of the nomination, by President Charles Hitch and Chancellor Albert Bowker, of Dr. Andrew M. Sessler for membership in the Cosmos Club.

I have become well acquainted with Andrew Sessler since my return to the Berkeley campus two years ago and have found him to be a most remarkable person. To my great delight, he was recently chosen by the University of California Board of Regents to be Director of the Lawrence Berkeley Laboratory, following the retirement of Professor Edwin M. McMillan.

Dr. Sessler possesses a rare combination of scientific brilliance and innovative abilities, and breadth of interests and human qualities that make him a successful leader. The extent of his scientific accomplishments can be gauged by his publication of over 80 scientific papers. He has played a critical role in the development of a number of major accelerator designs. He made key contributions to the development of the concept of a Fixed-Field-Alternating-Gradient accelerator (FFAG) as part of the Midwestern Universities Research Association team. Since the inception of the Electron Ring Accelerator Project at Berkeley, his role in its development has been crucial. More recently, he has teamed with a colleague at the Stanford Linear Accelerator to conceptualize a new idea in high-energy accelerator physics (PEP--proton-electron-positron) and, as a result, a joint LBL-SLAC study group has now been formed to develop this idea.

Cosmos Club

- 2 -

November 16, 1973

He is also the originator, with his colleague J. M. Hollander, of the important program of energy and environmental research now under way in the Lawrence Berkeley Laboratory.

Sessler has an engaging personality and, I believe, would be an asset to the Cosmos Club. Mrs. Sessler, who is a professional scientist in her own right, is an attractive and interesting person and would also be an outstanding addition to the Cosmos Club family.

I can strongly recommend Andrew Sessler for membership in the Cosmos Club.

Sincerely yours,

Glenn T. Seaborg

GTS/sms

to my showing some of them at my talk to the Contra Costa Park Council on Monday night. I also reviewed my China slides for this purpose.

Paul Lochak called from Paris at noon to report on the status of his negotiations. He called Hollingsworth who impressed him with the rapidity of his response; he said the AEC is ready to begin discussions if it can be assured the Europeans are serious. He has talked again to Pollack, who is prepared to proceed if the European countries request it; this raises the question of who "a country" is in order to define who should make the request. He has learned Andre Giraud's reaction, which is, typically, that the U.S. must be worried if they are proceeding to cooperate. There will be a meeting of French Ministers next Wednesday or Thursday to determine France's position. Finance Minister Valery Giscard d'Estaing is, of course, in favor of proceeding with discussions with U.S. Representatives of utilities in the European countries (France, Italy, Spain, Switzerland, Germany, Belgium, Holland, Austria) which will meet at the end of the month to discuss their course of action; they have just today decided on a name for the group, Organisation of Producers Electricite Nucleaire (OPEN).

Sunday, November 18, 1973 - Lafayette

I reviewed material for my talk on my China visit to the Contra Costa Park Council tomorrow night. Manny Lindner came over and we went over the movie and slide projectors in preparation for the talk.

Suki and I took a hike around the Rim Trail (4.7 miles) around the Lafayette Reservoir; it took an hour and 40 minutes.

I reviewed my Chem 1A material for next week's lectures.

Monday, November 19, 1973 - Berkeley - Concord

I went down to hear Pimentel's lecture from 9:10-10:00 a.m. I met Susan Sahara, who asked me for information on the energy crisis, and I arranged to give her a copy of my speech to the Oakland Museum Conference, "Toward a National Energy Policy."

After going over the mail in my LBL office, I walked back down to the campus and held my regular office hour in 446 Latimer from 11:10 a.m. to noon. Dave dropped by to pick up a book and a watch I had brought from home.

At noon, I had lunch with the Chemistry Department faculty in the Howard Room of the Faculty Club. I taught my lab section of Chem 1A in Room M, Latimer Hall from 1:10-2:30 p.m., then walked back up the hill to my office.

At 4:00 p.m., I attended the regular weekly Nuclear Chemistry Seminar in the Building 70A conference room. John Huizenga (University of Rochester) spoke on "Nuclear Level Densities Revisited: Are the Densities for Spherical and Deformed Nuclei Different?"

Suki and I took a hike to the water tank. Helen and I went to the Contra Costa Water Building at 2700 Concord Avenue in Concord, where I was scheduled to talk to a special meeting, starting at 8:00

p.m., of the Contra Costa Park Council. I was introduced by Manfred Lindner and in my presentation, "A Journey to China," I used about 60 slides plus the last half of reel #2 and all of reel #3 of my movie film. The 1-1/2-hour talk was followed by a half-hour of questions. The auditorium was full and included many of our friends, such as the Watsons, Reeveses, de Fremerys, Chilcotes, Alice Johnson and her husband, Joanne Johnson and her husband, the Dickinsons, and Hulet Hornbeck.

I was especially interested to meet Daniel A. Keefe, who identified himself as a graduate of David Starr Jordan High School in 1928--that is, he attended Jordan for his last years from its opening in 1925 to 1928, having attended his freshman year at Compton High School. He recalled that he took chemistry from Mr. Reid in the same class as I in the year 1927-28. I told him about our proposed reunion in the fall of 1975 and said we would keep in touch with him (he is in the Engineering Department, Dow Chemical Company, Pittsburg, California). I also met Winston E. Mather (Manager, Government Marketing, Data Processing Division of IBM in Oakland), who offered his services.

Tuesday, November 20, 1973 - Berkeley

At 9:10 a.m., I phoned Andrew Streitwieser in the Chemistry Department regarding our letters on behalf of David Starks's applications for teaching positions. Streitwieser told me that he rates Starks highly. He indicated that he is young and that he will write in his own letters that he thinks Starks would benefit from a year of postdoctoral work or an extra year at Berkeley. He said that Dave is good because he thinks and is very creative. He described to me how he discovered a mercury vapor catalysis and traced out the reasons for getting different results when he ran the tests at the Lab and on the campus. He said that Starks has done more than the usual graduate student.

I then called Norman Edelstein, who said that he regards Starks as very, very good. I talked to Norman about his letter from David Brown about our revision of Chemistry of the Actinide Elements. I suggested that in his answer to Brown he say that (1) the coverage proposed will be complete but will emphasize things where Cornelius Keller and perhaps Brown's own Volume V were less complete; (2) the level will be for a general inorganic chemist--the same audience that I hope Katz and Seaborg was aimed at; and (3) our target date of publication is within the next two years.

We discussed the budget of the Seaborg-Edelstein program in the Nuclear Chemistry Division. I asked him to let me know how much he intends to spend on the other accounts. He told me that he wants to hire a programmer for a couple of months. I indicated that things are austere until the end of FY74. I noted that I am supposed to take out of the \$200,000 all of the Kratz and Norris work plus some work on 106 at the HILAC, where we will try to salvage \$30,000 for that. I suggested that he hire a programmer for a couple of thousand dollars but otherwise remain austere. I indicated that I am hoping to get an increase to take care of new people next year. He reminded me that last year our program spent \$158,000--however, part of this was spent while he was on leave and therefore not generating additional costs.

Tuesday, November 20, 1973 (con't)

I then talked with Len Nugent about Edelstein's reply to David Brown and the draft of my letter to Joe Katz, both of which he approved.

I called Jack Ryan at Battelle at 9:35 a.m. to learn the status of his being able to work fulltime with us on the revision of Chemistry of the Actinide Elements. He told me that Harold Van Tuyl talked yesterday with Joe Gratton at the AEC. He said that Gratton is in a position to get support out of some of the divisions, and Ryan is writing him a letter today in this connection. He said that Gratton seems reasonably favorable but is unable to promise anything yet. Van Tuyl has talked to people at Battelle. I indicated that I would make phone calls for him, if necessary, but would prefer not to. In the meantime, I suggested that he gamble and begin to prepare himself by reading background material and that he stay in touch with Nugent.

I met with the SuperHILAC planning group: Ghiorso, Carol Alonso, Jose Alonso, and Nitschke. We discussed the status of the machines. I told Ghiorso that he could count on \$20-25,000 from the Seaborg-Edelstein account for LASSY. He obtained a commitment yesterday from the equipment committee of \$5,000 to purchase barytron tubes for LASSY. We will start a push on building LASSY for the element 106 experiment. Nitschke and I urged Ghiorso to rearrange priorities to build a third injector for the SuperHILAC (a low voltage source plus a W accelerator) as part of the \$2.4 million line item package requested in the FY75 budget; this would be done in place of spending \$250,000 for a new head on Adam to patch it up--a step which still will probably not make Adam a very reliable injector.

Wilfred B. Heinz called me at 11:25 a.m. as a follow-up to Lynne Monroe's call from UCLA to the office yesterday. He asked for my evaluation of Norman H. Cherry. It was not clear to me whether he was considering Cherry for a position in his own institution (which was not identified) or whether he was helping Cherry get a new job. Apparently, Cherry is now a consultant on nuclear matters to Congressman Joshua Eilberg. I suggested that he might call David Saxon at UCLA in case there is something there; however, when he told me that Cherry is 55 years old, I suggested that his calling Saxon might not be the right move after all.

At 11:30 a.m., I met with David Pelzer, a senior in agricultural economics, to discuss future energy sources.

The Nuclear Chemistry Division Program Committee held a bag-lunch meeting in my office from 12:00-1:30 p.m. (announcement and agenda attached). Present were Frank Asaro (visitor), Joseph Cerny, Richard Diamond, Norman Edelstein, Albert Ghiorso, Norman Glendenning, Bernard Harvey, David Hendrie, Jack Hollander, Earl Hyde, Luciano Moretto (representing Stan Thompson), John Rasmussen, David Shirley, Frank Stephens, Kenneth Street, and David Templeton.

I opened the meeting by presenting a pin to Frank Stephens on the occasion of his 20th year of service in the Laboratory. Thereupon, Bernie Harvey opened the champagne which he had brought--it was a



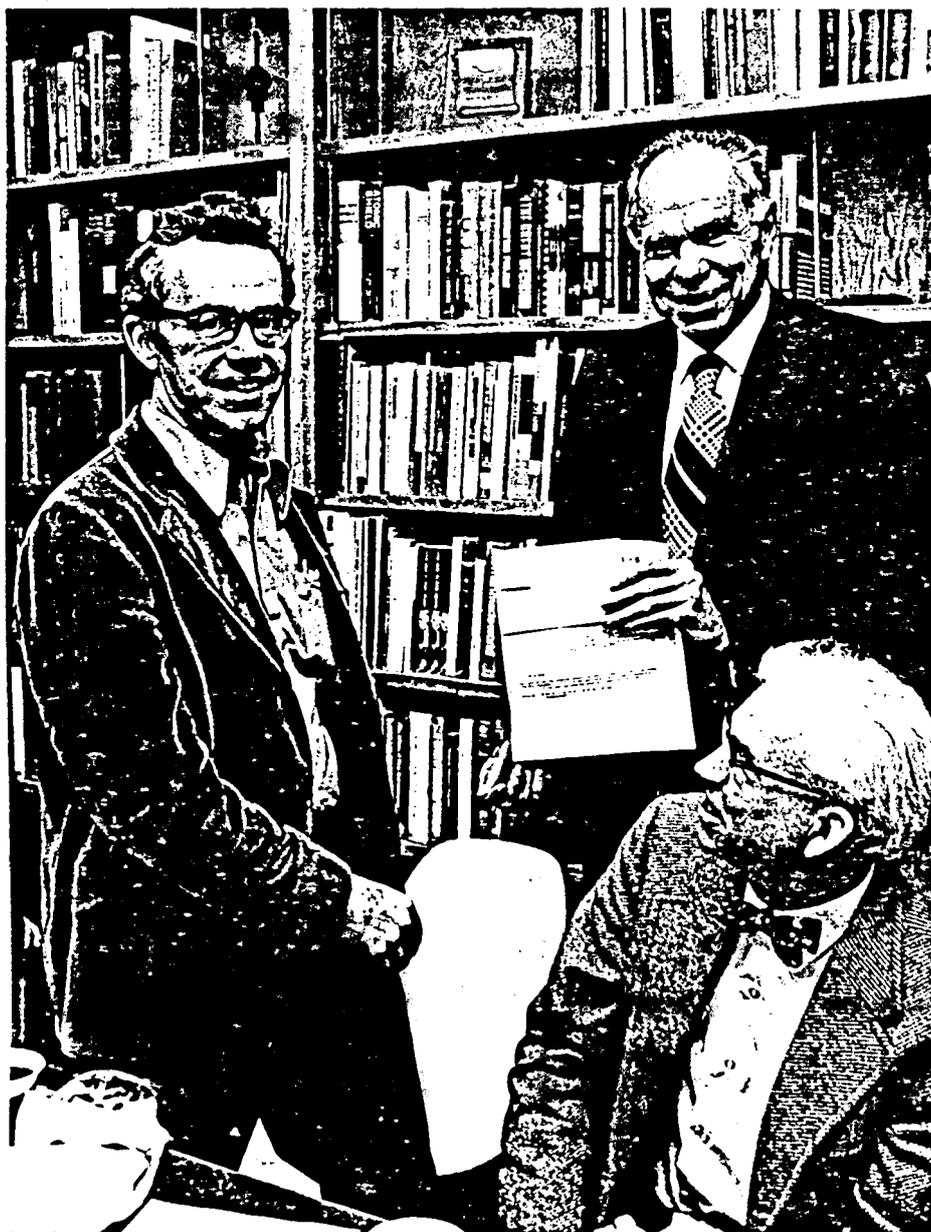
THE PROGRAM COMMITTEE  
WILL RECONVENE  
ON TUESDAY, NOVEMBER 20, 1973  
AT NOON (BAG LUNCH)  
IN ROOM 3307A, BUILDING 70A

AGENDA  
Program Committee  
Nuclear Chemistry Division  
November 20, 1973

1. 20-year pin to Frank Stephens: champagne  
Congratulatory to Earl K. Hyde  
Welcome to David L. Hendrie (new member)
2. Affirmative Action in postdoc appointments: Asaro to present system
3. New appointment: Norman Edelstein and Jeannette A. Mahoney to Appointments Committee
4. Outside review committee: names, date
5. Internal review: Richard M. Diamond, Chairman  
David A. Shirley  
Joseph Cerny  
  
To report in writing by ~June 1974.
6. Gordon Conference programs
7. Theoretical reorganization
8. Employee evaluation
9. ARCS Fellowship

Tuesday, November 20, 1973 (con't)

variety with tremendous amounts of gas in the bottle, and therefore my office and the people it in received a substantial shower of champagne. We also used the champagne as an occasion to congratulate Earl Hyde on his elevation to the Deputy Directorship of the Laboratory, to give our best wishes to Bernie Harvey on this, his first meeting as Deputy Director of Nuclear Chemistry, and to welcome David Hendrie as a new member of the Committee.



Frank Stephens receiving 20-year service pin from GTS (David Templeton seated): November 20, 1973.

Bernie called on Frank Asaro to discuss the affirmative action program for postdoctoral appointments. Asaro outlined the recommendations of the Postdoctoral Appointments Committee. The committee

Tuesday, November 20, 1973 (con't)

discussed the recommendations at some length, with emphasis on the role that should be played (if any) by the LBL Personnel Office. Cerny and I agreed that letters soliciting minority and women applicants for postdoctoral positions should come from me as Director of Nuclear Chemistry rather than the Personnel Office. Glendenning spoke against any sort of laboratory-wide recruitment campaign. We agreed that Nuclear Chemistry's recruitment campaign should be conducted entirely on its own--we should draw upon the resources of Personnel only if the volume got out of hand. Hyde discussed the committee's report and reinforced the necessity of our making such a supplementary attempt to locate the best minority and women candidates. The wording of the proposed cover letter was discussed, and it was agreed to change one sentence to read, "Chemists or physicists interested in the areas listed below," which would serve to cover a broad spectrum of applicants but with an eye to our specific interests.

Harvey announced that Norman Edelstein and Jeannette A. Mahoney are appointed to the Appointments Committee. The Program Committee entered into some discussion about the name for this committee (whether "Affirmative Action Appointments Committee" should be its title, whether the affirmative action program should be identified as a subcommittee, perhaps affirmative action should be treated as an inherent posture of any appointments committee without its being named as such). Harvey suggested that the full Appointments Committee meet to go over the report and also to discuss the name, after which the Program Committee may discuss it again.

Harvey announced that he has appointed an Internal Review Committee composed of Dick Diamond, Chairman, David Shirley, and Joseph Cerny to review the individual programs of the Division and to make written reports to me in the Spring 1974. Harvey noted that this will be useful in the budgetary decision making for FY75.

Harvey also announced that everyone invited to serve on the Nuclear Chemistry Division's Outside Review Committee has accepted. Hyde suggested that a letter be sent to the committee in January, reminding them of the February meeting and uniformly listing the names of those on the committee (and their terms of service) for general knowledge. He suggested we also send them the Division's Annual Report for the past two years.

I asked the committee for suggestions concerning the 1974 Gordon Conference on Nuclear Chemistry, as requested by James Griffin in his letter of October 30 (copy attached). I suggested that, if the committee has suggestions, they refer them to Harvey or me.

The committee next discussed the employee evaluation system in the Lab. Hyde indicated that the Director's Office is referring this matter to the Administrative Advisory Committee. This committee will meet on November 27--Maynard Michel is Nuclear Chemistry's representative, and Hyde suggested that Michel be briefed about this. I indicated that I would like to have each member of the senior staff (including those on the Program Committee) prepare his or her own version of his actual job description and definition of duties.

## UNIVERSITY OF MARYLAND

COLLEGE PARK, MARYLAND  
20742COLLEGE OF ARTS AND SCIENCES  
DEPARTMENT OF PHYSICS AND ASTRONOMY

October 30, 1973

Dr. Glenn T. Seaborg  
Lawrence Radiation Laboratory  
University of California  
Berkeley, California 94720

10/31/73  
Prog Cte

Dear Colleague:

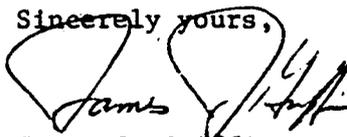
This letter is to solicit suggestions concerning the 1974 Gordon Conference on Nuclear Chemistry, which will be held at the Colby Junior College, New London, New Hampshire, from June 24th to the 29th.

This year in our cycle we will emphasize reactions, including fission and heavy ion topics, as opposed to nuclear structure problems.

In the preliminary planning for the conference program, I would especially appreciate your suggestion regarding large areas of research which might warrant as much as a full session's attention, as well as the more specific accomplishments of genius which you feel our conference ought not overlook. In addition, your suggestions about young scientists whose reputations may not have yet grown equal to their talent, and whom you feel ought be considered as prospective speakers for next year's Gordon Conference, are especially sought after.

A note from you on these, or on any other questions about the conference which concern you, would be most welcome. Or if you prefer, a telephone call at (301)454-3531 might be quicker, and equally efficient.

Sincerely yours,



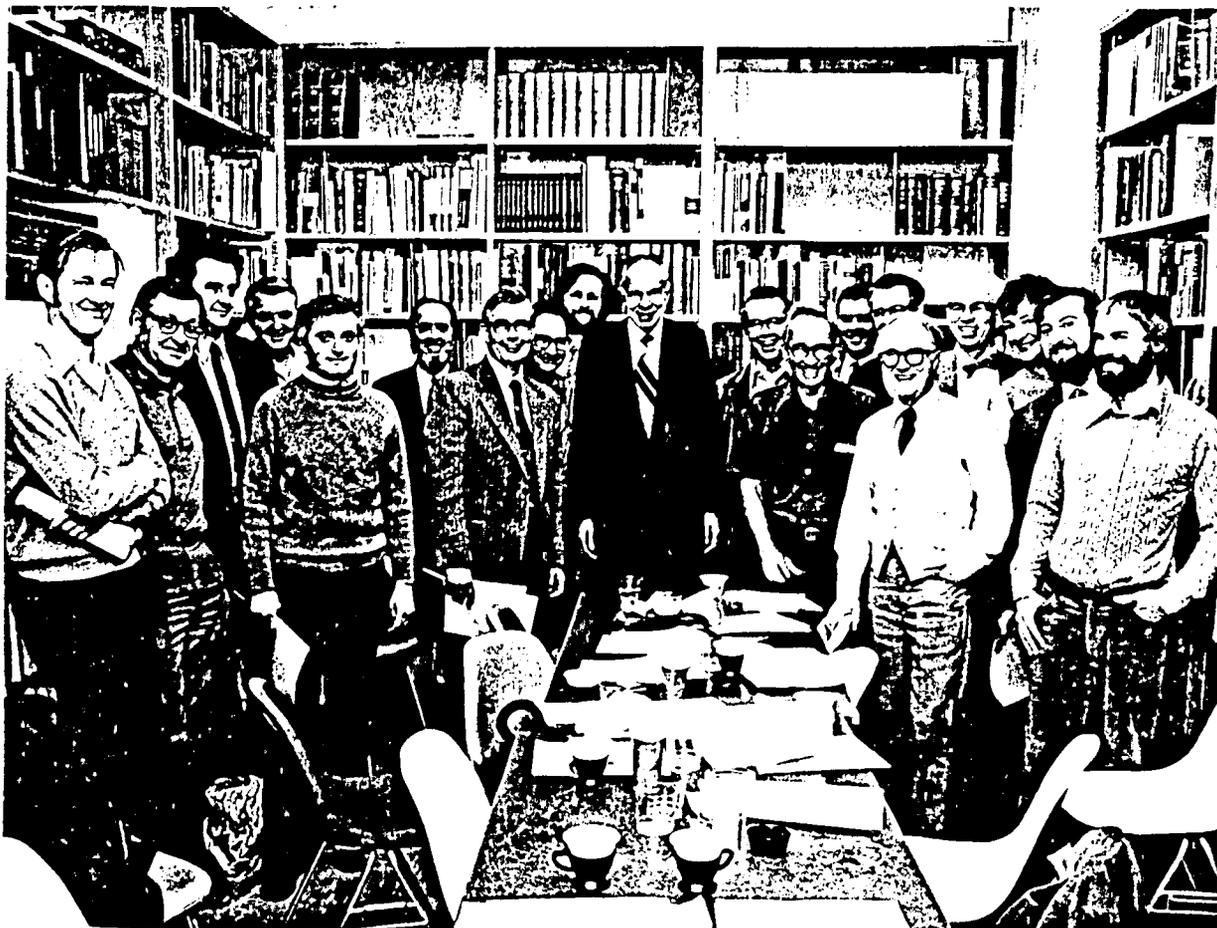
James J. Griffin  
Chairman, 1974 Gordon Conference  
on Nuclear Chemistry

JJG/rw

XC: BGH - GTS will  
raise at next  
Program Cte mtg.

Shirley suggested that certain criteria be established for those who get summer salary appointments--e.g., the person getting summer salary should be making certain contributions during the year in the Lab.

I described the reallocation of space in Building 70 to allow more for the theoretical group. I also urged the committee to nominate undergraduates for the ARCS Foundation scholarships awards. Hyde indicated that the Lab has two such scholarships to award and now has two excellent candidates.



Program Committee meeting, November 20, 1973: John Rasmussen, Albert Ghiorso, Joseph Cerny, Kenneth Street, Norman Edelstein, Frank Asaro, Earl Hyde, Arthur Poskanzer, David Shirley, GTS, Frank Stephens, Richard Diamond, David Hendrie, Jack Hollander, Bernard Harvey, David Templeton, Sheila Saxby, Luciano Moretto, and Norman Glendenning.

Chris Ritter arrived during the afternoon and went through the hiring process preparatory to starting work as a pre-graduate student (to start officially in graduate school next fall).

I went by to confer with Kratz about preparation of a summary of our work for the LBL Annual Report. I talked to Binder and suggested he begin a regime of preparing progress reports, beginning with a survey of relevant literature.

At 3:30 p.m., I went down to the campus to attend a reception given by SAACS in the Howard Room of the Faculty Club. At 4:15, I then went by the Chemistry Department office in Latimer Hall to review the personnel files of Kenneth N. Raymond and Henry F. Schaefer III, who are up for consideration for promotions from Assistant to Associate Professor.

I wrote Joe Katz (copy attached) to report on the meeting I had last week with Len Nugent and Bob Penneman about our revision of Chemistry of the Actinide Elements. I sent letters to the University of Vermont and to Cal Tech, supporting the application of David F. Starks for a position in their Chemistry Departments (sample attached).

Suki and I took a hike to the water tank.

Wednesday, November 21, 1973 - Berkeley

I attended Professor Pimentel's lecture and returned to my office on the hill to work over more of my mail.

At 11:20 a.m., I called Harold Johnston in our Chemistry Department for his evaluation of Efsthathios Kamaratos, who has asked about a position in Nuclear Chemistry. He indicated that Kamaratos has given them a lot of trouble in Johnston's unit in his attempts to get an immigrant visa. Johnston said that Kamaratos is capable in several aspects of lab work but does not appear to be functioning in a professional manner.

Sara Spitzer, who is editing a three-part profile on Theodore Taylor for New York magazine, called me at 11:30 a.m. and asked me to verify the accuracy of the statement "At one time in the 1940's, all the plutonium in the world was in a cigar box on the desk of Glenn Seaborg." I described how G. N. Lewis smoked Alhambra Casino cigars and how we had used his cigar boxes for storage. I recounted how I had stored this precious plutonium sample in such a box, put it on the shelf in 307 Gilman Hall, and went off to Chicago. It was about 25 years later (1966) when we were going to celebrate the anniversary that I remembered that sample and we went through all of the shelves in the lab to find it. I indicated that, until the end of the war, it was probably on a shelf in a cubbyhole under the eaves of Gilman Hall. I explained that the room has now been named a National Historical Landmark. She also asked my verification of a statement about plutonium oxide (yellow-green dust): "He noticed that it seemed to creep." She explained that the author wants to say it creeps because of its alpha decay. I said this was wrong and that it might appear to creep just because it is such fine dust.

Frank Asaro invited me, and I agreed, to serve as an Honorary Co-Chairman (together with Lynn White of UCLA and Cyril Stanley Smith of MIT) of a Conference on Applications of the Physical Sciences to Medieval Ceramics, tentatively scheduled for March 18-22, 1975--the first two days in Los Angeles and the last three days in Berkeley. The Conference will be jointly sponsored by the Lawrence Berkeley Laboratory, the UCLA Center for Medieval and Renaissance Studies, the UCB Committee on Medieval Studies, the UCLA Institute of Archaeology,

## LAWRENCE BERKELEY LABORATORY

UNIVERSITY OF CALIFORNIA

BERKELEY, CALIFORNIA 94720 □ TEL. (415) 843-2740

November 20, 1973

Dr. Joseph J. Katz  
Chemistry Division  
Argonne National Laboratory  
9700 South Cass Avenue  
Argonne, Illinois 60439

Dear Joe:

Len Nugent, Bob Penneman and I held a planning meeting on the revision of Chemistry of the Actinide Elements in my office on November 14.

One of our main items for discussion was the chapter outline which you included in your letter to me of November 6, 1973. We agreed that we should adopt your plan, with a few minor modifications--mostly amplications and additions.

Bob indicated at that time that he would like to remain with us as a participating author in the revision. He will write some of the original text, emphasizing the sections in each chapter where he has special expertise, such as crystal structure, unusual oxidation states, and so forth.

We haven't yet worked out an arrangement with Jack Ryan. We definitely need another participant who can work full time, and have hopes that Ryan can work out his problems with the Pacific Northwest Laboratories and the Washington AEC.

We are all counting on your heavy participation at the editing end.

I have learned from Dave Brown of Harwell, through a letter he has written to Norman Edelstein, that Pergamon Press is considering publishing the actinide articles (Volume V) which appeared in Comprehensive Inorganic Chemistry as a separate book. However, they might not do so if our revision is extensive, is aimed at the same audience, and is timed for publication within two years. I have passed the word back through Edelstein that this is our plan.

With best regards,

Cordially,



Glenn T. Seaborg

cc: L. J. Nugent  
R.A. Penneman

## LAWRENCE BERKELEY LABORATORY

UNIVERSITY OF CALIFORNIA

BERKELEY, CALIFORNIA 94720 □ TEL. (415) 843-2740

November 20, 1973

Professor John L. Kice, Chairman  
Department of Chemistry  
University of Vermont  
Burlington, Vermont 05401

Dear Professor Kice:

I am writing in support of the application of David F. Starks for a position in your department.

I have become acquainted with David Starks in connection with his Ph.D. research program, which he is doing under the direction of Professor Andrew Strietweiser, Jr. as a collaborative effort in our Nuclear Chemistry Division in the Lawrence Berkeley Laboratory. He has been involved in the synthesis and characterization of organometallic compounds of actinide elements, including the compounds of some highly radioactive elements which has made it necessary for him to work in one of our special laboratories.

Starks has exhibited a noteworthy maturity in the conduct of his research, and I believe that he has more actual experience than most graduate students at this stage of development. He is quite competent in the techniques of synthesis and characterization of the resultant compounds. He has a good theoretical understanding of the interpretation of the molecular structures of these unusual and interesting compounds.

He has made particularly outstanding personal contributions in the development of methods for the synthesis of di- $\pi$ -cyclooctatetraene complexes of the actinide elements through direct reaction of the metals with cyclooctatetraene, and the first preparation and characterization of di- $\pi$ -cyclooctatetraeneprotactinium(IV).

John L. Kice

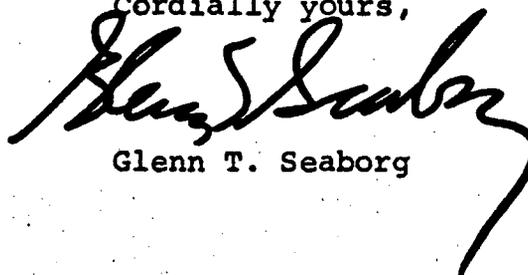
- 2 -

November 20, 1973

He has discussed with me some of his future research plans involving mixed valence actinide-lanthanide compounds, organogallium chemistry applied to cancer chemotherapy, and the use of actinide hydrides as reducing agents. These seem imaginative and the types of projects that he could carry on in a new environment.

David Starks strikes me as creative, intelligent, energetic, and a person who plans his work well. He is very personable and I believe that he will get along well in a university environment. I feel that I can recommend him very strongly.

Cordially yours,

A handwritten signature in black ink, appearing to read "Glenn T. Seaborg". The signature is written in a cursive style with a long, sweeping tail that extends downwards and to the right.

Glenn T. Seaborg

GTS/sms

Wednesday, November 21, 1973 (con't)

the UCLA Museum of Cultural History, and the UCLA Materials Department, School of Engineering and Applied Science.

The Actinide Chemistry group held a bag-lunch meeting in 1147 Building 70A. Present were Andrew Streitwieser, Kenneth Raymond, Norman Edelstein, Len Nugent, David Starks, Reinhard Gradl, Gordon Halstead, Christopher Ritter, Stuart Berryhill, Charles Grout (Streitwieser's students), and Tom Parsons.

Edelstein reported on the preparation of  $\text{Th}(\text{Cp})_3$  recently reported by Kanellakopoulos et al. This corresponds to an electrode potential of -3.7 volts for  $\text{Th}(\text{IV}) \rightarrow \text{Th}(\text{III})$ . It has a deep violet color, is produced by the reduction of  $\text{Th}(\text{Cp})_3\text{Cl}$  with Na together with naphthalene and tetrahydrofuran (THF). Streitwieser's group will try to reduce  $\text{Th}(\text{COT})_4$  to a  $\text{Th}(\text{III})\text{COT}$  compound, or  $\text{U}(\text{COT})_4$  to a  $\text{U}(\text{III})\text{COT}$  compound.

While I was at the bag-lunch meeting, Paul Lochak called the office from Paris and talked with Sheila in connection with the arrangements between the USAEC and the European utilities. He said that the utilities have set up a special meeting on Saturday, December 1, at which time they will take a position on the matter. As a result, the decisions they had expected to make on November 17 have been postponed until December 1. Lochak said that, in the meantime, there is considerable expression of interest from a number of utilities. Those in favor include Spain, Italy, Switzerland, Belgium, and Holland. Germany is against it (because of Urenco). The French government will take a position tomorrow in a meeting of ministers. Lochak observed that what initially came through as a willingness to pursue negotiations between the utilities and the USAEC has turned out in France as a major debate. The basic issue has to do with the French power utilities' being very much in favor and the French CEA's being against. Lochak indicated that, whatever allegiances each of these entities can muster in France will determine the outcome of tomorrow's decision. Lochak thinks that the utilities will pursue such negotiations regardless of what happens tomorrow.

I taught my lab section in 124 Lewis Hall from 1:10-3:15 p.m., then returned to my office on the hill.

I had delivered to Albert Ghiorso a letter suggesting a third injector for the SuperHILAC (copy attached).

In the afternoon, I sent out the last of the photographs that I had had made for the various people whom I had met during my European trip in September. I sent pictures and letters to: Christoph Schmelzer at GSI in Darmstadt; Karl Heinrich Lieser, B. Neidhart and Knut Bächmann at Darmstadt University; Hans Raupach, President of the Bavarian Academy of Sciences; Hans Joachim Born and Franz Lux at Garching; Paul Lochak, Paris; Henrietti Faraggi at Saclay; Marc Lefort at Orsay; and Rene Berger at Fontenay-aux-Roses. I also sent prints to Al Ghiorso, David Hendrie, and Reinhard Gradl.

November 21, 1973

IN STRICT CONFIDENCE

To: Albert Ghiorso  
From: Glenn T. Seaborg

It occurred to me that in order to clarify my thinking on relative priorities for work on the Superhilac with the requested \$2.4 million, I should put my thoughts down on paper.

The national program that John Teem and the AEC have come up with for heavy ions contemplates an accelerator at ORNL with capacity for acceleration of heavy ions up to about the middle of the periodic table, and at ANL for an accelerator with capacity for somewhat lighter ions than this. The national program is counting on LBL to furnish heavy ions covering the region from the middle of the periodic table up to uranium.

I have the nightmarish fear that after your estimated two years have elapsed and the new head has been placed on Adam and it is operating, we still won't be able to meet our national commitment to furnish uranium ions. The third injector would more probably give us the capability to furnish uranium ions even though a diminished program of work on the remainder of the Superhilac would mean that there would be less than reliable operation of the whole machine. This, however, would be better than to be in a helpless position with a modified Adam of not being able to furnish uranium ions at all.

Couldn't we put together about \$1 million for the construction of the third injector about as follows. You originally estimated the total job to cost about \$1.93 million (in the Schedule 44 form of August 9, 1973), and when I talked to Teem this was increased to \$2.4 million. Could we take that additional half million, add the quarter million now designated for the new head for Adam, and find another quarter million somewhere within the total? Probably some additional

Albert Ghiorso

- 2 -

November 21, 1973

money for the other jobs can be obtained in a piecemeal fashion through special allotments such as we have received several times in the last couple of years, and some could be obtained by applying for the usual 10% overrun.

In any case, it seems to me that we should have a careful evaluation of this modified plan by a group of key people. In order to implement this modified plan, especially, or the present plan, and to meet the immediate requirements of debugging, it seems to me that we just have to get more manpower somehow through some cooperative program (involving Grunder) with other divisions in LBL. If we arrive at February with the Superhilac still not operating much better but, more importantly, without a strong expanded group working on its problems and those of the Bevalac, I think we will be in real trouble with John Teem and the AEC.

GTS/sms

I wrote Jaime Merino about my meeting D. A. Keefe at the Contra Costa Park Council on Monday evening and suggested we keep in touch with him about our proposed reunion in the fall of 1975.

I went over to 203 Building 70 to visit with Kratz, Norris and Binder and discuss their work.

At 5:00 p.m., Dick Mack dropped in to tell me that, in his opinion, Don Evans and Ferd Voelker would be more than adequate replacements for Birt Kortegaard should he leave the SuperHILAC.

Dave rode home with me to spend the Thanksgiving holidays. Helen drove to Davis pick up Steve, Eric, and Brent Huber (whose father came by to pick him up). Our dinner group tonight, in the kitchen, consisted of Dave, Steve, Eric, Helen, Dianne, and me. After dinner, Steve drove to Oakland to visit Lois, and Dave visited our neighbors the Shermans.

Thursday, November 22, 1973 - Lafayette

Thanksgiving Day.

We watched on TV the Washington Redskins-Detroit Lions football game; the Redskins won, 20-2.

At noon, Paul Lochak called me from Paris. The French Ministers have met on the uranium enrichment (he works through Minister Charbonnel) question but it is still not resolved and they will meet again tomorrow. The French Foreign Service said they have contacted the United States and learned that "nothing has changed since the 1971 posture of the U.S." I suggested that he call Herman Pollack to try to learn the actual position of the U.S.; I suggested he might also call John Sawhill. (He has talked to Sawhill and to Jonathan Rose of Flanigan's office.)

We watched the Dallas Cowboys-Miami Dolphins football game; Miami won, 14-7.

We called Pete and Jane at Jane's mother's home in Brooklyn. Jane's Aunt Doris Leberfeld, Aunt Mimi Jordan and grandmother were there as well as her mother and stepfather (the Al Badains). Jane told us that she may start school next summer, perhaps at American University, and may also start on a research problem with Dr. Michael Schwartz at NIMH Laboratory at St. Elizabeth's Hospital.

Suki and I took our hike to the water tank. We had our Thanksgiving dinner at 6:00 p.m., including John and Dolly Huizenga and Chris Ritter as well as Helen, Dave, Steve, Eric, Dianne, and me (Watanabe had been expected but didn't appear).

Friday, November 23, 1973 - Lafayette

I met in my study at home from 10:30 a.m. to 1:00 p.m. with John Nassikas (Chairman, Federal Power Commission), Andrew Sessler, Jack Hollander, and Glenn Werth (of the Livermore Laboratory) to discuss the energy crisis. We discussed the prospects and time scale for

geothermal power, fission power (water-cooled reactors and HTGR), breeder reactors, fusion power, and all aspects of solar power. I outlined the possible key role of the HTGR and the possibility that the fast breeder could be bypassed if its cost becomes excessive and time scale for development too long. John favors the amalgamation of the proposed Nuclear Energy Commission and Federal Power Commission into a single Energy Regulatory Commission. He feels the only short-term solution to the energy crisis is through conservation measures and that gasoline rationing this winter is inevitable. He agreed on the importance of nuclear power. We emphasized to John the potentially powerful role of the AEC Laboratories and the urgent need to get going with the funding of energy research in these laboratories.

Sessler and Hollander told me they have just received word that \$800,000 has been released by the AEC for support of geothermal research at LBL and the campus.

Midday, Eric drove David back to International House; Dave's inability to decide on a research director may terminate his graduate career at Berkeley at the end of the present academic year.

In the afternoon, Eric, Suki and I took a hike around the rim trail at the Lafayette Reservoir--about 5 miles and it took us a little more than an hour-and-a-half. The weather was overcast and the trail somewhat muddy due to the rain earlier in the week.

Saturday, November 24, 1973 - Lafayette - Palo Alto - Lafayette

Paul Lochak called at 10:15 a.m. from Paris to give me an up-to-the-minute report on the European uranium enrichment situation. The French Ministers continued their meeting yesterday and decided that the French government will support the construction of a uranium enrichment diffusion plant to be constructed somewhere in Europe. The government also decided there will be no obstacles to exchange of information which could bring about international cooperation (with the U.S.) from the technical and organizational standpoint. Now the European governments will consult among themselves. There will be a meeting of European utilities on December 1.

Lochak told me he had phoned Herman Pollack after he talked with me on Tuesday, and Herm reiterated the spirit of cooperation in the U.S. and couldn't identify the negative attitude attributed to the U.S. by the French CEA. Lochak is coming to the U.S. to meet with the Under Secretary for Economic Affairs William Casey next Tuesday morning. I told him I could see him at my Harrison Street house on Thursday, but he may have to return to Europe before then in order to be present for the meeting on December 1. He may also speak with John Sawhill and Dr. Ray or Bob Hollingsworth during his visit to Washington. He will call me from there to bring me up-to-date.

Helen, Steve, Dianne, Cathy Sherman, Brent Huber (Steve's housemate), and I drove in our station wagon to Palo Alto to attend the Big Game. We went to Rinconada Park, next to the Community Center, where we had our picnic lunch, then drove to the corner of Kingsley and Waverly to park our car. We then walked to Stanford

Stadium, where we saw the Big Game from coffin corner seats. We sat next to Sigrid and Arnold Stamps. Stanford won, 26-17, although the University of California led much of the time and did better than expected. A critical 4th down and one situation, when Mike White chose to have Steve Bartkowski punt (a very poor one), may have been a mistake that lost the last opportunity to win.

After the game, we drove back, arriving home at 6:15 p.m. Brent drove back to his parents' home, having left his car at our house. We heard over the radio that USC beat UCLA, 23-13, thus earning the bid to play in the Rose Bowl. The University of Michigan tied Ohio State today, 10-10, so they are tied for the Big Ten Championship.

Sunday, November 25, 1973 - Lafayette

I spent some time reading Alain Peyrefitte's book, Quand La Chine S'Eveillera, an expanded account of his visit to the People's Republic of China. We watched football games on TV part of the afternoon. The Oakland Raiders beat the San Diego Chargers, 31-3.

Helen drove Steve and Eric back to Davis in the afternoon. Suki and I took a hike around the rim trail at the Reservoir.

The Big Ten voted to send Ohio State to the Rose Bowl--they bypassed the University of Michigan (tied with Ohio State, which went to the Rose Bowl last year) because Michigan's quarterback, Franklin, was seriously hurt in yesterday's game.

Helen and I prepared a cassette tape to send to Lynne and Bill. I read Chem 1A material in preparation for my lab sections.

Monday, November 26, 1973 - Berkeley

George Pimentel called me as soon as I arrived in my office to ask if I would lecture to the Chem 1A class at 9:00 and 10:00 a.m. on Wednesday the 28th and at 11:00 a.m. on Thursday the 29th, since he needs to be in Pasadena for a symposium. I indicated that I could do this on Wednesday, speaking on the transuranium elements, the periodic table, and/or the superheavy elements, but would be on my way East on Thursday. He will encourage the TuTh students to attend one of Wednesday's lectures if possible.

I called W. O. Milligan at the Welch Foundation in Houston at 8:40 a.m. to discuss the date and times of the May Scientific Advisory Board meeting in light of the conflict for me with the Friday night ISEF banquet in South Bend, Indiana. The Welch meeting is scheduled to start on Saturday morning; however, he will try to have the meeting start instead by noon on Saturday, with the main discussion to be held on Sunday. He is ready to go to Sweden for the Nobel ceremonies; we discussed a little the logistics of getting around Stockholm.

I went down to the Physical Sciences Lecture Hall to hear the Chem 1A lecture from 9:10-10:00 a.m.

Jim Cobble phoned me at 10:35 a.m. about his funding problems with the AEC. Bob Epple last spring had promised to reserve the funds

Monday, November 26, 1973 (con't)

which would enable him to bring Roland Otto to California as a postdoctorate. Now, however, George Rogosa, who has taken over the Van Dyken/Epple area, has decided to start over again and treat Cobble's project as a new proposal. The otherwise reserved monies have been reallocated, so it does not appear that Otto would be able to start on January 1 as planned. He is also concerned about one of his students who is presently at the Bhabha Research Center in India, whose coming to the United States to work with Cobble is imminent. Cobble has called in to Rogosa and hopes to get him to soften. I agreed with him that he should not talk with Teem or Miller about this and said I would rather not talk with Rogosa myself about it. In the meantime, he told me that Purdue has agreed to try to make a temporary teaching position available for Otto as of January 1 if necessary. His grant would have paid Otto \$9,948 for 12 months (\$829 per month). I asked him to let me know the outcome of his call to Rogosa, which he said he would do.

I went back down to 446 Latimer to conduct my regular office hour from 11:00 a.m. to noon. Peter Sybert (who changed the spelling of his name from Szeibert or Seibert), who was in my Chemistry lab section a couple of years ago, dropped in to see me; he is now a junior, majoring in biochemistry, doing quite well.

I attended the regular Chemistry Department faculty luncheon in the Howard Room of the Faculty Club from 12:00-1:00 p.m., then taught my Chem 1A lab section in Room M from 1:10-2:45 p.m. I then returned to my office at LBL.

I called Jerry Kent at the East Bay Regional Park District to discuss the wording of the draft Master Plan, which appears to give short shrift to trails. We discussed the wording on page 9, paragraph 9, which he will correct to open with a sentence that "the Park District will actively promote the acquisition, development, operation, and use of trails."

I received a letter from Peter Laubereau (copy attached), accepting my invitation for him to visit us at LBL in February. I received a letter from Yang Fu-chia in Shanghai, acknowledging my letter of October 15 and inquiring about Man and Atom, which I will send him. I signed and sent 52 letters to Chemistry Department Chairmen around the country, announcing our openings for two postdoctoral positions in the Nuclear Chemistry Division beginning in the fall of 1974 (sample attached).

I called Louis Lazaroff at the Asia Foundation at 3:35 p.m. in response to his letter of November 19, proposing the names of Asians who might be invited to the AAAS San Francisco meeting (copy attached). I indicated that I would show his letter to the AAAS Board at our meeting this weekend. There are two ways in which we could handle this: (1) the Asia Foundation could make the grant to AAAS, with AAAS then administering the travel funds and arrangements for the individuals involved; or (2) the Asia Foundation could have their representatives in the countries concerned issue everything directly to the individuals (every country except India). I said that I would



HESSISCHE  
LANDESANSTALT FÜR UMWELT

ID6

62 Wiesbaden, den  
Kranzplatz 5/6  
Telefon 3 92 51  
Telex 4186 278

549a

Dr. Lau/pl

In der Antwort bitte vorstehendes Geschäftszeichen angeben

Hessische Landesanstalt für Umwelt, 62 Wiesbaden, Kranzplatz 5/6

Professor

Dr. G. T. Seaborg  
University of California  
Lawrence Berkeley Laboratory  
Berkeley, CA 94720

U.S.A.

NOV 24 1973  
577 11/24/73

Dear Professor Seaborg,

many thanks for your letter of Oct., 31, 1973 and for your kind invitation for a visit at the Lawrence Berkeley Laboratory. Although I was willing to answer immediately, this was delayed by my absence from Wiesbaden because of two business trips which I had to do during the past two weeks. I also was hoping to be able to send to you a definite answer today, however because of some questions unsettled here in Wiesbaden I can only report about the status of the matter in this letter.

I am very happy about the invitation and I would like to accept it. However because of my responsibilities at my job here it looks as if I am unable to consider as time for the trip a date before Feb. 1974. I don't know if this is too late for you. I also have to point out that my current professional engagement allows only little time to me for the preparation of a lecture, which should be necessary for a report on experiments done three years ago. Last not least I am now applying at my employer ( Government Agency for Environmental Protection of Hussia) for the permission of a vacation on personal leave for the trip. This and other questions cannot be settled before around the middle of December, then I will let you know the decision. Please understand the delay of the full acceptance of your generous invitation.

With many thanks,

sincerely yours

XC: Harvey  
Edelstein  
Eiland

*P. G. Laubereau*  
P.G. Laubereau

LAWRENCE BERKELEY LABORATORY  
UNIVERSITY OF CALIFORNIA  
BERKELEY, CALIFORNIA 94720 □ TEL. (415) 843-2740

26 November 1973

Professor \_\_\_\_\_, Chairman  
Department  
University  
City, State

Dear Professor

The Nuclear Chemistry Division of the Lawrence Berkeley Laboratory will make several one to two year post-doctoral appointments in 1974 to chemists or physicists and is soliciting applications. The appointments will generally begin in the fall of 1974, and the rates of pay will be contingent on the degree of experience and accomplishment of the recipients. These appointments are open to all applicants with the necessary qualifications, and women and members of ethnic minority groups with these qualifications are urged to apply.

To be considered for one of these appointments the applicant should have worked with equipment of comparable sophistication to that used by the Lawrence Berkeley Laboratory and should have compiled an outstanding record in one of the research areas embraced by the Nuclear Chemistry Division. Appointments will be made in some of the following areas: heavy ion research; transuranium element research; nuclear reactions and scattering; nuclear theory; nuclear spectroscopy and its applications; radioactivity; fission studies; hyperfine interactions; photoelectron spectroscopy; x-ray crystallography; atomic and molecular spectroscopy; radiation chemistry; and environmental studies. Those applicants will be selected whose abilities best meet the needs of the Division.

If anyone in your department with the necessary qualifications is interested in one of these appointments, please ask him or her to send me a curriculum vitae together with a personal letter, a list of publications, and two or three letters of reference. Applications should be received by January 9, 1974, to insure consideration.

Sincerely yours,

Glenn T. Seaborg  
Director, Nuclear Chemistry Division

GTS/

# THE ASIA FOUNDATION

550 Kearny Street, San Francisco, California

Telephone: (415) 982-4640  
 Mail: P. O. Box 3223  
 San Francisco, CA 94119

November 19, 1973

Dr. Glenn T. Seaborg  
 Lawrence Berkeley Laboratory  
 University of California  
 Berkeley, California 94720

Dear Dr. Seaborg:

It was a great pleasure to meet you Friday a week ago and to bring with me my colleague, Mr. B. R. Deolalikar. At my request, Mr. Deolalikar is now visiting a number of the people in Asia who had expressed particular interest in the new approach to technology that I broached to them earlier this year and that The Asia Foundation will present for discussion at the Association's meetings early next year.

I was particularly interested in your comments on the need for greater links between the Association and similar Associations of natural and social scientists in other parts of the world. I suggested then that if you were prepared to explore the idea with a small, distinguished, and select group from Asia who might be prepared to attend the Association meetings in February - March 1974, The Asia Foundation might be in a position to help. For we believe that such an informal meeting could perhaps lay the basis for continuing association between at least American and Asian scientists. If you are still interested in inviting such a small Asian group to San Francisco, may I perhaps make some suggestions? When we were in your office we talked about Dr. M. G. K. Menon of the Tata Institute of Fundamental Research. In thinking over the matter further, it occurred to me that you might also consider it appropriate to invite such people as:

Dr. Abdus Salam, physicist; Director, International Center for Theoretical Physics, Trieste, and Professor, Imperial College of Science and Technology, London (who, as you know, is Science Adviser to the Prime Minister of Pakistan)

Dr. Puey Ungphakorn, economist; formerly Dean of Thammasat University and Governor of the Bank of Thailand; now doing research at Cambridge University in the U.K. on problems of developing nations

Dr. S. Soejatmoko, political scientist; former Ambassador of Indonesia to the United States; one of Indonesia's leading and seminal thinkers with a world view; and now special adviser to BAPPENAS, the Indonesian Planning Commission

Dr. Seiji Kaya, physicist; former President of Tokyo University (or his very able son, Dr. Yoichi Kaya, Dept. of Electrical Engineering, also of Tokyo University, on whom Dr. Kaya now seems to rely to continue his work in relating science to Japanese and regional needs in Asia)

## THE ASIA FOUNDATION

Dr. G. Seaborg

November 19, 1973

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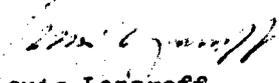
Dr. Lee Kum Tatt, chemist, Chairman, Science Council of Singapore

Dr. Hahn Sang Joon, President, Korea Institute of Science and  
Technology, Seoul

In all, the Foundation would be prepared to provide funds to bring at least four and perhaps five persons. I would be very glad to explore this with you further at your convenience. My telephone number in San Francisco is 982-4640.

I look forward to hearing from you.

Sincerely yours,

  
Louis Lazaroff  
Director of Special Programs

Monday, November 26, 1973 (con't)

go over these possibilities and be in touch with him upon my return from Washington next week.

Helen and I went to dinner at Blake House, hosted by President and Mrs. Charles Hitch, for the University Professors and the members of an informal association of heads of multi-campus University systems (which had been organized about six years ago and has met semi-annually since that time).

Present were: Chancellor and Mrs. Ernest L. Boyer, State University of New York (SUNY); President and Mrs. John E. Corbally, Jr., University of Illinois; President and Mrs. C. Brice Ratchford, University of Missouri; President and Mrs. John C. Weaver, University of Wisconsin; Professor and Mrs. Eugene C. Lee (Director of the Institute of Governmental Studies at Berkeley and who has been serving as secretary of the association since its inception); Professor and Mrs. Charles Townes; Professor and Mrs. Harold Urey; Professor Edward Teller; and Professor Josephine Miles.

President Corbally reminded me that he and Mrs. Corbally had met me when I came to Ohio State University to deliver the commencement address on June 9, 1961. President Ratchford reminded me that he and Mrs. Ratchford had met me when I came to Columbia, Missouri, to dedicate the research reactor on May 28, 1966.

At dinner, I sat next to Mrs. Hitch and Mrs. Weaver and across from Presidents Ratchford and Weaver. The dinner conversation in our area included a good deal of discussion about Helen's and my trip to the People's Republic of China. After dinner, I had a talk with Chancellor and Mrs. Boyer about the Watergate situation and found them to be quite alarmed about the whole matter.

After dinner, I had a discussion with President Hitch about a number of matters:

(1) We discussed my invitation from Pat Brown to become a public member of the Council on Environmental and Economic Balance. President Hitch is not a member and didn't have any more information than that which he had sent me. I told him that I would be glad to talk further with Pat Brown about it, and he indicated that he would have Pat call me.

(2) I told him that Bob Hollingsworth is going to resign as General Manager of the Atomic Energy Commission, effective at the end of this calendar year. A contributing reason is economic because a number of his children are reaching college age and the combination of his retirement pay (he has some 30 years of federal service even though he is only 55 years old) and his salary in the new position would increase his income; I said there may be other reasons for his resigning but that I didn't feel that I should go into that. I ventured the guess that a salary of around \$30,000 would interest him. I raised the possibility that it would be to the advantage of the University to offer him a position in the Statewide organization. I suggested that the position at least for the first couple of years

not be concerned directly with the administration of the three large laboratories or with contacts with AEC but that he could be in a position to advise in these areas. President Hitch indicated that he is very favorably impressed by Hollingsworth and that he will discuss the possibility of a position with Vice President John Perkins. He did indicate that the Statewide administration is in the position of curtailing positions and not in general adding new people.

(3) I called his attention to the fact that I have nominated Bill Bevan as a candidate for the Chancellorship of the Santa Cruz campus. I indicated something of Bevan's background and said that he will be leaving his position as Executive Officer of the AAAS next summer, after a 3+-year stay in that position, which is the amount of time that he had originally planned. I said that he is a very effective and decisive administrator. I indicated that I had summarized my thoughts and included a curriculum vitae in the letter sent to his office about a week ago. President Hitch seemed interested, but also indicated that, as a result of his advertising the position, there are an unusually large number of well-qualified applicants.

(4) He asked how Andy Sessler is doing as the Director of LBL, and I said very well. We discussed the need to make a change in the Director of the Division of Biology and Medicine and the problems this will entail with John Lawrence. He agreed that this unpleasant task should be undertaken in the not-too-distant future. As we were finishing our conversation, Charlie Townes joined us and indicated that he wanted to discuss privately the recent meeting of his LBL Advisory Committee, in which this same problem had been discussed, so I left at this point.

Tuesday, November 27, 1973 - Berkeley

I talked with Ghiorso by phone about the status of the SuperHILAC. He is willing to face the Birt Kortegaard problem and add people like Don Evans. There will be a meeting of Al with Grunder and Hyde on Friday to discuss this whole matter of getting more help up to the SuperHILAC.

I called Marie Janinek at 10:15 a.m. to get her advice on where I might locate the memorandum I dictated after my conversation with Adlai Stevenson on June 26, 1965. She suggested that Sheila look in the blue memos, the trip folder for that visit to Berkeley, the chronological file, anything under Stevenson, and the "S" file for 1965. I said that I would have Sheila report back to her after these have been explored. Regarding my request for the slides of my Washington Junior Academy of Sciences talk, she surmised that, if the slide was not in the trip or speeches folder (which it was not), she didn't think it would be anywhere else. Marie, Sheila and I conjectured on President Nixon's secretary having erased her boss's tapes; the event strikes terror in their hearts. We agreed that the reported accidental over-recording of the tape in question was incredulous.

I went by to see Irwin Binder in 203 Building 70; he is treating data from the gold bombardment.

Tuesday, November 27, 1973 (con't)

I walked up to the HILAC Building at 11:00 a.m. I talked to Nurmia about the work on the production of volatile tungsten compounds in the bombardments of dysprosium with oxygen ions. I then discussed the SuperHILAC situation with Bob Main. He had read my memorandum to Ghiorso of November 21, 1973, suggesting higher priority for the third injector and for getting more help to the SuperHILAC. He doubts that a Wideroe accelerator can be built without much research and much loss of time. He feels that Adam can be made to work for uranium ions and that the trouble has been that the work on it has been of a patchwork type and not directed at the fundamental problems. He agrees that more help must be made available even if this leads to Kortegaard's resignation. I then talked to Ghiorso and again emphasized the need to get more people up to the SuperHILAC to help.

I had lunch with Hyde in the cafeteria and brought him up-to-date on my discussions with Main and Ghiorso, my memo to Ghiorso, and my discussion of the biomedical organization problem of LBL with President Hitch last night.

I went by to see Kratz and Norris. Then I went by to see Len Nugent to urge him to draw up a time schedule covering his writing and that of Ryan and Penneman on the revision of Chemistry of the Actinide Elements.

I went down to see Edelstein and Parsons; they are preparing a matrix of  $BKf_3$  in  $CaF_2$  to look for berkelium(II). I also checked on Gradl.

I wrote Peter Laubereau, suggesting he plan to visit us so as to complete his visit by February 20 in light of my pending schedule. I submitted my final report (copy attached) on my fund-raising efforts for the AAAS Headquarters Building Project to William Golden, William Bevan, Leonard Rieser, and Fran Freeman. I sent a letter and copy of Man and Atom to Yang Fu-chia in Shanghai. I sent a supporting letter to the Admissions Committee of the Cosmos Club about Loren K. Olson (copy attached).

Paul Lochak called me at 3:15 p.m. from Washington to report on his activities today. He and Fremont Felix had lunch in Chairman Ray's office, together with Quinn, Hollingsworth, and the General Counsel. Paul said that they were very anxious not to impose themselves into the decision-making processes in France. They are, nonetheless, very positive in their attitudes toward Franco-American cooperation. He then met with Mr. Casey at the State Department who, Paul said, was very positive and said what I have indicated before, namely, that things today are very different from the way they were in 1971, and that the United States government is now willing to move quickly. Lochak suggested that Jean Couture was the person in Paris to whom they should convey this attitude. They will think about this in the State Department and possibly ask the Ambassador in Paris to talk with Couture; this will be decided on Friday.

Lochak and Felix than met with Congressman Melvin Price, who called into their meeting Craig Hosmer. Lochak and I discussed

*American Association  
for the Advancement of Science*

GLENN T. SEABORG  
Chairman, Board of Directors

LAWRENCE BERKELEY LABORATORY  
UNIVERSITY OF CALIFORNIA  
BERKELEY, CALIFORNIA 94720

November 27, 1973

William Golden  
William Bevan  
Leonard Rieser  
Fran Freeman

Re: AAAS Headquarters Building Project

This is a final report on my attempts to obtain funding support from ten foundations for the AAAS headquarters building project. This will include information from my earlier status reports, and will expand the discussion on each foundation for possible future reference in AAAS fund-raising activities.

Of these ten foundations, three doors appear still to be open. Our formal application (in the form of a personalized letter with some backup material) should arrive at the Kresge Foundation within the first two or three days of January 1974. The Charles A. Dana Foundation should be contacted again in late February or early March. We may be able to approach the Andrew W. Mellon Foundation in the final stages of fund raising; this would presuppose nearly complete success in our efforts beforehand.

We have yet to receive final answers from the Lilly Endowment and the Research Corporation. I am not optimistic about our chances in either case.

We have been turned down by the Jonsson Foundation, the W. K. Kellogg Foundation, the Seeley G. Mudd Fund, the Olin Foundation (apart from extremely long-range planning), and the Rockefeller Brothers Fund.

In each of my visits, I described the purposes and programs of AAAS, the concept of a National Science Center, our building project in that total context, our proposed expansion into the international area, and our specific needs.

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November 27, 1973

Each Foundation representative was given a copy of our draft proposal and the AAAS 1973 Handbook. In a few instances, I sent the larger packet of AAAS literature.

Charles A. Dana Foundation (Greenwich, Connecticut).

Current status: pending. AAAS should contact Dr. Henry W. Littlefield, Executive Vice President, in late February or early March 1974--that is, waiting until six months after my phone conversation with him on August 28, 1973.

When we talked in August, Dr. Littlefield indicated that the Dana Foundation Board awards only five or six projects per year, but had screened and attached priority to some sixty project applications. He suggested that we keep him informed about our project and that we might be able to talk in another six months, after which they will begin to review projects again. (I called his office later about the possibility of a conversation when I was on the East Coast in early November but his secretary, Mrs. Gallagher, confirmed his earlier advice.)

Jonsson Foundation (Dallas, Texas).

Current status: negative.

I met with the President, Philip R. Jonsson, in his office in Dallas on August 29. He inquired about a possible mortgage to help defray the cost, and I indicated that we recognize this as a fall-back position but would prefer to raise the entire \$5.5 million either from one source or from a consortium of foundations. At that time he said that, although the presently available funds were all committed, our proposal was sufficiently interesting to bring to the Board of Trustees of the Jonsson Foundation for consideration as a future possible object of support. The Board consists of members of his family--his parents Mr. and Mrs. John Erik Jonsson, his brother Kenneth A. Jonsson, his sister Mrs. George Charlton, and himself. I offered to have AAAS people come down to Dallas to explain the proposal further if their interest warranted. He indicated that the Jonsson Foundation couldn't cover the entire project because our total goal is comparable to their entire worth; however, a donation as part of a consortium is consistent with their philosophy.

Mr. Jonsson wrote me on October 11, reporting that the Trustees had reviewed our proposal and concluded that their outstanding commitments are so sizeable as to preclude their participation in "this most worthwhile endeavor."

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W. K. Kellogg Foundation (Battle Creek, Michigan)Current status: negative.

I talked by phone with Dr. Russell G. Mawby, the President, to explore the possibility of meeting with him in early November. A packet of AAAS materials and the proposal were mailed to him. He wrote me on October 2, indicating that they had given careful consideration to our request but could not provide assistance for this project. Their Board has established priorities for the use of their limited resources, and these policies generally preclude the provision of funds for capital purposes except in special instances where facilities may be essential for a program to which they are providing support. He therefore suggested our not trying to meet for further discussion, and I concurred.

The Kresge Foundation (Troy, Michigan).

Current status: pending. We should have our formal application--in the form of a personalized letter with backup material--in their office on January 2 or within the first few days of January 1974, but not before. The Board will make its decisions on new grants in May.

Upon receipt of my initial letter of July 31, the President, William H. Baldwin, sent me the Kresge Foundation brochure, which states that "the Foundation principally makes challenge grants to well-established accredited institutions operating in the following fields: four-year college and university education, health care and related services, conservation, the arts, and care of the young or old." "Foundation grants to eligible institutions are primarily made toward: construction and major renovation projects; the purchase of major movable capital equipment having a unit cost of not less than \$50,000; and the purchase of real estate." The brochure also contains the conditional statement that "evidence of existing partial financial support for the project is usually considered essential. Payments of grants made to eligible institutions are customarily subject to the following conditions: (a) certification that the balance of the funds required has been raised by a given date, and (b) notification of the actual project contract price and that it is within available resources."

I met with Mr. Baldwin in Troy on August 30. After describing our total project, I indicated that AAAS would be willing to name the building after a major donor; he replied that this is not a matter of concern to the Kresge Foundation--

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they would even approve the naming in honor of another partial donor should Kresge turn out to be a partial donor.

Baldwin told me that the available funds from the Kresge Foundation depend on the income from their corpus, the requirements of the Foundation Reform Act of 1969, and the consequent possible requirement or wish to spend some money from their corpus. They have already made preliminary commitments of some \$14 million for their 1974 grants which could turn out to be nearly all they will spend, or their expenditure could be more than twice this--they won't know until next May, at which time their decisions will be made.

Applications--in the form of personalized letters which typically run as short as one page up to considerably longer, backed with as little or as much supporting material as the applicant considers to be appropriate--are due immediately after January 1. He told me that applications dated before about December 28 of this year will be returned for resubmission in early January.

Baldwin said he would cover our meeting with a memorandum which would be the beginning of a file on the AAAS application. He was very favorably impressed that I had taken the trouble to pay him a special visit, and he said that the date (August 30) would establish a kind of chronological position in comparison with other competing applications. He told me that they receive some 600-800 applications per year, and each is carefully evaluated. He said they will surely not be able to give us a grant covering the entire amount (i.e., the \$5.5 million). It is difficult to judge what he would consider a reasonable grant, but he used examples in the range of a few hundred thousand dollars in describing some multiply funded projects in which they have participated. (Perhaps a request for about \$1 million would be reasonable, but I named no figure.)

Although he wanted no material before our application is sent in, I did give him a copy of our draft brochure (saying the mentioned \$1 million is only used as an example) and of the AAAS Handbook for use in his preparing his memorandum. We should not send him any more material until our January application is sent in with its backup material.

The six Trustees include Stanley Kresge (a son of the Foundation's founder, Sebastian Kresge) and another Kresge. AAAS will have to show in detail where the total amount will come from, and any grant will be contingent on our procuring the promised funds. He said that the Kresge Foundation gives

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"brownie points" for producing matching funds, although I wasn't clear on whether this applies to funds from other foundations.

Lilly Endowment, Inc. (Indianapolis, Indiana).

Current status: pending. When I met with the Executive Vice President, Landrum R. Bolling, in Washington on October 10, he indicated that he might make an informal presentation of our request to the Board at its bi-monthly meeting on October 16. If they show any interest, he indicated that he would phone me with the possible prospect that a formal request could be considered at the December meeting. (The full Board meets every other month, usually on the third Tuesday; the Executive Committee meets during the intervening months.) At this writing I have not yet heard from Dr. Bolling and am assuming that he was unable to make the informal presentation at the October Board meeting, but will do so in December. I would therefore suggest that we wait until we hear from him.

He told me that the Lilly Endowment does not normally give grants for buildings. Eli Lilly, in his 80's, is still an active member of the Board; he does not want his name attached to a building, and does not normally favor the support of buildings. Several other members of the Board are connected with universities and feel that these are often over-built.

Bolling was very intrigued by my suggestion that the AAAS expand its international activities. He thinks that there are two extra-governmental paths to the improvement of international relations that might offer great hope: (1) the intercourse between scientists, as is being suggested in the AAAS expansion into the international arena, and (2) multi-national corporations. On the basis of our conversation, I have the impression that our main hope for a grant from the Lilly Endowment relates to the proposed expansion of AAAS into the international field.

Andrew W. Mellon Foundation (New York, New York).

Current status: distant pending. Nathan Pusey, the President, asked us to keep in touch. If the Foundation participates at all, it would be in the last stages of any foundation consortium proposal that we might put together.

In my meeting with Pusey in New York on November 2, he reiterated that the Mellon Foundation primarily supports

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the humanities; I emphasized the recent expansion of AAAS activities into the broad fields of science for the promotion of human welfare, the public understanding of science, and the international arena.

Pusey advised that our best hope for support would be from people who had made their fortunes through science-based industries. Those he named were Din Land, for whom Ed Purcell would be the best approach (I told him about my difficulties in approaching Land on other matters); William Hewlett and David Packard (I mentioned my hesitation so far in approaching them because they are friends and involved in other mutual enterprises); Texas Instruments (I mentioned our negative response from the Jonsson Foundation); the DuPont Company (where Crawford Greenewalt would be the contact). He suggested that James Killian should be a good source of advice in general because of his great success as a fund-raiser for M.I.T.

Seeley G. Mudd Fund (Los Angeles, California).

Current status: negative.

On the basis of Robert D. Fisher's letter to me of September 4, 1973, it would appear that the AAAS would not be eligible for any sort of funding support from the Mudd Fund, which exclusively makes grants to four-year colleges and universities.

Olin Foundation, Inc. (Minneapolis, Minnesota).

Current status: negative, or extremely long-range.

I met with the President, Charles L. Horn, Sr., in his office in Minneapolis on October 12. He had read the AAAS draft proposal very carefully, and regretted to say that he must turn it down because of its large magnitude and the fact that their funds are essentially committed through 1974.

Their income from which grants are made is only about \$4-\$5 million per year; thus, because they do not share projects, a grant to us would mean they could make no other grants for a period of three years. The largest grant they have ever made is \$4 million for a building at Vanderbilt University. He mentioned past building grants to such schools as USC and Nebraska Wesleyan; they have just about promised buildings to two colleges in Idaho and Washington. He told me that the first building on the campus for which they make a grant is

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named after Olin; the usual follow-on building grants (an additional one or two) are named after prominent people connected with the school. He reiterated that they only make turn-key grants for complete buildings and furnishings, and thus a grant to AAAS would, in his estimation, amount to an actual total of \$8-\$10 million.

Our conversation spanned a number of mutual interests. He warmed up considerably and then indicated that he would keep open the AAAS application and that we should keep in touch. He said that some of their grants took as long as eight years to develop and only one was ever granted on a short time scale.

On retrospect, I feel that Horn would have supported our request for a grant had money been available or had our project been of a smaller magnitude. I sense that the door is not closed to AAAS if we are prepared to wait and remain in touch with him for a matter of years (as is apparently the pattern for grants from the Olin Foundation).

Research Corporation (New York, New York).

Current status: pending. Dr. Sam C. Smith, Vice President for Grants, will present our request to their Board and appropriate advisory committee at their respective next meetings.

In his letter to me of October 17, James Coles indicated that it is doubtful that Research Corporation would feel justified in diverting significant funds from their stated programs (notably, grants in basic research) toward a major new project in the general area and interest of science. Dr. Smith corroborated this in our conversation in his office on November 2; nonetheless, he didn't close the door entirely, indicating that only one exception to their policy had been made in his 18 years at Research Corporation. I pointed out that, in his letter supporting our request, Warren Weaver had emphasized the necessity of such an exception for AAAS.

Rockefeller Brothers Fund (New York, New York).

Current status: negative.

I met with Russell A. Phillips, Jr. in New York on November 2 (in the absence of Dana Creel, President, and William M. Dietel, Executive Vice President), and Phillips

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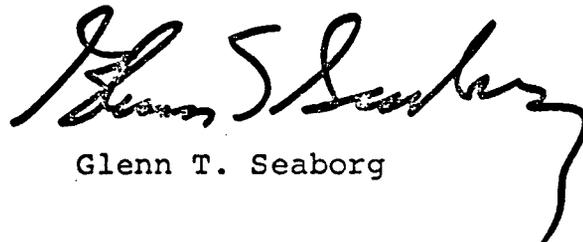
November 27, 1973

said he would present our request to the Fund's officers and Executive Committee. I have now received a letter from Mr. Dietel stating that our project "does not come within any of their defined areas of interest." The fund, as a general rule, does not provide assistance for building campaigns or endowments. Their position "is based on program limitations which must be controlling."

In our conversation, Phillips said that the Rockefeller Brothers Fund generally supports the social rather than the natural sciences and generally does not provide funds for buildings--thus, in spite of the broadening interests of AAAS, our project fails to meet two of their criteria.

As Nathan Pusey had suggested in my conversation with him earlier on the same day, Phillips thought we should approach foundations or individuals who have made their money from science-based industries. In this regard, Phillips suggested the Robert Wood Johnson Foundation (New Jersey), the Edna McConnell Clark Foundation (New York City) whose funds were derived from Avon Cosmetics, and the Rockefeller Foundation which has a long history of supporting science projects. He also mentioned Din Land and Hewlett-Packard.

Phillips said that the Kresge Foundation is the best bet for money for buildings.



Glenn T. Seaborg

GTS/sms

November 27, 1973

Admissions Committee  
The Cosmos Club  
2121 Massachusetts Avenue, N.W.  
Washington, D.C. 20008

Gentlemen:

I am writing in support of the nomination of Loren K. Olson by Leland Hayworth and Gerald F. Tape for membership in the Cosmos Club under the category "recognized as distinguished in a learned profession or in public service."

I have known Larry Olson since January 1961, when I assumed the position as Chairman of the U.S. Atomic Energy Commission. We were colleagues on the Commission until the summer of 1962, when he resigned to resume his legal practice in Washington, D.C. During this period, and for the period before my arrival when he served as Commissioner, he performed in an outstanding and distinguished manner. His legal background was of particular value to me and his other fellow Commissioners.

Before he was appointed by President Eisenhower as a Commissioner of the Atomic Energy Commission, he served as General Counsel to the Commission. It was on the basis of his effective and efficient performance in this capacity that President Eisenhower took the unusual step of elevating him to a position on the Commission.

Larry Olson is knowledgeable, well-read, an interesting conversationalist, and has a pleasant personality that makes him most enjoyable as a companion. Mrs. Olson is a charming and intelligent person.

I feel no hesitation in recommending Loren K. Olson for membership in the Cosmos Club.

Sincerely yours,

Glenn T. Seaborg

GTS/sms

Tuesday, November 27, 1973 (con't)

Hosmer's bent; Lochak reported that Hosmer thinks in terms of the U.S. enrichment corporation, but in the long term sees groups of utilities banding together to build the diffusion plants. Hosmer invited Felix and Lochak to meet with the full Joint Committee next Thursday, which they will do. Lochak asked me how much initiative does the JCAE have in relation to the AEC; I indicated that the JCAE is quite independent, as is the AEC--it is complicated, however, and one must be sure that both are thinking along the same lines. I agreed with Lochak that the prospects look good, but cautioned that there is still a lot to be done.

Ken Street dropped in at 3:30 p.m. and confirmed to me that he is thinking seriously of leaving the Lawrence Berkeley Laboratory, and the Berkeley Chemistry Department, to take up a position again at the Lawrence Livermore Laboratory. He is becoming a little tired of teaching and doesn't enjoy it very much any more. He also finds it very difficult because of his deteriorating hearing. He is 2/3 on the University payroll and 1/3 on the LBL payroll--the last of our Chemistry Department faculty in this category. He will let me know definitely when he has made up his mind, at which time I will try to save his faculty position for the Nuclear Chemistry Division by attempting a replacement, perhaps someone who would carry on the actinide chemistry program of Burris Cunningham.

Beginning at 3:45 p.m., I met for about an hour with Sessler and Hyde. I described my talk with President Hitch last night regarding Bob Hollingsworth and the LBL Biomedical situation. We discussed the deteriorating situation at the SuperHILAC and the increasing need to put someone in charge who can increase the number of people involved in getting the machine to work and who can solve the basic difficulties rather than try to patch things up; Hermann Grunder appears to be the man for the job but he apparently will not do it unless he is placed definitely in charge. This is a difficult move to make, but apparently is necessary and must be done soon.

Beginning at 4:45 p.m., I met for about a half-hour with Dobie Jenkins (who is working with Vice President--Governmental Relations Jay Michael in the University of California Statewide headquarters) and Janice Persons Holvay (in the budgetary area of the Statewide headquarters). They wanted to discuss with me the emerging policy and trends of federal resource grants to the University by the Nixon Administration; they are interested in support of basic research in universities and wanted my ideas of key people to see in the Administration. I described to them my meeting with John Sawhill et al. in his office in EOB last July and the philosophy, directed toward practical applications, described at that time. As people to discuss this with, I identified John Sawhill and Hugh Loweth of OMB, Russell Drew of NSF, Kenneth W. Dam with Secretary George Shultz and Bill Baker.

Suki and I took a hike to the water tank. Peter and Jane called at 9:45 p.m. to tell us that Jane's 90-year-old grandfather (her mother's father) died at about 5:00 p.m. today. They were glad that they had had the opportunity to see him during their visit to Brooklyn

over the Thanksgiving weekend. They are going up to Brooklyn tomorrow for the funeral.

Wednesday, November 28, 1973 - Berkeley

I walked down to the campus at 8:40 a.m. Behind Bowles Hall, I found a man on the ground writhing in what appeared to be a "trip;" I went immediately to Bowles Hall and arranged to have a student make a call for help (presumably the campus police). Ken Street came by and stood by until the police arrived.

I gave the main lecture to Chemistry 1A in PSL from 9:10-10:00 a.m. and again from 10:10-11:00 a.m. I talked on "The Transuranium Elements, the Periodic Table, and the Superheavy Elements," illustrated with 28 slides. The lectures were well received, with applause, and a number of students came up to ask questions of me afterwards. One freshman, Glen Langstaff, said he wants to come up and work in my group on the hill. I said I would get in touch with him. He wants to enter research as a career.

After my lectures, Joel Hildebrand, who I encountered on the 4th floor of Latimer Hall, asked me to drop in to see him, which I did. He described to me his latest correlation of solution viscosity, etc. I mentioned to him my hope to collaborate with him and Melvin Calvin on a biography of G. N. Lewis and he seemed interested.

I met Richard J. Farnum of Happy Valley, who wants to help in a movement for Happy Valley to save Lafayette Ridge.

I walked back up to my office on the hill, went through my mail, and had lunch in my office with Stan Thompson. Stan is concerned about his research budget (too small, he thinks, to take care of Moretto's graduate students and Moretto's program as well as his), the method of appointment of people to key committees in the Nuclear Chemistry Division, and the method of operation of the Division's Program Committee.

I then walked down to the campus and taught my Chemistry 1A lab section in 124 Lewis Hall from 1:10-3:00 p.m. I walked back up to my office and Jens Kratz dropped by to discuss our research program.

Suki and I took a hike to the water tank. During the evening, I read Andrew Sessler's report of November 26, 1973, to the Scientific Program Council, then called him at home to tell him what an outstanding report I think this is; this report identifies all the pressing problems facing LBL and suggests possible or alternative courses of action for many of them--this type of analysis and proposed action is long overdue.

Thursday, November 29, 1973 - Lafayette - Washington, D. C.

Helen drove me to San Francisco International Airport where I boarded United Airlines Flight No. 50, which left at 9:00 a.m. and arrived at Dulles Airport in Washington at 4:20 p.m. We were privileged to listen to the pilot's conversation with ground control personnel on take-off and landing.

I was met by Vernon Pizer of Washington Magazine. He was scheduled to interview me in connection with an article he is writing on national science policy and science advising machinery. Mrs. Pizer drove us to the Harrison Street house and Pizer interviewed me en route. Pizer told me he has already interviewed Phil Handler, Phil Abelson, Guy Stever, and Emilio Daddario. He asked questions about the existence or not of a national energy policy (I said we don't have one and defined what such a policy should entail), the efficacy of the present science advisory machinery, the effectiveness of the present Federal Council on Sciences and Technology, the energy crisis, the lag of nuclear power (I explained why this is a misconception), my views of the future (I said there will be more austerity but science and technology will do much to mitigate this), and the future status of science and technology (I said their status will improve). I mentioned my interest in the international application of science for the benefit of mankind and my efforts to move AAAS in this direction. I said that Nixon's treatment of the science advisory apparatus was not so much a sign of disrespect for scientists as it was a result of fear of scientists and science. A contributing factor, of course, was the unwanted advice given so publicly by PSAC on the opposite side of a number of the Administration's pet projects.

I walked to the nearby Cafe Burgundy on Connecticut Avenue for dinner. (Pete and Jane were in Brooklyn for her grandfather's funeral.) I found this to be a good place--it is too bad we never ate there during our entire stay in Washington.

After dinner, I called Stan Schneider. He and Renee are going to attend the AAAS meeting in San Francisco in February. I suggested we get together for dinner during that week. Stan and I made a date to meet at the New Sheraton Hotel in Reston the evening of December 12 to discuss my talk at the "Major Features of the World in 1994" Symposium at the San Francisco AAAS Meeting.

Friday, November 30, 1973 - Washington

I had breakfast at home. I said hello to Pete who had returned at about midnight last night from Brooklyn; he was still tired and went back to bed.

I took a taxi to the AAAS headquarters to preside over a meeting of the Board of Directors in the Board Room. Present at the beginning, 9:30 a.m., were Leonard Rieser, Roger Revelle, Caryl Haskins, Ward Goodenough, Phyllis Parkins, and William Bevan, Catherine Borrás, and Richard Trumbull.

We followed the agenda (copy attached), starting with the Executive Officer's report. Daddario arrived at 9:45 a.m.

Chauncey Leake has invited the AAAS Past Presidents to dinner at the Bohemian Club on December 27. I gave a report on the status of the San Francisco Meeting on the basis of my prepared outline.

Golden arrived at 10:30 a.m., in time to speak on the budget. David arrived at 11:00 a.m., during this discussion. We discussed the rate of dues increase and how this relates to the level of member-

Time-Table  
Meeting of the Board of Directors  
November 30, December 1 and 2, 1973

Friday, November 30

9:30 - 9:45	1.	Executive Officer's Report
9:45 - 9:50	2.	Minutes, June 22 Board Meeting
	3.	Minutes, September 21 Executive Committee Meeting
	4.	Interim Board Actions
	5.	Interim Executive Committee Actions
	6.	Information Items
9:50 - 10:00	6(e).	Status of the San Francisco Meeting (Dr. Seaborg)
10:00 - 10:30	7.	Financial Outlook through 1976
10:30 - 12:30	8.	1974 Budget (continued Saturday afternoon)
12:30 - 1:30		LUNCH
1:30 - 2:30	9.	Recommendations on Dues and Subscription Increases for 1974
2:30 - 3:30	10.	Financial Support of the Science Education Program
3:30 - 4:15	11.	Working Group on International Science
4:15 - 4:30	28.	New Business (Special Resolutions)
4:30 - 5:00	29.	Executive Session
6:30		COCKTAILS Empress Restaurant
7:00		DINNER

Saturday, December 1

9:30 - 10:30	23.	Arden House II
10:30 - 11:30	17.	AAAS Committee Structure
✓ 11:30 - 11:45	18.	Proposed Committee on Energy, Science, and Society
11:45 - 12:00	14.	Rotating Terms for Other Committees
12:00 - 12:15	15.	Committee on Nominations
	16.	Executive Committee of the Board
12:15 - 1:00		LUNCH
1:00 - 1:15	12.	Cooperative Programs with Asian Associations for the Advancement of Science
— 1:15 - 2:00	20.	Andrei Sakharov
2:00 - 3:00	19.	National Conference of Scientists and Lawyers (John D. Lane)
— 3:00 - 3:30	8.	1974 Budget
— 3:30 - 5:00	13.	Selection of New Committee Members
6:30		COCKTAILS Madison Hotel
7:00		DINNER Mount Vernon Room

Sunday, December 2

- |               |     |  |
|---------------|-----|--|
| 9:30 - 9:35   | 28. | New Business (Resolution of Tied Votes,<br>Section O Committee Election)           |
| 9:35 - 10:00  | 21. | Proposed Board Resolution on Equal Opportunity                                     |
| 10:00 - 10:15 | 22. | General Chairmen or Chairwomen, New York Meeting                                   |
| 10:15 - 10:35 | 24. | Proposed "Guidelines to Professional Employment<br>for Engineers and Scientists"   |
| 10:35 - 10:45 | 25. | National Conference on the Urban Environment                                       |
| 10:45 - 10:55 | 26. | "Toward an Understanding of the Middle East<br>Conflict"                           |
| 10:55 - 11:15 | 28. | New Business (Request To Submit Amicus Curiae<br>Brief in Wahba vs. NYU and Ochoa) |
| 11:15 - 12:00 | 29. | Executive Session  |
| 12:00         |     | LUNCH  |

Friday, November 30, 1973 (con't)

ship. I raised the question of whether we have given up on our resolution of October 19, 1969 to increase AAAS membership by an order of magnitude. It was pointed out that the budget is related to the assumptions on the level of membership which is related to the question of increasing membership to include more industrial scientists and engineers. It was then pointed out that this latter would only be possible by changing the format of Science magazine, e.g., to include a section on technology. Bevan suggested a demographic plan of publication in which only the areas of individual interest in Science would go to individual members.

Bevan then began discussion of the 1974 budget. This is predicated on no "seed money" from AAAS to initiate new programs. I identified this as a serious policy issue.

We had a sandwich lunch in the Board Room. After, I walked to 1776 Massachusetts Avenue (Government Affairs Building) to visit Elizabeth Zeutschel in the auxiliary AAAS Headquarters (also located on the 6th floor as well). I talked with her, viewed her office, the adjoining office of the secretary (who has quit due to impending maternity and will be replaced next Monday by a temporary appointee), and the nearby offices of Jim Mears and Harve Carlson (who were not in). I also saw the offices of Bill Bevan and Mrs. Borrás on the 8th floor. The remainder of that floor is being renovated to accommodate non-AAAS tenants.

I walked back to AAAS headquarters to resume the Board meeting. We broke into the planned agenda to discuss the energy crisis. Abelson spoke of the real hazard, the bringing to their knees of Europe and Japan and the potential increase of Soviet influence in these areas. If the U.S. and Canada would cooperate, they could supply European needs as well as their own within a few years--he has in mind utilizing Wyoming and Colorado oil shale and Canadian Athabasca tar sands for conversion to liquid fuels. The Arabs will continue their game irrespective of Israel's status--they are enjoying it too much to stop. We didn't succeed in agreeing on a course of action whereby the AAAS could have an effective input to this problem.

We decided to ask Bevan to bring in a recommendation concerning the future of the Science Education Program at the next Board meeting.

We next discussed the report of the Study Group on a Program of International Science Activities. Howard Foncannon was present to describe the report and the work of the Study Group, which he did after my introductory remarks covering the background of the report. I then read out loud to the Board the Summary and the last Section (Section VIII, Organization) of the report because most Board members had not had a chance to read it. I also summarized the interest for cooperation among Associations for the Advancement of Science in Latin America, Great Britain, France, West Germany, East Germany, the USSR, and, more recently, the People's Republic of China and Asian countries.

Friday, November 30, 1973 (con't)

Members of the Board were concerned whether AAAS could afford to spend \$100,000 a year for five years as the Study Group recommended. They were very impressed by the performance of the Study Group in producing a report on such a short time scale. I had to leave at 5:00 p.m. for my next meeting; the Board continued meeting for a short time after I left.

I walked to Science Service headquarters to preside over a meeting of the Board of Trustees, starting at 5:15 p.m. Present were Allen V. Astin, Joseph W. Berg, Jr., Bowen C. Dees, Julius Duscha, Milton Harris, O. W. Riegel, Athelstan Spilhaus, Deborah P. Wolfe, and Edward G. Sherburne, Jr., Dorothy Schriver, Kendrick Frazier, and Donald Harless.

We followed the agenda (copy attached, with minutes). It was agreed that the matter of whether "Things of Science" (which is losing money) should be continued or an alternative method devised will be evaluated by the Science Youth Activities Committee at its meeting on January 29, 1974.

As the result of discussion, I appointed Joseph Berg to the Science Youth Activities Committee (to replace Tape), Tape to the Financial Advisory Committee, and Duscha as Chairman of the Science News Committee (to replace Astin, who will continue as a member).

We next discussed the matter of our Science Service buildings. Sherburne raised the question of whether we should borrow money to build an 8-story building on the land occupied by the present old buildings (houses); we would rent space to occupants to receive enough income to pay back the loan. Harris expressed serious doubt about this plan; he prefers us to sell our buildings and land and then rent our needed space. Nevertheless, it was agreed that Sherburne would make a study of the feasibility of building our own structure on our site.

We next discussed new Board members. We decided to recommend to AAAS reappointment of Spilhaus, to NAS an appointment of Aaron Rosenthal and reappointment of Seaborg; Sherburne will contact Bevan and Handler about this. Duscha nominated Riegel for reappointment, representing the journalistic profession, and Sherburne will recommend to Ted Scripps that John Troan be reappointed.

The date for the next Board meeting was set for 4:00 p.m., Friday, March 15, at the Shoreham Hotel (at the time of the Science Talent Search).

We went into Executive Session, during which we decided to ask Sherburne to present a report on 1974 objectives at the March 15 meeting. After the meeting, Dees and I conveyed this request to Sherburne.

I talked to Dorothy and asked her to send me some information on STS history for my use at my session with Westinghouse representatives on December 12 (which she said she will do immediately) and to prepare

AGENDA

## MEETING OF THE BOARD OF TRUSTEES OF SCIENCE SERVICE

Friday, November 30, 1973, 5:00 p.m.

Science Service Building

1. Approval of Previous Minutes
2. Report of Financial Advisory Committee
3. Nomination of Additional Member of Financial Advisory Committee
4. Disposition of Buildings
5. New Board Members
6. Renewal of Newspaper Enterprise Association Contract for  
Use of Material from Science News
7. New Business
8. Date for Next Meeting of Board of Trustees
9. Executive Session

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## MINUTES

## MEETING OF THE BOARD OF TRUSTEES OF SCIENCE SERVICE

Friday, November 30, 1973, 5:00 p.m.

Pursuant to call, the meeting convened at 5:15 p.m., with President Seaborg in the chair. The Recorder listed the following Trustees present: Allen V. Astin, Joseph W. Berg, Jr., Bowen C. Dees, Julius Duscha, Milton Harris, O. W. Riegel, Glenn T. Seaborg, Athelstan Spilhaus and Deborah P. Wolfe. Edward G. Sherburne, Jr., Director; Dorothy Schriver, Assistant Director; Kendrick Frazier, Editor, Science News; and Donald Harless, Business Manager were also present.

Dr. Seaborg presented the agenda and asked for approval of the minutes of the September 21, 1973, meeting of the Board. A motion to approve the minutes was made, seconded and carried.

Milton Harris presented the report of the Financial Advisory Committee and complimented the Staff for having done a fine job of bringing the financial status of Science Service to its present level. He called attention to the large deficit of THINGS of science and after discussion the matter was referred to the Science Youth Advisory Committee, and the Staff was directed to prepare and submit to the Committee and to the Board a paper on THINGS which would present an analysis of how this program fits into the criteria as stated in the Science Service Mission, together with recommendations. Mr. Sherburne announced that a meeting of the Science Youth Advisory Committee is scheduled for January 29.

Dr. Harris stated that he had requested Mr. Sherburne to ask Dr. Tape to serve on the Financial Advisory Committee. Dr. Tape accepted the appointment, but asked to be relieved of his duties as chairman of the Science Youth Advisory Committee.

Dr. Berg was appointed chairman of the Science Youth Advisory Committee.

Dr. Seaborg explained that Dr. Astin had asked to be relieved of the chairmanship of the Science News Advisory Committee, and Julius Duscha has accepted that responsibility.

- 2 -

A report on the disposition of Science Service Buildings was presented and after discussion, Dr. Seaborg asked Mr. Sherburne to continue studying the alternatives and present a recommendation to the Financial Committee and to the next meeting of the Board.

During discussion of nominations for expiring Board memberships, Mr. Sherburne was asked to refer the matter to Dr. Philip Handler of the National Academy of Sciences concerning nominations from the National Academy of Sciences and the National Research Council, and to Dr. William Bevan concerning nominations from the American Association for the Advancement of Science. Mr. Duscha nominated Mr. Riegel to continue as a nominee of the Journalistic Profession and it was agreed that Mr. Sherburne would discuss with Mr. Scripps the representative of the E. W. Scripps Trust.

The renewal of the Newspaper Enterprise Association contract for use of material from Science News was discussed and Mr. Sherburne was asked to follow up on Item #2 in the proposal which states that "... we would want exclusive world newspaper rights for story and illustrations." The Board indicated that this would not be acceptable.

Mr. Sherburne presented a status report on the People-to-People Grant, and announced that the Philip Morris Foundation had presented a grant of \$5,000 to Science Service for general support of its youth activities.

The date for the next meeting of the Board was set for 4:00 p.m., March 15, 1974, at the Shoreham Hotel, Washington, D.C., during the Science Talent Institute, after which the Trustees and their wives would be invited to dinner with the 40 Winners of the Science Talent Search.

In Executive Session the Board approved an increase in the Science Service contribution to TIAA-CREF retirement from 5% to 7½%.

Dorothy Schriver  
Recorder

a draft for my use in preparing my remarks for the International Science and Engineering Fair at Notre Dame University on May 10, 1974.

I then, at 7:00 p.m., walked to the Empress restaurant for the dinner of the AAAS Board of Directors at which Congressional interns and spouses were our guests. Present were William Bevan, Dr. and Mrs. Lewis Branscomb, Mr. and Mrs. Benjamin Cooper, William Golden, Dr. and Mrs. Ward Goodenough, Dr. and Mrs. Caryl Haskins, Mr. and Mrs. Ronald Larson, Phyllis Parkins, Roger Revelle, Leonard Rieser, Dr. and Mrs. Richard Scribner, Mr. and Mrs. Elliot Segal, Michael Telson, Jessica Tuchman, and Mr. and Mrs. N. Richard Werthamer.

I sat at a table which included the Werthamers, the Segals, Michael Telson, the Haskins, Bevan, and Rieser. I sat between Mrs. Segal and Mrs. Werthamer. The conversation with my immediate neighbors revolved a good deal around my trip to China. After dinner, I gave a short welcoming talk describing the organization of the AAAS Board of Directors, etc., and, because we were served a Chinese dinner, reminisced about my visit to the People's Republic of China, including a description of our meeting with Premier Chou En-lai.

I took a taxi to Harrison Street. Pete was home, having just returned from the Hot Shoppe with a steak sandwich to eat for dinner along with a cheese omelette. He received a phone call from Jane, staying at her grandmother's apartment in Brooklyn, telling him that she won't return home until Sunday morning (by plane). Pete decided he didn't want to go to the football game on Sunday (he feels he must study), so I phoned Ben Loeb to arrange for him and others to accompany me to the game.

Saturday, December 1, 1973 - Washington, D.C.

After breakfast at home, I took a taxi to AAAS headquarters to preside, starting at 9:45 a.m., over the continuing meeting of the AAAS Board of Directors. Branscomb and Bolt joined us; Revelle, Goodenough, Borrás, and Trumbull were absent at the beginning.

We began by a continuation of the discussion of the energy crisis. Phil Abelson, who was also present, had prepared a draft editorial for Science on this subject early this morning. Branscomb emphasized the need for international cooperation by the United States with Europe and Japan even at some sacrifice by the United States. He also made the point that the Arabs did us a favor by forcing us to face up to the problem now rather than at some future time.

Revelle joined us at 10:15 a.m. We had a free-ranging discussion which led to no conclusions as to a course of action.

We then went into executive session, at which Bevan announced to us his intention to resign as Executive Officer, effective September 30, 1974. He presented me with a formal letter of resignation with copies to other members of the Board. I appointed the President-Elect, President, and Chairman as a search committee; this means that I will serve until December 31, then will be replaced by the new President-Elect. We discussed the role of the Executive Officer and whether this should be changed to a posture of greater authority.

Saturday, December 1, 1973 (con't)

Bevan said one of the reasons for his resignation is that the job turned out to be bogged down in too much administrative detail. It was suggested that the announcement of resignation might be made by Bevan in an editorial in Science. It was decided that the Search Committee will proceed to find a person of stature for the position of Executive Officer, recognizing that such a person may wish to remain in the position for only three to five years.

We then went into New Business. Haskins read a resolution of commendation for me, Bevan read one for Parkins, and Bolt read one for Branscomb, in recognition of our years of service on the AAAS Board and our imminent retirement from the Board. We were each then presented a set of Jefferson pewter (designed by Thomas Jefferson), consisting of six beautiful cups and a tray, all made by Stieff Company of Baltimore.

I privately told Bevan about my nomination of him for the Chancellorship at UC Santa Cruz. He has been offered professorships at Duke University and UC Davis. He will visit Davis sometime after January 1; I suggested he visit us at Berkeley at that time.

Trumbull said he plans to come to San Francisco in connection with the annual meeting in mid-January; he said he will come sooner if we need him.

We had lunch in the lunchroom next door. I sat at a table with Rieser, Bolt and Branscomb. Bolt told us a little about his assignment on the group of experts to study the White House tapes, their authenticity, evidence for unauthorized erasures, attempts to reconstruct the erased 18-minute segment on the tape of June 20, 1972, etc.

After lunch, we went back to the question of international science. We decided that, as the next step, we will use the remaining \$10,000 in the Rockefeller Foundation grant to begin some international activities and to prepare proposals seeking grants for support of a program from such organizations as AID, NSF, the Lilly Endowment, etc. I emphasized the goal of increasing cooperation between AAAS and other Associations for the Advancement of Science. (The 3-year, \$1.2 million AID grant to AAAS might be a source of funds.)

At 2:00 p.m., John Lane, of the American Bar Association, met with us to explore methods of cooperation between AAAS and ABA. We discussed the possible formation of an AAAS-ABA joint committee (Conference) to explore mutual programs and communication in the fields of science and technology. The Conference might consist of five to seven members from each organization, with co-chairmen, the expenses for each component to be paid by the parent organization. The Conference would have long-range and short-range projects. Lane said he wants us to appoint a liaison person. After Lane left, I asked Daddario to write our intention to participate in the form of a resolution, to be acted on later in the meeting (which was done), and I appointed him as our liaison member.

Saturday, December 1, 1973 (con't)

I next made my report on my building fund-raising efforts based on my memorandum of November 27, 1973. Golden suggested AAAS keep in touch with all these Foundations as potential sources of operating funds for AAAS.

We then went to the question of cooperative programs with Asian Associations for the Advancement of Science. I described my meeting with Louis Lazaroff and Deolalikar on November 9 and Lazaroff's letter to me of November 19, 1973.

I was interrupted at 3:15 p.m. by a phone call from Paul Lochak in Paris, who told me that 18 utilities representing all the utilities in seven nations (Italy, France, Spain, Switzerland, Belgium, Austria, Holland) met today and voted unanimously to request that EURODIFF negotiate with USAEC to establish cooperation in gaseous diffusion enrichment of uranium. At the following press conference, the question was asked, "Why did you do this; don't you trust France?" to which the answer was, "We want the best technology we can get."

During my absence and upon my return, the Board discussed the future of the Science Education Program and then passed a resolution discontinuing the Commission on Science Education in view of discontinuance of NSF support and suggesting a study of the future of the science education program.

We returned to discussion of the Asian matter and decided to go ahead and invite the 4-5 Asians to the San Francisco meeting and to do this by having the Asia Foundation make the travel arrangements with them directly (i.e., not through the AAAS), except for the representative from India. Revelle suggested Devendra Lal of the University of Ahmedabad in India as an alternative to Menon in case Menon cannot come.

We voted to have Bevan come to the June Board meeting with a recommendation on AAAS Committee structure. We also voted to appoint Revelle as the Board representative on the Committee on Nominations, and Golden, David and Daddario as members of the new (next year's) AAAS Executive Committee. We then discussed again the 1974 budget until adjournment at 6:00 p.m.

Rieser, Revelle and I met in the bar at the Madison Hotel to discuss the problem of finding a replacement for Bevan. We agreed that Bevan might announce his retirement in an editorial in Science early in January, followed by an announcement by Rieser in Science calling for applications for the position; Rieser will discuss this with Bevan. We agreed to raise Bevan's salary, retroactive to July 1, 1973, by some \$6,000 per year.

We then went upstairs to the Mount Vernon Room for a dinner of the AAAS Board of Directors, spouses, and Congressman and Mrs. Charles Mosher. Present were Dr. and Mrs. Philip Abelson; Dr. and Mrs. William Bevan, Dr. Richard Bolt, Lewis Branscomb, Mr. and Mrs. Emilio Daddario, William Golden, Dr. and Mrs. Caryl Haskins, Mrs. Phyllis Parkins, Roger Revelle, and Leonard Rieser. I sat at a table with

Mosher, Mrs. Daddario, the Abelsons, Rieser, Haskins, and Golden. Since the Moshers were our only guests, I didn't make an after-dinner speech. Before dinner, Daddario told me he doubts that Nixon will survive as President. John (and Mrs.) Sawhill had been invited to this dinner, as well as Dixy Lee Ray, but none of them attended because they are working on a plan for a Federal Energy Office. Sawhill called to say this will be announced in the morning papers. Dr. and Mrs. Olin Teague and Mr. and Mrs. Harold Lindner had also hoped to attend but couldn't.

I rode home to Harrison Street with the Abelsons. Pete was home having a TV dinner. I said goodbye to him since I'll be leaving in the morning before he will be up.

Sunday, December 2, 1973 - Washington - Lafayette

The Washington Post carried a story about the creation of the Federal Energy Office with William Simon as head.

After breakfast at home, I took a taxi to AAAS headquarters to preside at 9:00 a.m. over the continuing meeting of the Board of Directors. The same members, except Goodenough, were present.

We resolved the ties in the balloting for the Section on Agriculture (O) officers by the method indicated in Bevan's memorandum of November 23, 1973. We then discussed with Abelson the 1974 budget from the standpoint of saving money in the publication of Science. We decided to have a meeting of the Executive Committee either the morning of December 14 (which I could attend) or the morning of December 18 (which I couldn't attend); the purpose is to discuss the place of Science in the AAAS budget and future AAAS finances. Bevan will let us know which date is chosen.

We voted to decrease the 1974 budget by \$100,000 to establish a reserve fund and for an upper limit of \$5 increase in dues in 1974, the exact amount to be decided at the Executive Committee meeting scheduled for later this month.

Branscomb moved that the proposed Committee on Energy, Science and Society be encompassed in a reorganization of the Committee on Industry, Technology and Society and that a number of concurrent moves involving the key people be undertaken; this motion passed.

We decided to do nothing about the Andrei Sakharov matter. Bevan will contact the affiliated societies, who were previously contacted on this issue, to inform them of our discussion and the reason we are not taking any action. Principal reasons were that it is too late to do anything constructive and action could harm Sakharov and relations between U.S. and Soviet scientists.

We approved a motion establishing an office in Bevan's office to handle international science affairs: this office will use the remainder of the Rockefeller Foundation grant (\$10,000) and some additional money to be found by Bevan (about \$5,000) to get started on an international program and to prepare proposals for support to funding organizations.

Sunday, December 2, 1973 (con't)

We decided to ask Eleanor Sheldon to be Co-Chairman of the 1975 Annual AAAS Meeting to be held in New York City. I agreed to call her to invite her to accept this responsibility. After she accepts, if she does, and after a few additional members of the New York Local Committee have been chosen, Branscomb will approach Tom Watson to ask him to serve as Co-Chairman.

We next turned to the final agenda item that we had time to handle (the remaining items will be handled at the Executive Committee meeting later this month), namely Selection of New Committee Members. First, we considered the Committee on Environmental Alterations. (During this discussion we voted that normally no Board member should be Chairman of the AAAS committee and no Committee member should serve more than two consecutive 3-year terms.) Marc Roberts was elected Chairman of the Committee on Environmental Alterations, replacing Commoner who is ineligible according to the new criteria (with F. Herbert Bormann as alternate choice). The question of the Board member on this Committee was left open, to be Barry Commoner if he wants to continue on the Board (he may resign in a huff). For members, we selected Bill Cousins (with Jack Hollander as alternate) and Josephine Doherty (with Elizabeth Scott as alternate).

I left the meeting at noon, along with several other members of the Board. The new Executive Committee remained another half-hour or so to continue to choose new Committee members.

I met Ben Loeb in the lobby, then we joined his son Kenneth and neighbor Agio Valakos (who works for IBM and has scientific training), and Ben drove us to Kennedy Stadium in his car. Here we had a picnic lunch prepared by Mrs. Loeb and saw the Washington Redskins-New York Giants football game, which the Redskins won, 27-24. This game was a real thriller, right to the last minute. The Giants went ahead, 21-3, and were ahead, 24-13, into the 4th quarter. Sonny Jurgenson, replacing Bill Kilmer who was injured in the third quarter, led two touchdown drives, completing 5 out of 5 passes on the first and 6 out of 6 on the second.

After the game, the others drove me to Dulles Airport, where I boarded United Airlines Flight No. 57, which left at 6:15 p.m. and arrived in San Francisco at 8:30 p.m. On the plane, I met Werner Von Braun, on his way to the NASA Ames Research Center at Moffett Field in Mountain View for observation of signals from Pioneer 10 upon closest approach to Jupiter tomorrow at 6:24 p.m. I also met Marion Bowden, head of the Equal Employment Opportunity Office of Washington AEC (for the last five years; he replaced Harry Traynor), and Peter Bernard, the new Chief Counsel (started six weeks ago) at the AEC San Francisco Operations office.

Helen met me. She--with Dianne, Susan Phillips and Josephine Owen--had been to the San Francisco 49ers-Philadelphia Eagles football game this afternoon, which the 49ers won, 38-28. At the airport we met Bill Bell (now working in labor relations at the Bechtel Corporation), who reminded us that he, as a UC student, had driven us to the San Francisco airport when we went to Stockholm in 1951.

Monday, December 3, 1973 - Berkeley

I went down to the Physical Sciences Lecture Hall on the campus to hear George Pimentel's Chemistry 1A lecture from 9:10-10:00 a.m. I returned to my office to go through my correspondence.

I learned that Herman Robinson's wife Velma had passed away on Saturday. She had had a stroke on November 20 and had been unconscious since that time; they think she probably died of pneumonia. She was six years younger than Herman, but had not been in good health for a long time.

Paul Lochak called at 10:30 a.m. from Paris to tell me that the press in Paris is full of news concerning the European utilities' request that EURODIF cooperate with the USAEC. He indicated that a reporter from Le Monde had done some detective work and reported that SIT had "an advisor no less than Dr. Glenn T. Seaborg." Paul said that the president of the OPEN group of utilities has sent a letter and telegram to Chairman Ray, stating that the utilities unanimously request that there be cooperation between the United States and the European groups in uranium enrichment and therefore request a three-month postponement of the December 31, 1973 deadline for their orders. His letter further requests that negotiations be initiated on a tripartite basis--USAEC, EURODIF, and the utilities. Paul said that Jean Couture, a responsible French Minister, is pleased about this. Lochak asked what I thought the reaction of the CEA would be, and I indicated that I would expect them to be angry. Paul also indicated that he has been on the phone at least once a day with Dixy Lee Ray and that she is delighted. He told me that the utilities are thinking of placing a number of contracts for first core delivery, but are also thinking of shifting those contracts over to European plants if cooperation develops. The idea is that they could discuss shifting to EURODIF later on. He indicated that, sometime fairly soon, the people from the OPEN group and the Ministry may wish to have a talk with me for my advice as to how to orient these talks in order to avoid some of the pitfalls of two years ago. I indicated that I would want to be extremely careful in such circumstances, lest I become a liability, and that I would have to think about this.

Bob Leachman called me at 10:40 a.m. to tell me that he is on a two-year leave from Kansas State University and is working in the Department of Defense Nuclear Agency. The two years will be up in the fall of 1974. He is interested in working at the Office of Technology Assessment and asked if I might speak with Emilio Daddario on his behalf. I asked him to send me a vita and what he has in mind (including salary). I indicated that I didn't know whether I will be able to do anything, but might in case I run into Daddario.

I then went down to 446 Latimer Hall to hold my regular office hour. I received a visit from two students in Mechanical Engineering, R. Schreck and D. Whitcomb, who are working with Professor Branch on fuel competition. They plan to substitute methanol for gasoline to run a Wankel engine in a Mazda automobile in order to develop a method of conserving gasoline and alleviating pollution. They wanted to know if methanol would be corrosive and if it would be safe. I assured them that it would not be corrosive and that it would be safe, that

Monday, December 3, 1973 (con't)

the carburetor would need some adjustment to accommodate it, and the engine would operate at a lower temperature and thus not at full power. They may let me know next spring if their experiment is successful.

Then my old friend Rabbi Maurice Gordon dropped in to see me. He is a good friend of the Sesslers and Hollanders. I had seen him and he had visited our home in Washington. I brought him up-to-date on where all the children are and especially about Pete's marriage to Jane Rubenstein and Jane's relatives in Brooklyn. I later gave him the address of Jane's mother.

At noon, I went to the Chemistry Department faculty luncheon in the Howard Room of the Faculty Club. At lunch, I agreed with George Pimentel to give a lecture to Chem 1B in the Winter Quarter on the technical aspects of energy sources of the future, and he will look for an appropriate date.

I then taught my Chem 1A lab section in Room M of Latimer Hall from 1:10-3:00 p.m. We gave the students the third quiz of the quarter (copy attached).

I received a call upon my return to my LBL office from Michael Peevey, Executive Director of the California Council for Environmental and Economic Balance. He reiterated the invitation for me to serve on the Board of Directors of the CCEEB, and I accepted, indicating that I was doing this out of my admiration for Pat Brown but that my time commitment could be only minimal. He suggested that I might serve on the new Energy Committee which they are about to create; I indicated that I would be willing to do this but would not want to serve as chairman or have to prepare documents and so forth. Jack McKee of Cal Tech and Werner Hirsch (Economics, UCLA) expect to serve on the Energy Committee. He suggested that I might serve on the Executive Committee which meets a day or half-day each month (21 people serve on this Committee). The meetings alternate between Los Angeles and San Francisco. There is no requirement that I should attend every meeting. He said that Pat Brown is personally and actively involved in this enterprise.

In response to some of my questions, he told me that CCEEB's funding support comes exclusively from business and labor. He indicated that both prominent Republicans and Democrats serve on the Board, and they try to maintain a non-partisan posture. We discussed scheduling; the Executive Committee meets normally once every six weeks, usually on a Monday morning. I indicated that this would conflict with my teaching schedule. He will send me more information. The first meeting of the Board will be toward the end of January, 1974.

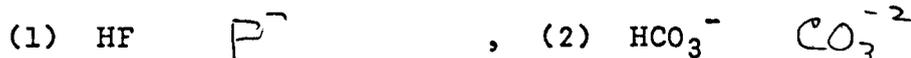
Gabor Somorjai of the Chemistry Department returned my call at 3:45 p.m. I described my conversation this morning with the engineering students who want to use methanol as an automobile fuel. He agreed with what I had told them, although he seemed to think that methanol would be more volatile.

Name	Room	Instructor

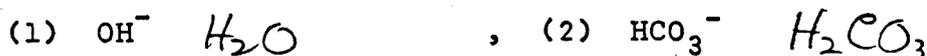
SHOW ALL WORK

1. (Credit 8)

(a) Give the formula of the conjugate base of:



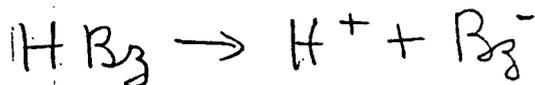
(b) Give the formula of the conjugate acid of:



2. (Credit 10) A 20.00 ml sample of sulfuric acid, when titrated to the phenolphthalein endpoint, required 22.22 ml of 0.0300 M NaOH. What was the molar concentration of the sulfuric acid?

$$\frac{0.0300 \times 22.22}{2 \times 20.00} = 0.0167 \text{ M.}$$

3. (Credit 10) Calculate to 5% accuracy the concentration of  $H^+$  in a 0.0300 M solution of benzoic acid, whose acid dissociation constant is  $6.6 \times 10^{-5}$ .



$$\text{Let } x = \text{conc. } H^+ = \text{conc. } Bz^-$$

$$0.0300 - x = \text{conc. } HBz$$

$$\frac{(H^+)(Bz^-)}{HBz} = \frac{x \cdot x}{0.0300 - x} = \frac{x^2}{0.0300} = 6.6 \cdot 10^{-5}$$

$$x^2 = 3 \cdot 10^{-2} \cdot 6.6 \cdot 10^{-5} = 19.8 \cdot 10^{-7} = 1.98 \cdot 10^{-6}$$

$$x = 1.4 \cdot 10^{-3} \text{ M} \quad 0.0300 - 0.00014 \approx 0.0300$$

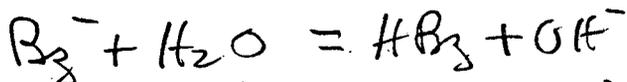
4. (Credit 5) If one wished to buffer a solution at pH 7.3, which acid (with its salt) would you use of those listed in Table 5.2 on page 163? Show reasoning.

pH 7.3  
 $H^+ = 10^{-7.3}$   
 $= 10^{0.7} \cdot 10^{-8}$   
 $= 5 \cdot 10^{-8}$

HOCl  $K = 2.95 \cdot 10^{-8}$   
 $\log_{10} K = 0.5 - 8.00 \approx 7.5$   
 $\frac{(H^+)(OCl^-)}{HOCl} = 2.95 \cdot 10^{-8}$        $\frac{OCl^-}{HOCl} = \frac{2.95 \cdot 10^{-8}}{5 \cdot 10^{-8}} \approx 0.6$

(Credit 12) Calculate the pH at the equivalence point in the titration of 50.0 ml of 0.0200 M benzoic acid with 0.0400 M NaOH. (The acid dissociation constant of benzoic acid is  $6.6 \times 10^{-5}$ .)

Conc.  $Bz^- = \frac{(0.0200)(50.0)}{(75.0)} = 0.0133 M$



$\frac{(OH^-)(HBz)}{Bz^-} = K_b = \frac{(H^+)(OH^-)HBz}{(H^+)(Bz^-)} = \frac{K_w}{K_{HBz}} = \frac{1.00 \cdot 10^{-14}}{6.6 \cdot 10^{-5}}$   
 $= \frac{10.0 \cdot 10^{-15}}{6.6 \cdot 10^{-5}} = 1.5 \cdot 10^{-10}$

$\frac{x^2}{.0133 - x} = 1.5 \cdot 10^{-10}$

$x^2 = .0133 \cdot 1.5 \cdot 10^{-10} = 0.020 \cdot 10^{-10} = 2.0 \cdot 10^{-12}$

$x = 1.4 \cdot 10^{-6} = OH^-$

$H^+ = \frac{1.00 \cdot 10^{-14}}{1.4 \cdot 10^{-6}} = 7 \cdot 10^{-9}$

pH =  $0.85 - 9.00 = 8.15$

6. (Credit 10) A 0.0200 M solution of periodic acid,  $\text{HIO}_4$ , was found to have a pH of 1.89. Calculate the acid dissociation constant of  $\text{HIO}_4$ .

$$\text{H}^+ = 10^{-1.89} = 10^{0.11} \cdot 10^{-2} = 1.3 \cdot 10^{-2} \text{ M}$$

$$\text{HIO}_4 = 0.0200 - 0.0130 = 0.0070 \approx \text{IO}_4^-$$

$$K = \frac{(\text{H}^+)(\text{IO}_4^-)}{\text{HIO}_4} = \frac{(1.3 \cdot 10^{-2})^2}{7 \cdot 10^{-3}} = \frac{1.69 \cdot 10^{-4}}{7 \cdot 10^{-3}} = \frac{1.69 \cdot 10^{-5}}{7 \cdot 10^{-3}} = 2.4 \cdot 10^{-2}$$

7. (Credit 5) How would you choose an indicator for the titration of a weak acid with a strong base? Indicate any information you would need.

I sent to the Guggenheim Foundation a recommendation supporting Allan Zalkin's fellowship application (copy attached). I sent letters to several more schools in support of David Starks's applications for a teaching position. I wrote a supporting letter for Francois David's application for a CNRS-NSF fellowship (copy attached) and wrote David that we would welcome his colleague Kamal Samhoun here at the Lab providing he is able to find his own fellowship support.

I sent to the American-Scandinavian Foundation my evaluation of Charles Neywick's project proposal (copy attached), which would enable him to work at Chalmers University of Technology. I wrote Jan Rydberg and enclosed a letter evaluating Jol Liljenzin, who is being reviewed for a permanent position at Chalmers (copy attached). I accepted the invitation of Robert L. Montgomery, Executive Vice President, Alta Bates Hospital, to serve as an Advisory Trustee of the Hospital.

At 4:00 p.m., I presided, in the conference room of Building 70A, over the graduate student seminar. Ken Wilcox spoke on "Experimental Studies of Very Neutron Excess Argon Isotopes" and Peter Pearson spoke on "Theoretical Sallies into Interstellar Vacuum Chemistry."

Suki and I took a hike to the water tank.

Tuesday, December 4, 1973 - Berkeley

Dianne stayed home from school today because she wasn't feeling well, then it was announced that Acalanes High School is closed today because a truck knocked over a power pole which cut off power at the school.

When I arrived at my office at 8:35 a.m., I returned a phone call from Curtis Bemus at Oak Ridge. He told me that they have received tentative approval from Mel Abrahams to invite some Chinese physicists to their heavy ion conference in June, and he asked for my suggestions as to names. I suggested his contacting Yang Fu-chia, Dr. Shih-yuan Sze at Nanking, and Chang Wen-yu. We also discussed something about Dr. Georges Temmer's visit. Apparently, the conference has taken on quite large proportions. It will be entitled The International Conference on Reactions Between Complex Nuclei. It is an official IUPAC conference. The dates have been set for June 10-14, 1974. They have received some 200-250 acceptances, including Flerov and Zvara. I indicated that I had heard about the conference but that Sven Gösta Nilsson had scheduled his Nobel Symposium on the Superheavy Elements in Sweden during the same period.

Maret Indvik, a student in one of my Chemistry 1A lab sections, called to say that she was in the hospital with a broken leg and asked if she could postpone taking the scheduled quiz and notebook check. I indicated that she would not have to take the quiz and that her grade would be an average of any of her tests anyway and that it would be all right for her to bring in her notebook tomorrow for the check.

Sessler and Hyde came by at 9:00 a.m. to bring me up-to-date on the problem of leadership in the building of the SuperHILAC. They met with Ghiorso and Main last Friday, but still couldn't get the schedule of work they requested earlier. Also, Kortegaard and other key people

## JOHN SIMON GUGGENHEIM MEMORIAL FOUNDATION

## Confidential Report on Candidate for Fellowship

## Requested of:

Mr. Glenn T. Seaborg  
 Department of Chemistry  
 University of California  
 Berkeley, California 94720

Name of Candidate: Zalkin, Allan

9:2

## REPORT:

I have known Allan Zalkin for about 25 years during his entire stay in the Nuclear Chemistry Division of the Lawrence Berkeley Laboratory, beginning as a graduate student. We immediately recognized him as an individual of rare capability. When he obtained his Ph.D. degree he was immediately retained as a member of the staff of the Lawrence Livermore Laboratory, where he remained for about ten years. We were so impressed by his work there that we persuaded him to return to the Lawrence Berkeley Laboratory, where he has been a key person in Professor David H. Templeton's research program since 1960.

Zalkin has exhibited great initiative and has been the source of a good proportion of the ideas behind the productive program in the determination of crystal structures through the use of x-ray diffraction technique in our Nuclear Chemistry Division. He has been involved in a great breadth of crystal structure determinations, as his list of publications demonstrates, and has played a critical role in this program.

Zalkin combines mastery of experimental techniques with excellent theoretical understanding. He is an intelligent and careful experimentalist, and has remained abreast of the developments in the field of crystallography. He is applying for this Guggenheim Fellowship in order to further update his experimental techniques and data treatment techniques, using computer programs, through a sabbatical leave to be taken in the Department of Chemistry of the University of Canterbury in New Zealand, where he would work with Dr. Ward T. Robinson and Professor B. R. Penfold. This will be his first sabbatical leave for a refresher stay at an outstanding laboratory, and I believe that he would benefit from it very much.

I support very strongly Allan Zalkin's application for a John Simon Guggenheim Memorial Foundation fellowship.

Signed \_\_\_\_\_ Date December 3, 1973  
 University Professor of Chemistry, University of California;  
 Position or Title Associate Director, Lawrence Berkeley Laboratory

Address Lawrence Berkeley Laboratory, Univ. of Calif., Berkeley, CA 94720

(Please return to John Simon Guggenheim Memorial Foundation, 90 Park Avenue, New York, N.Y. 10016, at your earliest convenience. Addressed, stamped envelope is enclosed.)

## LAWRENCE BERKELEY LABORATORY

UNIVERSITY OF CALIFORNIA

BERKELEY, CALIFORNIA 94720 □ TEL. (415) 843-2740

U.S.A.

December 3, 1973

NATIONAL CENTER FOR SCIENTIFIC RESEARCH  
of France, and  
NATIONAL SCIENCE FOUNDATION, U.S.A.:

I am writing in support of the application of Francois David for a CNRS-NSF fellowship under the United States-France Exchange of Scientists program. If this fellowship is awarded to Dr. David, he would plan to work with me in our program of actinide chemistry at the Lawrence Berkeley Laboratory, where I would welcome his participation.

I have followed the work of David for a number of years and have visited him in Paris several times in order to discuss his research program with him. He has done highly original and pioneering work on unusual oxidation states of the actinide elements, particularly lower oxidation states. He has combined this with correlative work on the thermodynamic properties of these elements, making it possible to predict unknown thermodynamic values. This correlative work has been extended to a number of other families of elements in the periodic table, including the prediction of the chemical properties of the superheavy elements.

David's experience and expertise fits in admirably with our research program on the actinide elements and superheavy elements at the Lawrence Berkeley Laboratory, and I believe that both Dr. David and our group would profit very much from his working in our Laboratory.

He is an outstanding investigator, and I hope very much that he will be awarded a fellowship that will enable him to come and work with us.

Sincerely yours,

Glenn T. Seaborg

GTS/sms

bxc: Norman Edelstein  
Bernard Harvey  
Eileen Eiland

## EVALUATION SCHEDULE FOR ASF FELLOWSHIP APPLICATIONS

1974-75

Applicant: NEYWICK, Charles

Country of Program: Sweden

Field: Chemistry

Home Country: USA

**Instruction to Adviser:** In accordance with the Guide for Evaluating Fellowship Applications to The American-Scandinavian Foundation, please check the appropriate boxes. Please remember to include evaluative comments and other suggestions which may be useful to the ASF Committee or to the applicant.

HOW DO YOU RATE:

	1	2	3	4	5
	No Award	Poor	Average	Very Good	Superior
I. - the significance of the project <u>per se</u> ?				X	
II. - the applicant's ability in respect to implementing the project?				X	
III. - the applicant's preparation for the field of the project, considering any <u>necessary</u> language skills, prerequisite course work, etc.?				X	
IV. - the present achievement and the potential of the applicant on the basis of credentials and letters of reference?				X	

Comments: Neywick has a good background of preparation and research in physical-organic chemistry and is well prepared to undertake the research that he has outlined for accomplishment at the University of Goteborg and the Chalmers Institute of Technology. I am well acquainted with Dr. Lars Melander, with whom he plans to work and who is an outstanding investigator in the area of Neywick's interest. I believe that the combination of Neywick and Melander is a good one and that the proposed research is worthy of support.

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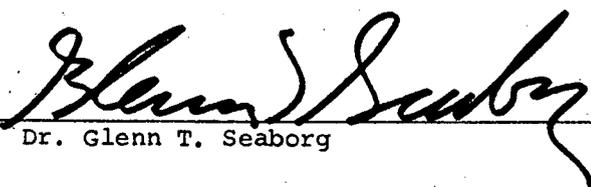


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Adviser's signature


  
Dr. Glenn T. Seaborg

U.S.A.

December 3, 1973

Professor Jan Rydberg  
Department of Nuclear Chemistry  
Chalmers University of Technology  
Goteborg S, Sweden

Dear Jan:

In reply to your letter of November 23, 1973, I am happy to enclose a statement which I hope might be helpful in securing Jol's promotion to a permanent position at Chalmers.

I will look forward to hearing from the Volvo company. It turns out that Sven Costa Nilsson's Nobel Symposium on the Superheavy Elements will be held at Ronneby, Sweden on June 11-15, 1974, and thus I might be available for a visit with Volvo at around that time.

With warm regards,

Cordially,

Glenn T. Seaborg

GTS/sms

Enclosure

U.S.A.

December 3, 1973

Professor Jan Rydberg  
Department of Nuclear Chemistry  
Chalmers University of Technology  
Goteborg S, Sweden

Dear Jan:

I am writing to give my evaluation of Dr. J. O. Liljenzin in connection with his proposed appointment as a docenttjänst in nuclear chemistry at the Chalmers University of Technology.

Liljenzin worked with me for a little more than a year in 1972-73 in a postdoctoral capacity here in the Lawrence Berkeley Laboratory. His problem consisted of the chemical identification of the transmutation products produced during the bombardment of natural uranium with argon ions and krypton ions in our Superhilac accelerator. He and his co-worker Jens Kratz, another postdoctoral fellow working with me, identified and determined the relative yields of some 140 isotopes distributed among sixty elements.

I am very favorably impressed by Liljenzin and consider him to be one of the best young men who has ever worked with me. He possesses an unusual combination of experimental ability and theoretical understanding. He has a sound background in both chemistry and physics, and possesses a great facility for making practical calculations extending even over into engineering fields. His understanding of computer programming impressed all of those associated here with him. In short, he displayed a versatility and comprehensive understanding which is almost unique among young men of his state of development.

Jan Rydberg

- 2 -

December 3, 1973

I can recommend Dr. Liljenzin enthusiastically and without any qualification whatsoever for the promotion being considered for him.

Sincerely yours,

Glenn T. Seaborg

GTS/sms

Tuesday, December 4, 1973 (con't)

have quit and a number of people have been brought in from the Bevatron as replacements. Sessler and Hyde have talked to Lofgren, who is now willing to make Grunder available as leader for the construction program. Harvey has also discussed the whole organization problem with Main.

Everyone now agrees that Grunder should be put in charge of SuperHILAC construction, reporting to the Nuclear Chemistry Division, with Ghiorso remaining in charge of the research program and confining his efforts to coordination of this and to his own research. The problem now is how and when to effect this change with Ghiorso's concurrence.

At 9:45 a.m., I walked up to the HILAC Building for the meeting of the Research Planning Group. Present were Ghiorso, Nurmia, Nitschke, and the Alonsos. There are troubles with the cryogenic vacuum pumping system at Adam. Nurmia described his experiments with Taisto Raunemaa on the bombardment of holmium with nitrogen ions to look for isotopes of tungsten (as a preparation for the 106 experiments). They are having trouble identifying the light tungsten isotopes through gamma rays because these are not known.

Carol Alonso described her computer calculations on the effects of viscosity in the fusion of heavy nuclei. Nurmia suggested that we undertake a new program to look for superheavy elements in nature. He may present these ideas in a seminar.

After this meeting, I had a talk with Ghiorso. I reviewed the situation with respect to personnel and progress (in construction) at the SuperHILAC. I suggested that he announce to Sessler and to his own people that he is giving up responsibility for completing construction and will concentrate on his position as head of the research program of the SuperHILAC. I suggested that Grunder be placed in complete charge of the construction, reporting to me, and indicated that this arrangement had been cleared with Lofgren. I emphasized the tremendous regard we all have for his ability and his contributions. Ghiorso indicated to me that he would see Sessler and suggest this course of action.

On the way back down to my office, I ran into Sessler and described to him the essence of my conversation with Ghiorso.

I had lunch at the lower level of the cafeteria with Kratz, Norris, Gradl, Hyde, Edelstein, Ritter, and Nitschke. After lunch, I met with Nitschke and told him I had suggested to Ghiorso that he give up his responsibility for SuperHILAC construction and concentrate on the research program. Nitschke agreed completely that this is the best course of action for Ghiorso. Hyde came by later and I also described to him my conversation with Ghiorso.

Roger Reeve called me in the early afternoon to tell me that he had learned second-hand that Pete Stark's people may want to meet with CUWA. We suggested possible dates for this.

Tuesday, December 4, 1973 (con't)

I called Louis Lazaroff at the Asia Foundation at 2:40 p.m. to report on the AAAS Board's interest in inviting the people from Asia to the 1974 Annual Meeting. I told him that Dr. Bevan would prefer that the invitations be issued directly by the Asia Foundation on behalf of AAAS and on my behalf as Co-Chairman of the Meeting. They can handle this with every country except India, and he suggested that the Foundation make the grant to AAAS and that AAAS proceed with a direct invitation to D. H. K. Menon; I indicated that I would think this over. I said that the Board was in doubt that Menon would come and suggested Devendra Lal of the Physics Department at Ahmedabad University as an alternate. Lazaroff said that Deolalikar is now back at Ahmedabad. After some discussion, we agreed that I will write a letter of invitation to the representative of each country. These letters will be transmitted with the Asia Foundation's formal invitation. In the case of India, I will write letters to both Menon and Lal, so that Deolalikar can draw upon the invitation to Lal if Menon declines.

Jack Root of the Chemistry Department at Davis came by at 3:00 p.m. to discuss plans for his work with us as a visiting scientist. (He is also interested in a position as a permanent staff member, but I told him we do not have any budgetary provisions for this.) I took him down to see Edelstein to explore possible mutual interests in his working in the actinide chemistry program this summer and perhaps also during the school year before summer. He also wants to use the LBL CDC computer, using his contract funds, for work on his radiation chemistry program.

Paul Lochak called at 3:25 p.m. to tell me that he had just talked with Chairman Ray, who reported that the Atomic Energy Commission has met and granted the three months extension for the European utilities's deadline date of December 31, 1973. Lochak told me that I am the first to know. He said that he will send me the newspaper stories about the meeting of OPEN and their desire to cooperate with the United States. This extension of the deadline will enable more discussions between European countries and the United States on uranium enrichment by the gaseous diffusion process.

I sent to Julius Duscha the recent San Francisco Chronicle story in which he and Mrs. Duscha reflect on being named on the "White House Enemies List." I wrote Roger Reeve suggesting that we confer in January to set the next CUWA meeting. I signed and sent 58 letters (sample and mailing list attached) announcing the opening of a few postdoctoral positions in the Nuclear Chemistry Division available next year.

I acknowledged the letters of William Dietel at the Rockefeller Brothers Fund and James Coles (copy attached) of the Research Corporation, indicating that their respective foundations would not be able to support our AAAS building project. I responded to a letter from Jean Fuger at Liege (correspondence attached) concerning our interest in getting a postdoctorate in the actinide chemistry program.

We have a few one year post-doctoral appointments for chemists and physicists which will be offered next year by the Nuclear Chemistry Division. We are writing to you in the hope that you might know of some young graduate from your institution (or elsewhere) who subsequently obtained a Ph.D. and might be qualified for one of these appointments. If you know of any such young scientists, we would appreciate your informing them of our positions.

These appointments have not been widely advertised in the past and news of them has been spread in conferences and discussions which involve predominantly male members of the ethnic majority group. Thus the applicants have been overwhelmingly from this group and so have the recipients of the appointments. In the hope of stemming this trend, we are advertising our positions more extensively now and are particularly trying to encourage women and members of ethnic minority groups who have the necessary qualifications to apply.

The qualifications necessary are an outstanding competence in one of the areas of research in which the Nuclear Chemistry Division is engaged. Appointments will be made in some of the following areas: heavy ion research; transuranium element research; nuclear reactions and scattering; nuclear theory; nuclear spectroscopy and its applications; radioactivity; fission studies; hyperfine interactions; photoelectron spectroscopy; x-ray crystallography; atomic and molecular spectroscopy; radiation chemistry; and environmental studies. Those applicants will be selected whose abilities best match the needs of the Nuclear Chemistry Division.

Anyone with the necessary qualifications who is interested in one of these appointments should send me a curriculum vitae together with a personal letter, a list of publications, and two or three letters of reference. If the applicants wish to indicate that they are members of ethnic minority groups or women, they may do so. Applications should be received by January 9, 1974 to insure consideration.

Sincerely yours,

Glenn T. Seaborg  
Director, Nuclear Chemistry Division

GTS/ms

1. Alabama State College  
Tuskegee, Alabama 36806  
President: Richard L. Thompson
2. Alabama College  
Birmingham, Alabama 35206  
President: C. E. Cook
3. Ballou College  
67 West Battle Street  
Ballou, Alabama 35160  
President: Dr. Herman H. Long
4. Tuskegee Institute  
Tuskegee Institute, Alabama 36088  
President: Dr. L. H. Foster
5. Arkansas A & M College  
College Heights, Arkansas 71633  
President: Dr. Lawrence A. Davis
6. Philander Smith College  
812 West 13th Street  
Little Rock, Arkansas 72203  
President: Walter R. Hazzard
7. Delaware State College  
Dupont Highway  
Dover, Delaware 19901  
President: Dr. Luna I. Mishoe
8. District of Columbia Teachers College  
11th & Harvard Streets, N.W.  
Washington, D. C. 20009  
President: Dr. Paul P. Cooke
9. Howard University  
2400 Sixth Street, N.W.  
Washington, D.C. 20001  
President: Dr. James E. Cheek
10. Bethune-Cookman College  
640 Second Avenue  
Daytona Beach, Florida 32105  
President: Dr. Richard V. Moore
11. Florida State College  
Tallahassee, Florida 32307  
President: Dr. Benjamin L. Terry, Jr.
12. Clark College  
240 Chestnut Street, S.W.  
Atlanta, Georgia 30314  
President: Dr. Vivian W. Henderson
13. Fort Valley State College  
Fort Valley, Georgia 31030  
President: Waldo W.E. Blanchet
14. Morehouse College  
223 Chestnut Street, S.W.  
Atlanta, Georgia 30314  
President: Hugh M. Gloster
15. Morris Brown College  
643 Hunter Street, N.W.  
Atlanta, Georgia 30314  
President: John A. Middleton
16. Paine College  
1235 - 15th Street  
Augusta, Georgia 30901  
President: Dr. E. Clayton Calhoun
17. Savannah State College  
State College Branch  
Savannah, Georgia 31404  
President: Dr. Prince A. Jackson
18. Kentucky State College  
East Main Street  
Frankfort, Kentucky 40601  
President: Carl M. Hill
19. Dillard University  
2601 Gentile Blvd.  
New Orleans, Louisiana 70122  
President: B. N. Butler
20. Grambling College  
Grambling, Louisiana 71245  
President: R. W. E. Jones

21. Southern University  
Baton Rouge, Louisiana 70813  
President: G. L. Netterville
22. Xavier University of Louisiana  
7329 Palmetto Street  
New Orleans, Louisiana 70125  
President: N. C. Francis
23. Morgan State College  
Cold Spring Lane and Hillen Rd.  
Baltimore, Maryland 21212  
President: Dr. King V. Cheek, Jr.
24. Alcorn Agricultural &  
Mechanical College  
Lorman, Mississippi 39096  
President: Dr. Walter Washington
25. Jackson State College  
127 Lynch Street  
Jackson, Mississippi 39217  
President: Dr. John A. Peoples, Jr.
26. Mississippi Valley State College  
State Lona, Mississippi 38941  
President: E. A. Boykins
27. Lincoln University  
Jefferson City, Missouri 65101  
President: Dr. Walter C. Daniel
28. N. Carolina Agricultural and  
Technical State University  
100 No. Dudley Street  
Greensboro, No. Carolina 27411  
President: Dr. Lewis C. Dowdy
29. Bennett College  
Greensboro, No. Carolina 27400  
President: Miss R. Miller, Jr.
30. Lincoln State University  
Lincoln, No. Carolina 27709  
President: Dr. Herman R. Branson
31. Fayetteville State University  
Newbold Station  
Fayetteville, No. Carolina 28301  
President: Dr. Charles A. Lyons, Jr.
32. Johnson C. Smith University  
100 Beatties Ford Road  
Charlotte, No. Carolina 28216  
President: Dr. Lionel H. Newsom
33. Livingstone College  
701 West Monroe Street  
Salisbury, No. Carolina 28144  
President: Dr. F. G. Shipman
34. No. Carolina Central University  
Fayetteville Street  
Durham, No. Carolina 27707  
President: Dr. Albert N. Whiting
35. St. Augustine's College  
1315 Oakwood Avenue  
Raleigh, No. Carolina 27611  
President: Prezell R. Robinson (8)
36. Shaw University  
Raleigh, No. Carolina 27602  
President: J. A. Hargraves
37. Central State University  
Wilberforce, Ohio 45384  
President: Rembert E. Stokes
38. Langston University  
Langston, Oklahoma 73050  
President: Dr. W. E. Sims
39. Cheyney State College  
Cheyney, Pennsylvania 19319  
President: Dr. Wade Wilson
40. Lincoln University  
Lincoln University, Pennsylvania 19352  
President: Dr. Herman R. Branson

41. Middle Tennessee State University  
1000  
Orangeburg, Mo. 67650  
President: Dr. C. W. Cole, Jr.
42. W. Carolina State College  
Orangeburg, Mo. 67650  
President: W. Vance Bunch, Jr.
43. Fisk University  
17th Avenue North  
Nashville, Tennessee 37203  
President: James R. Lawson
44. Knoxville College  
901 College Street  
Knoxville, Tennessee 37920  
President: Edward J. Brantley
45. Lane College  
501 Lane Avenue  
Jackson, Tennessee 38301  
President: Herman Stone, Jr.
46. LeMoyne-Owen College  
807 Walker Avenue  
Memphis, Tennessee 38126  
President: Odell Horton
47. Tennessee State University  
3500 Centennial Boulevard  
Nashville, Tennessee 37203  
President: Andrew P. Torrence
48. Richier College  
2847 Simpson Stuart Road  
Dallas, Texas 75241  
President: Dr. Milton K. Curry, Jr.
49. Huston-Tillotson College  
15.0 East 8th Street  
Austin, Texas 78702  
President: John T. King
50. Southern University  
501 Wheeler Avenue  
Dallas, Texas 77004  
President: Dr. G. M. Sawyer
51. Texas College  
211 East Orange Spring Road  
Marshall, Texas 75670  
President: Dr. C. W. Cole, Jr.
52. Huston Institute  
Houston, Virginia 23368  
President: Roy D. Hudson
53. Virginia State College  
Petersburg, Virginia 23803  
President: Dr. W. P. Russell
54. Virginia Union University  
1500 No. Lombardy Street  
Richmond, Virginia 23220  
President: Allix B. James
55. Bluefield State College  
Bluefield, W. Virginia 24701  
President: Dr. Wendell G. Hardway
56. West Virginia State College  
Institute, W. Virginia 25112  
President: Dr. William J. L. Wallace
57. College of Santa Fe  
St. Michael's Drive  
Santa Fe, N. Mexico 87501  
President: Bro. Cyprian Luke
58. Praire View A & M College  
Praire View, Texas 77445  
President: Alvin I. Thomas

## RESEARCH CORPORATION

405 LEXINGTON AVENUE, NEW YORK, NEW YORK 10017

JAMES STACY COLES  
PRESIDENT

5-12/3/73

November 30, 1973

Dr. Glenn T. Seaborg  
 Chairman of the Board of Directors  
 American Association for the Advancement of Science  
 c/o Lawrence Berkeley Laboratory  
 University of California  
 Berkeley, California 94720

Dear Dr. Seaborg:

Dr. Smith has reported the substance of his conference with you on November 2. It is our understanding that the American Association for the Advancement of Science is planning to build a new headquarters building, and is seeking a total of \$5.5 million to cover the cost of this building, over and above any proceeds the Association may receive for its present headquarters.

We have discussed this at some length in an attempt to ascertain whether or not this project would justify an exception to Research Corporation's policy of not providing funds for buildings. In view of the limited funds available to us, and the greatly increased demands for funds in support of basic research through well established ongoing programs, we have determined that any contribution we might make would be so small as to be insignificant relative to the total cost of the project. Accordingly, we cannot consider an application for a grant for this purpose from the Association.

Needless to say, the American Association for the Advancement of Science is an important agency for science in the United States, and, indeed, in many other parts of the world. Thus, I trust you will be successful in finding the source of funds which you seek.

Sincerely yours,

*James S. Coles*

JSC:mmm

A FOUNDATION FOR THE ADVANCEMENT OF SCIENCE

*acknowledged  
 w/dxc: LR, WG, WB, FF*

## UNIVERSITÉ DE LIÈGE

CHIMIE ANALYTIQUE

PROFESSEUR : G. DUYCKAERTS

PROFESSEURS ASSOCIÉS :  
G. MICHEL & J. FUGER

LIÈGE, le November 29, 1973

Au Sart Tilman par Liège 1 (Belgique)

Tél. : 56.93.11

Dr. Glenn T. SEABORG  
Lawrence Berkeley Laboratory  
University of California  
Berkeley, California 94720

U.S.A.

DEC 4 REC'D

R. 20 12/4/73

Dear Dr. Seaborg,

Thank you for your letter of October 31, 1973.

Unfortunately, we have at present no candidate who would, in my opinion, qualify for a postdoctoral position with your actinide chemistry group. I will, however, keep in mind your kind request for the future. A former coworker of mine, Dr. M. NOE, is due to leave this coming month for the United States where he will spend one year (possibly two) with Joe PETERSON at Oak Ridge.

May I take the opportunity of this letter to ask you if you could use your influence so that we receive again the USAEC Annual Reports to Congress and the USAEC Fundamental Nuclear Energy Research Reports. The sending of these reports that we found so useful was discontinued after the 1970 issues.

With my thanks and very best regards,

Very sincerely yours,



Jean FUGER

XC: N. Edelstein

B.G. Harvey

↳ E. Eitand

## LAWRENCE BERKELEY LABORATORY

UNIVERSITY OF CALIFORNIA

BERKELEY, CALIFORNIA 94720 □ TEL. (415) 843-2740

U.S.A.

December 4, 1973

Professor Jean Fuger  
Chimie Analytique  
Universite de Liege  
Au Sart Tilman  
Liege 1, Belgium

Dear Jean:

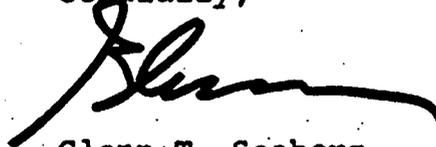
I appreciate receiving your letter of November 29, 1973, in response to my inquiry about a postdoctoral candidate for our actinide chemistry position.

I have asked the publications office at the USAEC in Washington to put your name onto the mailing list for the Annual Reports to Congress and to send you the 1971 and 1972 Reports.

In the course of making this request, I learned that the Fundamental Nuclear Energy Research Report was discontinued with the 1971 issue, of which I have asked them to send you a copy.

With best regards,

Cordially,



Glenn T. Seaborg

GTS/sms

bxc: Norman Edelstein w/Fuger letter  
Bernard Harvey → Eileen Eiland

At 5:00 p.m., I went down to their first-floor laboratories to see Edelstein, Parsons and Ritter (who have some evidence, but too complicated, for berkelium II in  $\text{CaF}_2$ ) and Gradl, who has some evidence for the unexpected production of  $\text{UCl}_3$  from  $\text{UCl}_4$  in an attempted synthesis reaction utilizing sodium naphthalate.

Suki and I took a hike to the water tank. Sessler called me at home at 7:00 p.m. to say that Ghiorso came to see him this afternoon to suggest that he be relieved of his responsibility for construction of the SuperHILAC so that he can concentrate on his responsibility for the research program at the SuperHILAC. Ghiorso will make a public statement to this effect and at the same time I will announce the appointment of Hermann Grunder as head of the construction of the SuperHILAC.

Wednesday, December 5, 1973 - Berkeley

I attended George Pimentel's Chem 1A lecture from 9:10-10:00 a.m. Upon my return to my LBL office, I received a call from Dick Frankel. He told me that the North American Phillips people are pursuing their interests with Kevex and will visit in Burlingame on December 12 to carry on the discussions. Dick told me that Phillips wants to buy control and have options to buy the rest. Price has not yet been discussed. I asked Dick if there would be a price that he could not resist; he thought \$4.5 million might be a fair price. Phillips has placed Kevex in something of a bind because in 1978 they expect to buy \$6 million worth of equipment from us and next year they expect to provide \$1.7 million in business. It appears that, if they cannot buy an interest in Kevex, they may produce the equipment on their own or go to someone else. In terms of the tax situation it would depend on how a sale is done; Kevex would be hit with 35% taxes immediately if it went the way that Phillips wants. Kevex presently has 108,000 shares out in options, including those unissued. 92,000 of these are held by owners. The option-holders have rights, however, so Kevex has to factor in the 108,000. If the Phillips plan were followed, he indicated that they would keep the existing personnel on for at least a couple of years. I inquired as to whether he thinks Kevex could contribute to the energy problem--he thought not in detail but perhaps in some way in the future. In response to my query, he indicated that his notice regarding General Motors was done so as to put the matter on the record and so that the individual could contact me directly.

I met in my office with Hermann Grunder and Bernard Harvey from 10:30-11:00 a.m. to explore with Grunder the new position that he is going to assume at the SuperHILAC. I said that Ghiorso has expressed the wish to be relieved of his responsibility for the debugging of the SuperHILAC so that he can devote his time to his and the Lab's research program there. I said that we would like him (Grunder) to assume full responsibility for the debugging, reporting directly to Harvey and me. He said that he would be glad to do this.

I indicated that he would have no responsibility for the experimental program or for the scheduling of bombardments, and he agreed completely with this definition of his role. We discussed some of the personnel problems, such as Kortegaard's decision to leave, and

Wednesday, December 5, 1973 (con't)

Grunder indicated that he understood that it would take a special effort to overcome some possible resistance to him as a newcomer and he would be very sensitive to such problems. Grunder said that he would be very happy to seek Ghiorso's advice as he continues the debugging operation and to cooperate with him completely.

I indicated that one of the problems that had delayed the debugging so far is the extreme shortage of funds. We agreed that, since he will continue in his role as head of the BEVALAC and Bevatron, this will facilitate the transfer of personnel and even make possible the infusion of some extra funds into the SuperHILAC. We agreed that it will take a substantial increase of personnel in order to complete the debugging in a reasonable time.

I emphasized that the AEC and the national scientific community are looking to the SuperHILAC as the national source of very heavy ions up to uranium and that we should bear this in mind in working out a schedule for the use of the line item of \$2.4 million in the FY75 budget. The national heavy ion program contemplates heavy ions up to the middle of the periodic table or a little higher from the proposed ORNL facility and heavy ions lighter than this from the proposed ANL facility. Thus, if Berkeley fails in the delivery of uranium ions, there will be no additional capacity in this respect for some ten years. Grunder agreed with the need to fill our role in the national picture in this respect.

Grunder will report to Nuclear Chemistry in his role of being in charge of debugging the SuperHILAC and to Lofgren's Physics Division in his role as head of the BEVALAC and Bevatron and said he realizes that this can on occasion place him in a delicate position, requiring diplomacy and understanding by the heads of the two Divisions for which he is working.

In my capacity as Chairman of the AAAS Board, I phoned Eleanor Sheldon in New York at 11:15 a.m. to ask her to serve as Co-Chairman of the 1975 AAAS Annual Meeting which will be held in New York City in February, 1975. I described to her my own experience as co-chairman of the 1974 meeting. I indicated that she would want a co-chairman equivalent to Bill Hewlett, who could handle fund-raising, and that we had Tom Watson of Bell Laboratories in mind for this. I described the constituency of the local committee that I had organized. In terms of work load, I indicated the AAAS's providing a staff assistant made the time demands on me within reason. Eleanor said that she would love to do this and felt honored by the invitation. She knows Bill Bevan, and I said I would be in touch with her very soon to review the assignment.

I called Colin Watanabe at 11:35 a.m. He explained that he has not yet contacted the people at UCLA and also did not keep our invitation to Thanksgiving dinner because he is worried about making a commitment here unless he is confident that he can follow it through. He will come to see me tomorrow morning.

Wednesday, December 5, 1973 (con't)

Edwin McMillan called me at 11:45 a.m. to ask if CUWA could be of help in connection with stopping the Villa Mira Vista development, which is to be on a tract of land 300 feet wide and 3,000 feet long along the northeast border of the Mira Vista Golf and Country Club; it runs along the western slope of Wildcat Canyon. It is in the City of Richmond (Contra Costa County). The strip of land is a fairly steep hillside with several known slides on it. The development is creating a lot of furor because it is to be 70 units of townhouses. The public access is through Rifle Range Road (the access road to the McMillan home) which at one stretch is only 14 feet wide and is privately owned by the householders who use it. The development requires an emergency access from the north and off of Del Monte Avenue, which is at the north end of the golf course. Ed indicated that this is a difficult engineering job because of the level differences. They plan to put a cut in at this spot, but Ed said there is a known slide in this area.

McMillan has been attending meetings of the Richmond City Council. The Planning Commission voted the project down 6-2. The developer appealed it and the City Council reversed the decision, issuing 70 building permits in a marathon session that lasted until 4:00 a.m. last September. This was done without a soils report. The developers had begun to run a bulldozer through and so a group of citizens (nine people, including McMillan) instituted a law suit. They hired Richard Bardecke and got a temporary restraining order issued on October 5 which stopped the bulldozing; it was enforced until this past Monday, December 3. There was a court hearing in Martinez in the court of Judge McBride. At this hearing, the judge dissolved the restraining order so that the developers are now open to further work. Ed thinks that in spite of the rainy season they will continue to scar the landscape. He feels that McBride was prejudiced in favor of the developer, apparently shutting off those at the hearing who were arguing from the standpoint of soils and engineering. A trial date has been set for January 20. He is tremendously concerned that this case not be lost; a county supervisor indicated to him that it is a bad case and that it would be precedent-setting in the Bay Area for subsequent cases.

Ed said that he has a lot of documents but has not written a connected discourse on the problem. I suggested that he write a page or two and that it sounds like the sort of thing that CUWA would get into. I suggested that he call Roger Reeve, indicating that he has talked to me and that I am interested in it. He had talked with Joyce Burr at a meeting last night, and she already knows about it--I suggested that he also tell this to Roger.

Arthur Norberg called me at 12:05 p.m. He and John Heilbron are organizing a conference on "Physics in World War II." They plan this to be a two-day affair with four separate themes: the organization of defense activity, aspects surrounding the Manhattan Project, radar and the development of the various electrical and engineering activities, and the war planning. He invited me to speak on the Manhattan District; I indicated that I could serve on a panel but not prepare a manuscript. He will stay in touch with me as plans develop.

Wednesday, December 5, 1973 (con't)

I had lunch in the lower level of the cafeteria with Edelstein, Ritter, and Gradl, joined later by Hyde and others.

On the way down the hill to my Chem 1A class, Tom Budinger gave me a lift. He told me that John Lawrence called on Andy Sessler earlier this week, at Budinger's urging, to offer his support. He said that Lawrence is apparently ready to accept the thought that Dr. Born be replaced as Director of the LBL Biology and Medicine Division if a (to him) satisfactory replacement is found; I indicated that the interpretation of "satisfactory replacement" may offer a problem.

I taught my Chem 1A lab section in Room 124 Lewis Hall from 1:10-3:00 p.m., then returned to my LBL office.

Shortly before 4:00 p.m., I went up to the HILAC to see Al Ghiorso, and I showed him the draft announcement of his changed status and the appointment of Grunder in charge of debugging at the SuperHILAC. Ghiorso said that he thought this was a good announcement and expressed satisfaction with the turn of events and relief that now a great deal of help would be available. He suggested that we add Grunder to the Program Committee. He tried to call Grunder to invite him up to talk with him about the new arrangement so that he could start immediately, and he also talked in terms of introducing Grunder to the staff with an explanation of the new arrangement as soon as possible. Ghiorso told me that he had discussed the matter with Main immediately after talking with me yesterday and that Main was in complete agreement with the suggested change in organization and management.

I wrote Herman Robinson (copy attached) to express Helen's and my sympathy on his wife Velma's passing.

I received a copy of H. H. Van Tuyl's letter to Joe Gratton at the Office of Information Services at AEC (copy attached), requesting \$25,000 from the AEC to fund Jack Ryan's contribution to our revision of The Chemistry of the Actinide Elements. I later sent copies of this to Katz, Nugent and Penneman.

I sent letters of invitation to a luncheon of representatives of Asian countries to be held during the AAAS meeting in San Francisco on February 28 to: M. G. K. Menon, India (with a letter prepared for Devendra Lal in case Menon cannot accept); Seiji Kaya, Japan (copy attached); S. Soejatmoko, Indonesia; Puey Ungphakorn, Thailand; Abdus Salam, Pakistan; Hahn Sang Joon, Korea; and Lee Kum Tatt, Singapore.

John Rasmussen dropped in at 5:00 p.m. to suggest that, after the SuperHILAC is running well, Bart Jones might be a good man to hire for operating (he may lose his job at Yale because their HILAC may be shut down); he also asked me to think about helping to find a position for his physics Ph.D. student Oliver Johns (Berkeley, 1968), a good theorist who has moved back to the Bay Area (his wife has a job here) and who would like a job, for example, in a State College.

December 5, 1973

Dr. Herman P. Robinson  
31 Diablo Circle  
Lafayette, California 94549

Dear Herman:

Helen and I were deeply saddened to learn of Velma's passing.

She was such a wonderful person and we are so sorry that we didn't have the chance to get together with you two since our return from Washington.

Perhaps you can take some solace from the fact that Velma was held in such high regard by her many friends.

Please accept our heartfelt feeling of sympathy.

With warm regards,

Cordially,

Glenn T. Seaborg

GTS/sms

cc: RE Nightingale

571b

JL Ryan

HH Van Tuyl - LB

XC 12/6/73  
from GTS

to JJK  
LN  
RP

November 21, 1973



Pacific Northwest Laboratories

Battelle Boulevard

Richland, Washington 99352

Telephone (509)

Telex 36921

ASD 12/3/73

Mr. Joseph E. Gratton, Chief  
Science Services Branch  
Office of Information Services  
Atomic Energy Commission  
Washington, D. C. 20545

Dear Mr. Gratton:

An attempt is currently underway to revise the book entitled "The Chemistry of the Actinide Elements," and Jack L. Ryan of Battelle Northwest Laboratories has been asked by Dr. Seaborg to be a co-author of the revised edition. The original edition, authored by Drs. J. J. Katz and G. T. Seaborg was published in 1957 and is badly out of date. Although this book has served as the authoritative reference on the chemistry of actinide elements since its publication, a major revision and updating is now needed and is planned. A tentative table of contents is enclosed.

In early plans for revision of this book, Dr. B. B. Cunningham planned to carry out a revision of the book, but his untimely death prevented this. Following this, Dr. R. A. Penneman of Los Alamos devoted some effort toward collection of literature material needed for the revision. Because of changes in his job position, he has found that it will not be possible for him to devote much, if any, further effort toward this work. The current plan is for Dr. L. J. Nugent and Mr. Ryan to carry out the bulk of the revision. Dr. Nugent is currently at Berkeley on leave from Oak Ridge for one year and is now working on the revision. Dr. Nugent will be able to devote one man-year of effort toward this work but not significantly more. It is felt that approximately two man-years effort are required and Mr. Ryan's contribution is very much needed.

It is felt that Nugent and Ryan's backgrounds will be complementary in this task, Nugent's background being largely in the physical chemistry aspects of actinide chemistry and Ryan's background being largely in the inorganic chemistry aspects although there is appreciable overlap. They have co-authored research papers in the past and have future papers planned and work well together. Mr. Ryan has appreciable experience, beginning in 1956 and continuing to the present, in both fundamental and applied actinide chemistry research and has an international reputation in the field.

Mr. Joseph E. Gratton

2

Nov. 21, 1973

From about 1960 until about 2 years ago an actinide chemistry program at Hanford was funded by the AEC Division of Research. Unfortunately, because of overall budget cuts, this funding is no longer available and cannot be used as a source of funding for the work on this book. Because of their tight budget situation, the Division of Physical Research is unable to provide any funds during this fiscal year although they have indicated that they might be able to do so during the next fiscal year.

We feel that the publication of a thoroughly revised and updated version of this book is of considerable value and importance to various divisions of the AEC. It should be of great importance to the Division of Production and Materials Management and the Division of Waste Management and Transportation because of the importance of knowledge of actinide chemistry to the separation and purification of nuclear materials and to the management of radioactive wastes containing actinides. Actinide chemistry is of perhaps lesser but still significant importance to the Division of Space Nuclear Systems because of the use of actinide isotopes as power sources, to the Division of Military Applications in the chemistry involved in the reworking of weapons materials, and to the Division of Biomedical and Environmental Research in relation to the chemistry involved in the behavior of actinides in biological systems and in the environment.

If funding for fiscal year 1974 cannot be identified, it is not apparent how the book revision can be accomplished. Time is too short, and too few persons are qualified, to seek a new co-author who has funding. After fiscal 1974, Dr. Nugent will no longer be available for appreciable cooperation with his co-author. Unless fiscal 1974 money can be identified reasonably soon, the proposed publication date of the book will have to slip, probably by a year or more. Any help that you can provide in obtaining funding for Mr. Ryan's contribution will be very much appreciated. About \$25K is needed for this fiscal year.

Sincerely yours,



H. H. Van Tuyl, Manager  
Applied Chemistry Section

JLR/HHVT:lm

Enclosure

*American Association  
for the Advancement of Science*

GLENN T. SEABORG  
Chairman, Board of Directors

LAWRENCE BERKELEY LABORATORY  
UNIVERSITY OF CALIFORNIA  
BERKELEY, CALIFORNIA 94720

December 5, 1973

Dr. SEIJI KAYA

Dear Dr. Kaya:

As you may know, I am interested in promoting the cooperation between scientists and science associations among a broad range of countries throughout the world. I am enclosing a copy of my talk as Retiring President of the American Association for the Advancement of Science (AAAS), "Science, Technology, and Development: A New World Outlook," in which I develop some of my ideas in this connection.

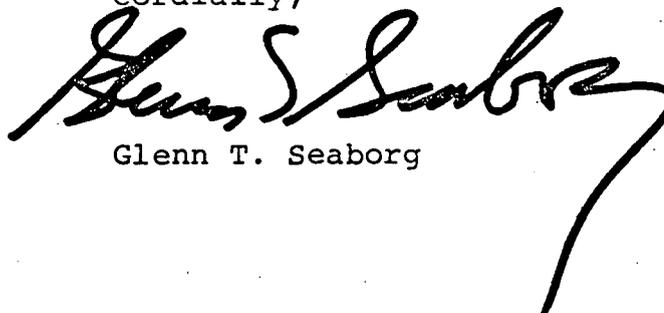
Together with other colleagues of the AAAS, I cordially invite you as a representative of Japan to attend the Annual Meeting of the AAAS to be held in San Francisco during February 24 - March 1, 1974. Enclosed is an outline of the meeting program for your information.

At that time, we would plan to meet with you and representatives of other Asian countries--perhaps at a luncheon on Thursday, February 28--to explore methods of increasing scientific cooperation between our countries.

I hope very much that you will be able to accept our invitation to attend the meeting in San Francisco in order to carry on such discussions.

With warm regards,

Cordially,



Glenn T. Seaborg

GTS/jk

Enclosures

At 5:20 p.m., I drove down the hill to Stern Hall where I met Helen, who had come in from Lafayette by BART. We were dinner guests of the girls, invited by Kathy Arnold, who is in one of my Chem 1A lab sections. We had dinner in the dining room at a table with Kathy Arnold (whose family lives in Livermore) and her roommate Nancy Shiba (who comes from a family of six girls living in Los Gatos). We also met Carol O'Connell (from Piedmont) and Cathy Ivanov, who was in my Chem 1B lab section in 1972. Among the several other faculty guests were Professor and Mrs. Richard Eakin (Department of Zoology).

Thursday, December 6, 1973 - Berkeley

I worked on my mail in the early morning. Colin Watanabe came in at 10:00 a.m. He said that he had changed his mind about starting graduate work at LBL because he wasn't entirely sure that he would see it through. He started graduate work at UCLA and dropped it and felt that he had let his professor down, so he didn't want to repeat this performance. I told him that I understood his problem and described some of the problems of my own sons in recent years in trying to find their niche in life. I suggested that he come up and work for a while at the HILAC and then decide whether he wanted to assume the status of a graduate student.

We then went up to the HILAC Building. Ghiorso was gone (picking up a rental car to tide him over until his car, which was damaged in a little accident last week, is ready), so we didn't see him. I introduced Watanabe to Jose Alonso, Carol Alonso, Mike Nitschke, and Darrah Thomas (who was visiting in connection with his research program at the SuperHILAC, involving bombardments with krypton ions). We then walked back down to Building 70A. Watanabe said that he will go ahead and get the required letters of recommendation from UCLA faculty, perhaps even visit UCLA to make the arrangements, in order to increase his options--that is, in order to be eligible should he decide to undertake graduate work in the UCB Chemistry Department and at LBL. He will also consider whether he will accept my offer to start work at LBL (I mentioned the graduate student salary of \$660 a month) before he decides on whether he wants to be a graduate student. He will let me know by the end of the month.

At 10:00 a.m. this morning, Ghiorso had a meeting of all the SuperHILAC staff to announce the new organizational arrangement. At this meeting, he read my memorandum which is being issued to "General Distribution" (copy attached). He followed this with a statement that he thought this was a very good move and indicated that he was getting a little tired, that the double job was a little too much for a man of his age. This was followed by a statement by Hermann Grunder, who indicated enthusiasm for his new responsibility and that he would use all the resources of the Laboratory in discharging his responsibilities. Andy Sessler then made a few remarks, indicating that the SuperHILAC is the highest priority project in the Lab and that all the resources of the Lab will be made available to ensure its success.

Michela Di Casa called me from UC San Diego at 10:30 a.m. She indicated that she is much happier there now. She received a visit from Mario Rollier, who asked that she extend his greetings. Michela will return to Italy at the end of February and hopes that she might

December 6, 1973

TO GENERAL DISTRIBUTION:

Re: Superhilac Organization

Construction of the Superhilac has now been completed and there have been periods of highly successful operation with beams of krypton ions. In its essential features, the machine is an outstanding success and a tremendous credit to all those who took part in its design and construction. We at LBL are especially grateful to Albert Ghiorso, who has been in charge ever since the old Hilac was built in 1957. He has led the heavy ion research effort with outstanding success and most recently he has supervised the design and construction of the Superhilac, a machine which for many years to come will be the only one in this country capable of accelerating the heaviest ions to high energies.

Now the Superhilac enters upon a new phase, that of the final debugging to obtain greater reliability, combined with the first steps towards a vigorous research program. Albert Ghiorso has therefore asked to be relieved of his responsibilities for the final debugging stage, so that he can devote his full efforts to coordination of the Superhilac research program and to pursuing his personal research plans. With reluctance but knowing the important contributions that Albert will make towards the discovery of new elements--and hopefully of superheavy elements--I have agreed to his wishes. He will, of course, remain in charge of the coordination of the Superhilac research work and of its scheduling.

We are fortunate that Hermann Grunder has agreed to take charge of the Superhilac debugging, development and operation. Hermann is no stranger to Nuclear Chemistry, for he took charge of the 88" Cyclotron at a point where its situation was very similar to that of the present Superhilac. It is largely through his contribution that the 88" Cyclotron was converted into a reliable, smoothly operating machine. Robert Main, whose contributions to the Superhilac have been of the greatest value, will remain in his present position, reporting to Hermann Grunder, who in turn will report to the Nuclear Chemistry Division through Bernard Harvey. Hermann Grunder retains his responsibilities at the Bevatron and for the Bevalac.

Glenn T. Seaborg  
Nuclear Chemistry Division

Thursday, December 6, 1973 (con't)

visit Berkeley again shortly before her departure. I mentioned that the AAAS meeting will be in San Francisco during the last week of February.

I attended the luncheon meeting of our actinide chemistry group in room 1147A, Building 70A. Present were Streitwieser, Edelstein, Starks, Parsons, Gradl, Nugent, and Ritter.

Starks described his attempts to prepare BeCOT from the reaction  $K_2COT + BeCl_2$ . He hoped that this would form as a monomer with the Be in the center of the planar COT ring--this would be a unique compound. Another objective was to use such a BeCOT compound to synthesize actinide COT compounds. However, he observed what appears to be a polymer; so he is dropping this line of investigation. Starks also described proposed work on diphenyluranocene. This compound has been made and the magnetic susceptibility measured by Streitwieser's students.

Gradl described his work on S-C-CF<sub>3</sub>



$UCl_4 + (CF_3)_2C_2S_2(L)$  shows no reaction. However, the reaction  $UCl_4 + L \xrightarrow{THF} Na$  naphthalate gives a red solution, and this seems to be due in part to the production of  $UCl_3$  from  $UCl_4 + Na$  naphthalate.

The addition of  $NR_4$ , after the addition of  $UCl_4$ , to a solution of L reduced with Na naphthalate seems to produce a compound that may be  $(NR_4)_4[U(IV)L_4]$ .

Parsons described his work on the preparation of  $BkF_3$  by separation of  $Bk^{249}$  from its  $Cf^{249}$  daughter, and its inclusion in  $CaF_2$ .

Edelstein then described his work, with Ritter, to try to observe Bk(II) in the  $CaF_2$ . Nugent predicts a Bk(II)-(III) potential of 2.8 volts (for Cf, 1.6 volts; for Cm, 4.2 volts). Their electron paramagnetic resonance (EPR) measurements at 1.5 to 4.5°K show a complicated spectrum that may indicate the presence of Bk(II). Baybarz and Nugent have observed an absorption at 10,000 Å which may be due to Bk(II) in  $CaF_2$ .

Upon returning to my office at 1:40 p.m., I called Bill Bevan at AAAS in Washington to report on my conversation with Eleanor Sheldon. I described her questions and indicated that I had said that the work was manageable because AAAS had furnished me with a good assistant, and on this basis she indicated interest. Bill will get in touch with her shortly. I called to his attention John Sawhill's increasingly important position in the energy picture. Bill said that he will talk with Phil Abelson about their possible approach to Sawhill now.

I called Ed Bennett at 1:45 p.m. to discuss the decision of the Coastal Commission to turn down the expansion at San Onofre, which was reported in this morning's paper. I expressed my view that this could do the environmental movement long-range harm. I described how Bill Gould has asked me to get involved in this, which I declined to do.

Thursday, December 6, 1973 (con't)

I sent to Andy Sessler a memorandum and documentation, requesting a change of visa status for Mike Nitschke (copy attached).

At 2:00 p.m., I participated in the qualifying examination of Richard P. Schmitt in Room 444 Latimer Hall. Present were Joe Cerny, chairman of the committee, and David Shirley, Bernard Harvey, and Carl Helmholz. We had before us a letter of evaluation from Luciano Moretto, who is supervising his thesis research; the letter was favorable although it rated the candidate as somewhat below the average for Berkeley Ph.D. candidates. We also had before us a paper, "Evidence for Relaxation Processes in Heavy Ion Nuclear Reactions," which Schmitt had prepared for us.

Schmitt began by describing the research program in which he has been assisting. This consists of the measurements of the Z of the products of the bombardments of Ag targets with  $N^{14}$  ions using the  $\Delta E-E$  technique. We examined him on numerous aspects of nuclear reactions and corresponding theory. He did much better than he did on his last examination and we passed him, rating him as about an average Berkeley Ph.D. candidate.

After the examination, at 4:00 p.m., I went down to the Commons Room in Latimer Hall to have doughnuts and tea or coffee with graduate students and faculty of the Chemistry Department. Here I talked to Kim Williams about her program next quarter; all her classes and teaching will be on Tuesday and Thursday; so Monday, Wednesday and Friday will be available for her research work.

I then went to Room 100 Lewis Hall to attend the Graduate Research Conference. Here I heard Ole Krogh speak on "The Chemistry of Chlorine Fluoride Photolysis Lasers." He is a graduate student of Pimentel. The second speaker was Louis Amandola, also working with Pimentel, who spoke on "A New Experimental Technique: Matrix Isolation with Flash Photolysis." His work involved cyclobutadiene. As I was leaving, I met Ann McGuire, a chemistry graduate student who lives at International House, near Dave's room.

I mailed several letters of recommendation for Jose Carvalho, who is applying for admission to graduate work at UC Davis, California State University at San Diego, Washington State University at Pullman, and Purdue University (sample attached).

I wrote a letter of evaluation on Charles Dunham for the University of Chicago Alumni Association, which is considering him for an award (copy attached).

Friday, December 7, 1973 - Berkeley

I met with Bernard Harvey at 9:10 a.m. to discuss the question of initiating a program on environmental chemistry and finding a leader in LBL and the related question of whether the program should be located in the Nuclear Chemistry Division or in Hollander's Division. We agreed, and Hollander also agrees, that we should defer a decision on the latter question and in the meantime begin a search for the

December 6, 1973

To: Andrew M. Sessler, Director  
From: Glenn T. Seaborg  
Re: Request for Change of Visa Status for Joachim Michael Nitschke

Dr. Joachim Nitschke, a German national, has spent five years at the LBL as a member of the HILAC research group. During the first three years he designed and built an elegant on-line mass spectrometer that led to the present generation of on-line mass separators such as SASSY.

Dr. Nitschke then returned abroad, but before he had spent the two years outside the U.S. that would have entitled him to an immigrant visa, it was felt that his services were urgently needed in the building and debugging of the SuperHILAC, and he returned to the LBL on an exchange visa.

During the last two years Dr. Nitschke has made an important contribution to our new accelerator and research facilities. When we could not afford the usual expenditures for an elaborate beam diagnostic system, Dr. Nitschke invented a beam scanner and developed a phase-measuring system for the accelerated particles. He was also able to improve substantially the accuracy of the drift-tube quadrupole alignment system by designing a supersensitive "electronic eye" to observe the change in position of a taut wire when a pulse of current was passed through it.

Dr. Nitschke is in charge of the FAKE project (Fast Automatic Khemistry Experiment) - an automated chemistry system that performs repetitive chemical separations under computer control. With his characteristic inventiveness he has developed a number of new techniques that show good promise of facilitating chemical and physical studies of elements such as 105, 106, and 107. He is also making an important contribution in the construction and testing of the on-line separators, SASSY and LASSY. These three projects constitute the main scientific effort of our SuperHILAC research group, and we have invested a great deal of money and time on them.

Because of Dr. Nitschke's role in these projects, and especially because of his leadership of the FAKE project, we would be very unhappy to lose him. Anticipating such a possibility, Al Ghiorso and Matti Nurmia at the SuperHILAC have been looking for a replacement since early this year. They have taken the following steps:

1. They considered the postdoctoral candidates at the LBL but were unable to find a person with background and experience in this field.

2. They consulted with all of the members of the senior staff of the LBL but were again unable to find a suitable candidate.
3. They contacted several persons in the key positions in other national laboratories and major universities, both in person and by letter. Copies of letters sent to the directors of the Oak Ridge, Savannah River, and Los Alamos National Laboratories, together with the replies, are enclosed. The uniform response was that no suitable candidates were known to these persons.
4. They advertised the position through the LBL Personnel Department and interviewed several persons who responded (see enclosed summary). Again, no suitable candidates were found.

It should be noted that the work at the SuperHILAC is of such a specialized nature that all U.S. nationals with experience in the field are likely to be personally known to the few scientists involved. In fact, the only other group in this country that does research even remotely similar to the FAKE project is at ORNL, and we of course know them quite well. (There is a substantial effort in this area in Europe, but that is another story). In spite of this, we have taken the above steps to ensure that we have not overlooked any U.S. citizens that might qualify for the position. We feel that we have essentially exhausted these possibilities.

I would like to ask that you arrange for the Personnel Office to proceed with the necessary steps to convert Dr. Nitschke's visa from an exchange visa to an immigrant visa. This measure is likely to be vital to the success of our studies of the chemistry of the new elements (FAKE), and it will also assure us of Dr. Nitschke's further contributions to the efficient operation of our accelerator.

---

Glenn T. Seaborg

GTS/adm

Enclosure

Enc: Undergraduate Secretary, Chemistry Dept., UCB

574c

Same letter to:

W. K. Musker, Dept. of Chemistry, Univ. of Calif., Davis;  
Robert W. Isensee, " ", California State Univ., San Diego;  
Roger Willett, " ", Washington State University, Pullman.

December 6, 1973

Professor Z. D. Welch, Chairman  
Committee on Graduate Admissions  
Department of Chemistry  
Purdue University  
West Lafayette, Indiana 47907

Dear Professor Welch:

I am writing in behalf of Jose Luiz de Santana Carvalho, who is applying for admission to graduate work in your Department.

I became acquainted with Jose de Carvalho during the Spring Quarter 1973 when he took Chemistry 196 (Special Laboratory Study) under my supervision. He worked with two of my postdoctoral fellows, J. O. Liljenzin and Jens Kratz, on a problem involving the Super-Heavy Ion Linear Accelerator (SuperHILAC) at the Lawrence Berkeley Laboratory--the chemical identification of the products produced in the bombardment of uranium with argon ions. His particular work concerned a detailed study of the iodine isotopes and methods of selectively dissolving the uranium target by electrolytic procedures.

It is difficult on the basis of this short experience to make a very careful evaluation of his abilities. We found him to be industrious and very dedicated to his work. I would judge him to be quite intelligent, but his overall background in chemistry was not as strong as that of typical Berkeley Chemistry graduates who go on to graduate work at Berkeley. My impression in this respect may be due in part to his difficulties with the English language, which of course he should overcome with a longer stay in the United States and more practice with English.

Z. D. Welch

- 2 -

December 6, 1973

I understand that the University of Sao Paulo is very interested in Jose de Carvalho and that the Brazilian government also has an interest in his continuing education from the standpoint of the contributions that he can make to nuclear science and to the nuclear energy program when he returns to Brazil. I think that such a contribution to international cooperation between Brazil and the United States should perhaps be a criterion in evaluating his application for admission to graduate work at Purdue.

Sincerely yours,

Glenn T. Seaborg  
University Professor of Chemistry

GTS/sms

December 6, 1973

Ms. Lois Overbeck, Awards Coordinator  
University of Chicago Alumni Association  
5733 University Avenue  
Chicago, Illinois 60637

Dear Ms. Overbeck:

This is in response to your letter of November 26, 1973, requesting an evaluative letter about Dr. Charles L. Dunham.

I became well acquainted with Chuck Dunham during my tenure as Chairman of the U.S. Atomic Energy Commission. During about seven years of this period, he served as Director of the AEC's Division of Biology and Medicine, which gave me an opportunity to become well acquainted with him.

In my opinion, he did an outstanding job. He was responsible for the administration of a large budget supporting research in biology and medicine in our country's universities and medical institutions, and the success of the program was due in large part to his wisdom and excellent judgment. He was held in the highest respect by the Commissioners and senior staff of the Atomic Energy Commission as well as by the people with whom he dealt in the scientific community.

As others who might give you information about Chuck Dunham, I would like to suggest:

Dr. Gerald F. Tape, President  
Associated Universities, Inc.  
Suite 603  
1717 Massachusetts Avenue, N.W.  
Washington, D.C. 20036

Lois Overbeck

- 2 -

December 6, 1973

Dr. James L. Liverman, Director  
Division of Biomedical and  
Environmental Research  
U.S. Atomic Energy Commission  
Washington, D.C. 20545

Mr. Robert E. Hollingsworth  
General Manager  
U.S. Atomic Energy Commission  
Washington, D.C. 20545

Sincerely yours,

Glenn T. Seaborg

GTS/sms

Friday, December 7, 1973 (con't)

person to head up the environmental chemistry program. We agreed to constitute a search committee for such a person consisting of me as chairman and Poskanzer, together with two representatives from Hollander's office.

I later met with Poskanzer to discuss a plan of procedure for locating prospective candidates. As a start, we have the names suggested by Glen Gordon in his letter of December 13, 1972, and Poskanzer will call Jack Winchester for suggestions. As soon as Hollander makes his appointments to the search committee, we will have a meeting.

I called Hermann Grunder to invite him to be a member of the Nuclear Chemistry Division Program Committee, and he accepted.

I called Mayor Walter Costa at 9:25 a.m. to get some information that I could use in my letter supporting his nomination to be a Fellow in the American Institute of Architects. He told me that he was nominated by the Northern California chapter (Jean Crawford). He asked that I emphasize his involvement in conservation and described his work, which I will incorporate into my letter. He told me that Bill McKee is scheduled to be on the Lafayette City Council agenda on December 19 at 9:00 p.m.; I said that I might attend.

I called President Charles Hitch at 9:35 a.m. to ask if he had given more thought about getting Bob Hollingsworth into the University system. He indicated that he talked with Hollingsworth yesterday. Hollingsworth told him that he is definitely leaving the AEC on December 31, 1973. Charlie is trying to think of a good job for him but understands from Hollingsworth that he would require a minimum salary of \$45,000--I said that this is higher than I had been led to believe.

Hitch is looking for a Director of Computing Services in the Statewide University, which would be a management position. He made it clear to Hollingsworth that they would need to make a 2-3-month nationwide search for the best man. I suggested that he should not hesitate to try to get Hollingsworth at a lower salary level if he is interested in him.

President Hitch then asked me about sentiment in Congress, about which he recently has learned that LASL and LLL ought to be detached from ERDA and attached to the Department of Defense. I indicated that I was not aware of this but that I have been against it. Charlie inquired as to whether it would be possible to split the laboratories, putting the weapons work under the Defense Department and the rest under ERDA; he is afraid that with a total transfer to Defense they would become strictly weapons labs, and I agreed with him about this. He expects to discuss this with Scoop Jackson in the near future. In response to my inquiry, he indicated that he has not heard anything about who the Director of ERDA would be, although Hollingsworth had told him that Chairman Ray is actively seeking the job. I noted that some people were not 100% satisfied with her performance; so that might not transpire.

Friday, December 7, 1973 (con't)

President Hitch asked me how urgent I think it is that Sessler move to get a new Director at the Donner Laboratory, and I indicated that I would put it on the basis of his feeling about the John Lawrence problem. I mentioned that, while riding down the hill the other day with Tom Budinger, he had indicated that he has convinced John Lawrence to pay a call on Sessler, and I had the impression that this would take place. I also reported that Budinger said Lawrence didn't mind Born's being replaced as Director if it were with the right man. Charlie indicated that he is thinking along the same lines.

I talked to Bob Main about the reorganization at the SuperHILAC; he seemed to have ambivalent feelings--relieved that a necessary change had been made, but somewhat unhappy that a new way of life lies ahead. He will get in touch with me in about a week to give me an assessment of the current situation. He warned me not to expect miracles in getting the SuperHILAC working. He agreed that additional help and funding from the Bevatron group will be helpful.

Dick Frankel called at 11:00 a.m. I agreed that he should quote me in the meeting with the Phillips people next Wednesday that Kevex is worth \$5.5 million. He said a number of key people at Kevex will meet tomorrow to define in detail their financial position. He will let me know the outcome of the meeting by calling me tomorrow.

Ghiorso called and I reviewed for him my talk with Watanabe yesterday. He said that Grunder is up at the SuperHILAC and is getting started; Ghiorso said he is optimistic about the reorganization. We also discussed the possibility of changing the SuperHILAC Research Progress Meeting from 10:30 a.m. on Thursday to the same time on Friday so that more graduate students can attend.

Ken Raymond called at 11:30 a.m. He was pleased that he has been offered promotion to tenure as an Associate Professor in the Chemistry Department, as a result of the faculty meeting last Friday. However, he has a competing offer from the University of Colorado at Boulder that he must evaluate. In this connection, he wanted to know whether we could continue to support him as we have at LBL. I indicated that it was my intention to continue his support at his present level--that is, one graduate student, computer services, and one month's summer salary. I mentioned our hopes to build up the actinide chemistry effort and our negotiations with Laubereau and Kanellopulos to bring him here for a few weeks visit on a NATO Fellowship that he has applied for, which would give about \$2,000 of support for this purpose.

I had lunch at the lower level of the cafeteria with Kratz, Norris, Edelstein, Gradl, Bucher, Nitschke, and others. I discussed with Kratz and Norris the idea of having meetings to discuss their research as we do with the actinide chemistry group; we will make a decision on this soon. We also discussed the request of Glen Langstaff, the freshman who wants to work with us at LBL; we decided to invite him up for discussions to investigate the possibility further.

I attended the meeting of the Chemistry 1A instructional staff in room 406 Latimer from 1:10-2:00 p.m. We discussed arrangements for the final examination and the grading procedure.

I walked back up the hill to my office. A student from one of my Chemistry 1A sections came by to see me and I worked a number problems for her. (This was Mary Canning; her sister Marcia used to work for Sheila in the Political Science Department on campus.)

Dick Frankel called to clear with me and other Directors a number of additional employees to be awarded Kevex stock options, per the attached list.

Suki and I took a hike to the water tank. Helen bought a Sony Stereo Music System HP-318 (AM-FM radio, tape player and record player) at Handy Andy's in Pleasant Hill for \$370 today.

Saturday, December 8, 1973 Lafayette - El Cerrito - Lafayette

I spent a good deal of time checking the new music system. There is a definite problem with the 8-track tape player, so Helen will have to take it back for an exchange.

Suki and I took a hike around the Rim Trail at the Lafayette Reservoir.

Dick Frankel called at 5:30 p.m. to report on the results of the Kevex staff meeting today. They decided that they value Kevex at \$5.25 million and this will be their asking price with Phillips.

Helen and I attended the LBL Mechanical Shops Christmas Dinner at Golden Gate Lanes in El Cerrito. Elmer Hughes served as Master of Ceremonies. Among the people we met and talked with were Mr. and Mrs. Elmer Hughes and their son Larry, Mr. and Mrs. Paul Hernandez (mechanical Department Head), Mr. and Mrs. Don Stallings (he started work at LBL in 1937 and Helen knew him when she started in 1938 and he is now in charge of Mechanical Shops), Mr. and Mrs. Jack Crowe (he started at LBL in 1938 and Helen remembers his starting), Mr. and Mrs. Walter Hartsough (who is starting in the position as head of Technical Services under the Sessler regime), and Dr. and Mrs. Andrew Sessler.

There were about 150 people at the dinner including a number of people who had retired from the Mechanical Shops in years past. The after-dinner program consisted of mass singing of Christmas songs and the "LBL Song" with piano accompaniment by Dick Hillman, drawing for numerous prizes furnished by various merchants, and a presentation of his 35-year service pin to Jack Crowe by Andy Sessler.

During his presentation, Andy announced that President Hitch has told him that there is a good chance that NASA will support a large infra-red telescope project at the White Mountain Station of the University of California under the auspices of LBL. Earlier in the evening, Andy told me that his meeting with John Lawrence went well, but there was no discussion of a reorganization of the Biology and Medicine program of LBL (Donner Laboratory).

WRITTEN CONSENT OF BOARD OF DIRECTORS  
OF KEVEX CORPORATION  
TO ACTION TAKEN WITHOUT A MEETING

The undersigned Directors, constituting all of the Directors of Kevex Corporation, hereby consent to the following action:

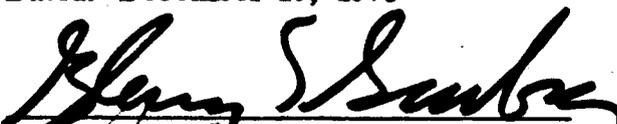
RESOLVED, that Qualified Stock Options be granted to the following individuals according to the provisions of Plan #1:

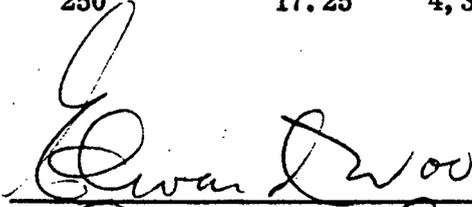
<u>Employee</u>	<u>Date</u>	<u>No. of Shares</u>	<u>Price</u>	<u>Total</u>
David Heinemeyer	12/10/1973	50	\$17.25	\$ 862.50
Madeline Antone	12/10/1973	150	17.25	2,587.50
Dennis Collins	12/10/1973	200	17.25	3,450.00
Bernie Ware	12/10/1973	400	17.25	6,900.00
Philip Lam	12/10/1973	250	17.25	4,312.50
Don Whitaker	12/10/1973	250	17.25	4,312.50
David Porter	12/10/1973	500	17.25	8,625.00
Rolf Woldseth	12/10/1973	500	17.25	8,625.00
John Curtis	12/10/1973	200	17.25	3,450.00
Wellson Wong	12/10/1973	300	17.25	5,175.00
George Jung	12/10/1973	200	17.25	3,450.00

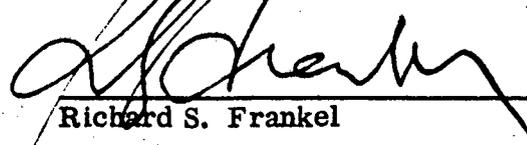
RESOLVED, that Qualified Stock Options be granted to the following individuals according to the provisions of Plan #2:

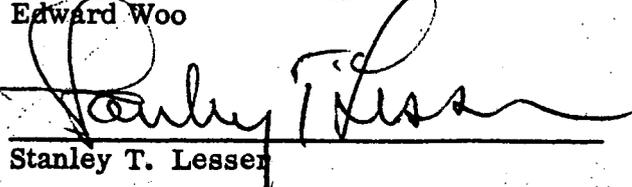
<u>Employee</u>	<u>Date</u>	<u>No. of Shares</u>	<u>Price</u>	<u>Total</u>
Richard Cushing	12/10/1973	1,000	\$17.25	\$17,250.00
Henry O. Barton	12/10/1973	200	17.25	3,450.00
Roy Fryslie	12/10/1973	250	17.25	4,312.50

Dated: December 10, 1973

  
Glenn T. Seaborg, Chairman

  
Edward Woo

  
Richard S. Frankel

  
Stanley T. Lesser

Sunday, December 9, 1973 - Lafayette

Suki and I took a hike around the rim trail at the Reservoir. I watched on TV the football game between the Washington Redskins and the Dallas Cowboys; the Cowboys won, 27-7. However, the Redskins still have a chance for the "wildcard" play-off spot.

At 4:30 p.m., we called Lynne and Bill. We learned that Bill has started to work, on the graveyard shift, in the psychiatric department of Wabash Valley Hospital which is located off the road between Battlefield and Lafayette. Lynne alone (Bill cannot come because of his job) will visit us from Friday, December 14 until Sunday, December 23. She seems to be getting along quite well in graduate school. They have acquired another dog--a puppy.

Monday, December 10, 1973 - Berkeley - San Francisco

I arranged to have Marjorie Hollander placed on the payroll as a consultant at a payrate of \$5.50 an hour. She is continuing to go through, copy and assemble my papers from my Chancellor period (1958-61), after which she will do the same for the Radiation Laboratory period (1946-58).

I called Bob Thorne (Manager of the San Francisco Operations Office) at 8:40 a.m. to let him know about the rearrangements we are making in the organization of the SuperHILAC. I told him that Ghiorso has asked to be relieved of the debugging responsibilities so that he can devote his full time to research; and Hermann Grunder, reporting to Nuclear Chemistry in this respect, is now in charge of the debugging. I noted that this puts Grunder in charge of the entire thing. Bob said he thought this sounds like a good move.

He told me that the farewell party for Bob Hollingsworth will be in Washington on January 3. I observed that this will be a real blow to the AEC because I think Bob played a more critical role there than most people realized. Thorne indicated that there are no rumors as to who will replace him--indeed, they may not replace him depending on how the ERDA matter goes. He told me that Doub will definitely go with the NEC and may be the Chairman of that Commission. I concurred that Doub is certainly the best qualified person for this. I asked him if he knew where Dr. Ray would go if she wasn't Chairman of ERDA, but he said he didn't know. He said that Anders has been rumored to be interested in being Assistant Director for the Reactor Division. He cited the December 6 issue of Nucleonics Week. Thorne said that it appears that the five-corporation approach that Jackson has been pushing probably will go through. It has passed the House and will probably pass the Senate. Under this arrangement, weapons will stay with ERDA, being under an Assistant Director for National Security. He noted that the production reactors would be put there also. He said that Jackson introduced his legislation at hearings last week before the Government Operations Committee. He thinks it may be something worked out by Holifield and Jackson to assure an interface.

He told me that he was in Nevada on Friday on the geothermal project. Hollander, Mirk and Witherspoon were there; he said they did a good job of briefing.

Monday, December 10, 1973 (con't)

I noted that Sessler is moving on a lot of fronts. Bob thought that he might be having trouble getting information flowing up to him but agreed that he is doing a good job in identifying a lot of problems here and going after them.

I went down to see Chris Ritter in his laboratory; I suggested to him that he submit quarterly progress reports to me. He may audit Chamberlain's course in Quantum Mechanics in the winter quarter.

I went up to his lab to see Kratz and we agreed to have luncheon meetings in his office of their group (Kratz, Norris, Binder) on alternate Thursdays.

I sent the duplicate slides of our China trip that they had requested to Carl Djerassi and Ezra Vogel.

Felix Bloch called me from Stanford University at 11:15 a.m. He asked if I would join in a meeting next week with Alan Cranston. A number of people in this area are concerned about what is happening in Israel vis-a-vis the energy crisis and wish to discuss it with Cranston. He emphasized that he did not wish to press me in any way even though he had strong feelings about this himself. Among others who will participate are John Girard, Joshua Lederberg, Owen Chamberlain, and Edwin McMillan. The meeting will take place on Monday morning the 17th, and he will be in touch with Sheila or me as the plans are formalized.

From 11:30 a.m. to 12:10 p.m., Ann Thor, a student in one of my Chem 1A lab sections, visited me in my office to have me work a number of problems for her.

I had lunch in the lower level of the cafeteria with Bob Vandenbosch, Darrah Thomas, Dave Shirley, Joe Cerny, Jens Kratz, Ted Norris, Norman Edelstein, Reinhard Gradl, Dick Diamond, Jerry Bucher, Len Nugent, and others. Vandenbosch's graduate student, Mike Webb, was also present. Vandenbosch, Mike Webb and Thomas are here for an experiment at the SuperHILAC.

I talked to Chin-Fu Tsang about his making calculations on the yield of neutron excess products (like  $\text{Ca}^{50}$ ,  $\text{Ca}^{52}$ , etc.) which might re-bombard thick targets (e.g.,  $\text{Cf}^{249}$ ) to produce products with a higher neutron/proton ratio and hence be produced with a higher yield; I also asked him to make calculations on neutron deficient isotopes of element 108 to see if the closed shell at  $Z=114$  might improve their yields.

I called Bill Horne at 3:30 p.m. in response to Ed Bennett's call and then called Bennett. I told Bennett that Horne had read to me from the revised EBRPD Master Plan, particularly the section on page 18. The revised Plan does not open up the trails to motorized vehicles; so there is nothing to worry about.

At 3:30 p.m., I met with Herbert Jaeres to describe to him the history and the functioning of the AEC national laboratory system, in

connection with a survey of this for the National Institutes of Mental Health which is considering using these labs and their administration as a model. He gave me a copy of the NIMH book Mental Health Program Reports. I described our system of visiting committees and self-review within the divisions in the Lawrence Berkeley Laboratory.

I walked up to the SuperHILAC to watch Vandenberg and Webb set up their experiment to compare the scattering of krypton ions from lead (spherical) and gold (between spherical and deformed) nuclei.

Suki and I took a hike to the water tank. Helen and I picked up Professor and Mrs. William F. Giauque at their home in Berkeley and drove them to the Swedish Consulate at 1950 Jackson Street in San Francisco. The occasion was a buffet dinner starting at 8:00 p.m. in honor of the Bay Area Nobel Prize winners--today being the day that the Nobel Prizes are awarded in Stockholm. The event was hosted by Consul General and Mrs. Hans Skold.

Present as honored guests, besides the Giauques and Seaborgs, were the Calvins, Segres, and Owen Chamberlain (who brought June Steingart). There were about 100 guests present and among those we met and talked to were: the Norman Shumways; the Henry Kaplans (the radiologist from Stanford whom I met when he was co-recipient of the Atoms for Peace Award a few years ago, at which occasion I spoke at the luncheon); the Peter Giddingses (Malin Giddings is Nils Ståhle's daughter); the Don Mulfords; the Kenneth Davises; the Charles Hitches; Dr. and Mrs. Hope; Dr. and Mrs. Priday; the Eric Bellquists; Barbara Elmendorf (whose nephew Roger Loomis was Dave's roommate in his freshman year at Davis); Richard and Ann Miller (she was an ARCS Foundation officer); and Mrs. Robert (Nene) Sims (daughter of Carl-Henrik Peterson, the former Swedish Consul General).

There were a number of newspaper people present, including photographers and Robin Orr of the Oakland Tribune who was interested in recording my reference to the movement of people in the crowded room as analogous to "brownian" movement.

I had an especially interesting and pleasant conversation with Peter and Malin Giddings, which enabled me to learn more about their background. She told me that her father had served as Executive Director of the Nobel Foundation since 1944, the year that she was born, and that he was attending the ceremony for the Nobel Peace Prize in Oslo this year for the first time because he was involved in the Stockholm ceremony in all the previous years. During his last year as Executive Director (which I believe was last year), he asked that the whole family come to Stockholm for the ceremony.

We also talked to Finnish Consul General and Mrs. Klaus Snellman (who are good friends of Matti Nurmi and also know the Eskolas) and with Consul General and Mrs. Skold, who have been in their positions since October of last year.

Tuesday, December 11, 1973 - Berkeley

Dianne returned to school today after a week's absence due to a cold.

Tuesday, December 11, 1973 (con't)

I went up to the HILAC Building at about 9:30 a.m. I talked to Bob Main about the progress on the reorganization and he told me that Grunder is bringing a lot of people up to work on the debugging. I also talked to Grunder who is getting under way with his new responsibilities.

I then met with the SuperHILAC Planning Group--Ghiorso, the Alonsos, and Nitschke (Nurmia is in Finland to attend his father's funeral). We discussed plans for our 106 experiment, predictions on the secondary reactions needed to produce superheavy elements, etc. We decided to change (from Thursday) the SuperHILAC Research Progress Meetings to alternate Fridays at 10:30 a.m., beginning January 4.

At 11:00 a.m., Glen Langstaff, the freshman whom I met following my lecture in PSL to the Chem 1A class, came by my office to talk about coming to work with my group to gain experience. I took him down to talk to Edelstein and Ritter, then up to talk to Kratz in his office. Kratz feels that he could help in the computer treatment of their gamma ray data, so I then took him by to see Eileen Eiland to fill out the necessary papers for a badge, etc. He will start to work next week after his final examinations.

Bill Bevan called me at 12:25 p.m. to bring me up-to-date on things in connection with his resignation as Executive Officer of AAAS. Dan Greenberg found out about his decision, so Bevan has made a public announcement now and told the department heads today. He will have an open letter to the membership in the next magazine. He suspects that Barry Commoner is the source of the leak. I indicated my agreement, however, that he should make an early announcement.

I had lunch in the cafeteria with Earl Hyde. We discussed in a broad way the status of affairs since Sessler's start as LBL Director.

At 1:30 p.m., Sol Linowitz called and I brought him up-to-date on, and placed in perspective for him, the various activities, as described to me in his phone calls, of Paul Lochak.

I sent a letter to the American Institute of Architects supporting the nomination of Walter Costa to be an AIA Fellow (copy attached). I sent to Father Francis J. Heyden at the Manila Observatory in the Philippines a reconstruction of the slides used in my lecture on the transuranium elements to the Washington Junior Academy of Sciences in 1964, which Sheila had put together on the basis of listening to the tapes.

At 2:00 p.m., Sheila and I went up to Building 90 to go over with Jim Halverson my instructions for his splicing, in different order than the present chronological one, the copy prints of my China movies.

At 3:30 p.m., I went up to the SuperHILAC to watch Vandenbosch, Webb and Richard Eppley work on their scattering experiment.

December 11, 1973

Mr. George E. Kassabaum, FAIA  
Chairman, The Jury of Fellows  
American Institute of Architects  
1735 New York Avenue, N.W.  
Washington, D.C. 20006

Dear Mr. Kassabaum:

I am writing in support of the nomination of Mr. Walter H. Costa, AIA, for Fellowship in the American Institute of Architects.

I have known Mr. Costa since the time (1958-61) when I served as Chancellor of the University of California at Berkeley, during which time he was involved with the design of some campus building projects. I have known him quite intimately since my return from Washington about two years ago.

He has had a distinguished career with Skidmore, Owings and Merrill and has been responsible for some of their most notable buildings, such as the Ordway Building in Oakland. The level of his responsibility is illustrated by his role as lead architect for such current large projects as the Federal Reserve Building and the Bank of Tokyo Building in San Francisco.

My most intimate connection with Wally Costa has been during the last two years during which he has been serving as a member of the Lafayette City Council and, beginning early this year, as Mayor. During this time, he has been deeply involved in conservation activities and in efforts to preserve open space in our city. As a fellow resident of Lafayette,

George E. Kassabaum

- 2 -

December 11, 1973

I serve as chairman of a citizens' movement devoted to an effort to acquire substantial areas of open space by the City of Lafayette through a bond issue. As Mayor and as a concerned citizen of Lafayette, Wally Costa was most impressive in his efforts in support of this project. Although this particular bond issue failed to receive the necessary two-third's vote, we are continuing our efforts and again, Wally Costa is the key to our efforts. He has also been the prime mover in promulgating a General Plan for Lafayette which delineates the limits to development and the areas to ultimately be preserved as open space; he is playing the central role in bringing this General Plan into actual operation.

I am very well impressed by Wally Costa and strongly support his nomination for Fellow in the American Institute of Architects.

Sincerely yours,

Glenn T. Seaborg

GTS/sms

The Nuclear Chemistry Division Committee (Harvey, Shirley, Cerny, Diamond) for re-evaluation of the Division's entire research program had their first working meeting this afternoon. They met with Dave Hendrie to go over his research program.

I met with Dave Shirley to inform him of my talk with Ken Raymond (in which I committed to him a continuing level of support at his present level), our committee's (Poskanzer, Budnitz and I) search for a person to head up our chemistry environmental research program (Shirley will investigate whether we can offer the right man an assistant professorship), my hopes to retain Street's position at a tenure level (if he actually leaves) and to find a suitable actinide chemist as a replacement.

I phoned James Pitts, Jr. (Director, Statewide Air Pollution Research Center at Riverside) to ask for his recommendation on candidates for our environmental chemist position. He indicated that he would keep this in mind. He mentioned the name of Paul Beckowies, whom he regards as good but not of the calibre we want. I asked if he could think of others in the University system involved in environmental chemistry in general, noting that we intend that it should be a chemist. He mentioned Harold Johnston, Roy Fukuto (a Fellow at Riverside working in pesticides under a joint appointment with organic chemistry and the College of Agriculture), and Donald G. Crosby at Davis. He thinks the Christopher S. Foote (CHEMISTRY, UCLA, who came out of Libby's program) is top-notch.

Suki and I took a hike to the water tank. Pete called to tell us he and Jane won't be visiting us at Christmas. Monti Reynolds came by at 6:45 p.m. to see Dave, who was not at home. Monti told us about his UNESCO activities and discussed Dave's problem in finding a research director.

Wednesday, December 12, 1973 - Lafayette - Washington - Reston

Helen drove me to San Francisco International Airport where I boarded United Airlines Flight No. 50, which left at 9:00 a.m. and arrived in Washington (Dulles Airport) at 4:30 p.m. As I was leaving the plane, I met Robert H. Engelken, the Director of the AEC Region V Compliance Office (on Center Street in Berkeley). They are negotiating with GSA to move the office to Orinda. I also met Carl Bennett, who used to be with Fred Albaugh at Battelle Northwest Laboratories at Hanford and is now with Battelle Laboratory in Seattle.

I rode in the courtesy car to the Reston Inn in Reston, Virginia where I checked into room 4458. I soon received a call from Ronald J. Field, Manager, New York Public Relations, Westinghouse Electric Corporation, and then went to his room (no. 4462) for an interview on the future of the Westinghouse Talent Search; Toby Seger took photographs. I strongly advocated the continuance of the STS, said it enables able science students to go to better universities, and indicated that the present format need not be changed because of the continual improvement of the interview process during the last ten years. I stated that I interview each of the 40 winners each year. Following the interview, Seger also took some pictures of me with an appropriate background in the Inn's lobby.

I had dinner in the Derby (the Inn's restaurant). After dinner, I called Pete and Jane. Pete told me he is giving the four tickets to Sunday's Redskins-Eagles football game to Stan and Renee Schneider and George Swanberg and his friend.

Thursday, December 13, 1973 - Reston, Virginia

I had breakfast in room E with the Board of Directors of DATRAN. Present were Sam Wyly, Glenn Penisten, Charles Wyly, Bob Strauss, Sol Linowitz, Harry Bowles, John Scorce, and Dean Thornton. Walter Haefner was also present, as were Warren Kwedar (President, Gulf Insurance), John Smith (President, Computer Leasing), Don Thompson (President, University Computing Company), Eldon Vaughan (General Counsel, Wyly Corporation), and Jack Grayson (Dean, Business Administration, Southern Methodist University; Board of Directors, Wyly Corporation). We approved minutes, bonuses, stock options, new pension plans, and reorganization making Dan Young Executive Vice President. I suggested Bob Hollingsworth for a management position at DATRAN and said I would call him to ascertain his interest.

We then all moved to room 5 for the 1974 Annual Planning Conference. Here we were joined by Canham. A large number of DATRAN personnel were present to participate in and hear the Planning Conference, as were Haefner, Kwedar, Smith, Thompson, Vaughan, and Grayson. The agenda (copy attached) was followed, beginning with the introduction by Penisten.

After the morning session, we had lunch in a room down the hall, after which the Planning Conference continued according to the agenda on schedule. At lunch, Linowitz told me he is meeting with Lochak tomorrow at 11:00 a.m.; I briefed him further on the U.S. and European uranium enrichment picture. Kissinger's talk in London yesterday to a gathering of U.S. Ambassadors suggesting cooperation between Europe, U.S., Canada, and Japan on energy problems seems to fit in very well with objectives Lochak is pursuing.

Near the end of the Planning Conference, Harry Bowles summarized the total planned expenditures of DATRAN through 1977 as \$150 million. A total of \$25 million is still to be raised through private investors, about an equal amount from bank credit, and the remainder needed to make the total will come from operating revenues.

Penisten, serving as the next to the last speaker, announced the promotions and exhorted all present to greater efforts to meet DATRAN's objectives. Sam Wyly followed this with similar remarks, looking to the future with optimism.

We then had a meeting of DATRAN Directors, together with Haefner and Eldon Vaughan. A group picture was taken by a photographer who had been taking pictures all day.

At the Board meeting following the Planning Conference, Bowles presented various financing prospects, such as a possible \$25 million from a consortium of banks headed by First National City Bank and a similar sum from a group headed by Triumph Investment Trust, Ltd., London, contingent upon the rate of Gulf Insurance to Triumph. We

AGENDA FOR  
1974 ANNUAL PLANNING CONFERENCE

9:00 - 9:30     INTRODUCTION TO 1974 ANNUAL PLANNING CONFERENCE

1973 COMPARISON TO PLAN

GLENN PENISTEN

1974 CORPORATE PRIORITIES

GLENN PENISTEN

OVERVIEW OF 1974 PLAN

GLENN PENISTEN

9:30 - 12:00   BECOMING A MARKETING ORIENTED COMPANY

MARKET PENETRATION

(RESPONSIBILITY: RALPH JOHNSON)

9:30 - 9:40     INTRODUCTION

RALPH JOHNSON

9:40 - 9:55     MEDIUM-SPEED MARKET

BOB BENNETT

9:55 - 10:10   HIGH-SPEED MARKET

NED FARINHOLT

10:10 - 10:20   COFFEE BREAK

10:20 - 10:35   SYSTEMS MANAGEMENT AND TITAN

LOREN BENSON

10:35 - 10:50   SALES AND COMPETITION

RAY COTTEN

SALES SUPPORT

(RESPONSIBILITY: JACK SCORCE)

10:50 - 11:00   INTRODUCTION

JACK SCORCE

11:00 - 11:15   REGULATORY AND COMPETITIVE ENVIRONMENT

KEVIN CASSIDY

11:15 - 11:30   RATES AND TARIFFS

HENRY DEL CASTILLO

11:30 - 11:45   MARKETING COMMUNICATIONS

JOHN GUTTENBERG

11:45 - 12:00   CUSTOMER SERVICE

TONY SHTOGREN

12:00 - 1:00    LUNCH

<b>1:00 - 2:15</b>	<b><u>COMPLETING AND OPERATING THE NETWORK</u></b>	<b>(RESPONSIBILITY: ED BERG)</b>
1:00 - 1:10	INTRODUCTION	ED BERG
1:10 - 1:30	CONSTRUCTION	AL WORLEY
1:30 - 1:50	TESTING	DAVE OWOLO
1:50 - 2:15	SYSTEMS PERFORMANCE & SWITCH PROGRAM	BOB PENN
2:15 - 2:30	COFFEE BREAK	
<b>2:30 - 3:40</b>	<b><u>COST AVOIDANCE AND PEOPLE EFFECTIVENESS PROGRAMS</u></b>	<b>(RESPONSIBILITY: DAN YOUNG)</b>
2:30 - 2:40	INTRODUCTION	DAN YOUNG
2:40 - 2:55	MANAGEMENT INFORMATION SYSTEMS	ROY SEWALL
2:55 - 3:10	PERSONNEL PROGRAM	DON RAFFENSPERGER
3:10 - 3:25	TRAINING	FRED FLEMMING
3:25 - 3:40	SUBSCRIBER EQUIPMENT	BILL NICHOLSON
<b>3:40 - 4:40</b>	<b><u>1974 CORPORATE PLAN</u></b>	<b>(RESPONSIBILITY: HARRY BOWLES)</b>
3:40 - 3:50	INTRODUCTION	HARRY BOWLES
3:50 - 4:05	TREASURY OPERATIONS	BOB SCHUMACHER
4:05 - 4:25	1974 RESOURCE REQUIREMENTS	JIM FROST
4:25 - 4:40	FINANCIAL MODEL	GEOFF MAGPATH
4:40 - 4:55	FINANCING	HARRY BOWLES
<b>4:55 -</b>	<b><u>CLOSING REMARKS</u></b>	<b>GLENN PENISTEN</b>

approved the operating plan for DATRAN for 1974 which had been presented at the Planning Conference today. We set the following dates for DATRAN Board meetings in 1974: February 14, April 25, June 13, September 12, November 14, and December 17.

After the meeting, I talked to Linowitz about the Nixon situation. He thinks Nixon will resign within a few months. He talked to Jerry Ford at the meeting of Nelson Rockefeller's Committee on Critical Choices for Americans and got the impression that Ford expects to be President soon; Ford told him, however, that he will not run for President in 1976. Strauss told me earlier that the New York Times is working on another bombshell concerning Nixon's finances. Sol found the meeting of Rockefeller's Committee to be very interesting; Kissinger was there and Moynihan flew all the way from India to be there. John Foster made a strong pitch for the United States to build up its nuclear weapons capability and I told Sol that this isn't representative of the views of U.S. scientists.

I attended a reception and dinner given by DATRAN in room 2. Present were all of those who attended the Planning Conference today (except Bob Strauss, John Smith and Don Thompson) and a number of their wives including Mrs. Linowitz, Mrs. Canham, and Mrs. Penisten. I sat at a table with the Penistens and the Kwedars. There was a three-piece band playing before and during dinner, and after dinner we were entertained by a comedian, Bob Lewis, and his woman assistant. He put on a wide-ranging comedy talking act with some magic tricks and banjo playing.

Stan Schneider came by my room at 10:00 p.m. to discuss a draft of my talk for the 1994 futurist program at the annual AAAS meeting in February. I suggested he and Renee attend the ARCS dinner with us on Friday, March 1.

Friday, December 14, 1973 - Washington - Lafayette

I had breakfast in the Derby. I then checked out and took a taxi to AAAS headquarters. I presided over a meeting of the Executive Committee of the AAAS Board of Directors. Present were Leonard Rieser, Roger Revelle, Emilio Daddario, William Golden, Philip Abelson, William Bevan, Richard Trumbull, and Catherine Borrás. We followed an agenda augmented by a supplementary agenda (copy attached). I reiterated the appointment of Rieser, Revelle, Bevan, Golden, Abelson, and Haskins to the Subcommittee of the Board to study the Association's long-range financial problems. We agreed to submit the names of Athelstan Spilhaus and Mina Rees as AAAS candidates for the Board of Trustees of Science Service.

We then discussed the revised budget for 1974 in which \$100,000 would be cut and allocated as a reserve fund for contingencies. Daddario left during this discussion. We approved the revised budget for 1974 with this change and approved a raise in dues of \$3 for 1974. (The projections suggest a further increase of \$4 for 1975 and another increase of \$5 for 1976.) Abelson left at this point.

We then had an executive session, with Rieser, Revelle, Golden, and me, to discuss Bevan's salary adjustment problems. (Revelle had

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE  
1515 Massachusetts Avenue, N.W.  
Washington, D. C., 20005

Agenda

Meeting of the Executive Committee  
Board Room, 1515  
December 14, 1973  
9:00 A.M.

- ✓ 1. Arden House II. Dr. Rieser and Dr. Bevan will present recommendations.
- ✓ 2. 1974 Budget. The Board requested the staff to submit to the Executive Committee (a) a revised budget for 1974 in which expenses would be cut by \$100,000 and \$100,000 would be allocated as a reserve fund for contingencies; (b) a calculation of all overhead costs allocable to Science magazine. The Board authorized the Executive Committee to increase dues by up to \$5, effective May 1, 1974.
- ✓ 3. Communication with the Soviet Academy. The Board requested Dr. Revelle to prepare for the Executive Committee's review the draft of a statement to the Soviet Academy concerning conditions for fostering international scientific cooperation.
- ✓ 4. Selection of New Committee Members. Positions are to be filled on the following committees. The Executive Officer will present recommendations.
  - Public Understanding of Science: four positions
  - Investment and Finance: two positions
  - Publications: one position
  - Science in the Promotion of Human Welfare: one position
- ✓ 5. AAAS Representative to the Scientific Manpower Commission. Wallace Brode, whose term as one of the Association's three representatives on the Scientific Manpower Commission will end on December 31, does not wish to be reappointed. The Executive Officer will present recommendations. *Ch...*  
*...*  
*(...)*  
*...*
6. Proposed Board Resolution on Equal Opportunity. Tab A presents a request from the Committee on Opportunities in Science that the Board adopt an explicit policy statement on equal opportunities, a draft of which is included.
- ✓ 7. Proposed "Guidelines to Professional Employment for Engineers and Scientists." A letter addressed to Dr. Rieser from the Intersociety

Committee for Professional Employment Guidelines, requesting that AAAS endorse their "Guidelines to Professional Employment for Engineers and Scientists," is enclosed as Tab B. The proposed Guidelines were mailed with the agenda for the recent Board meeting. Extra copies are not available.

The Executive Officer recommends that the Committee first decide, in the light of the Association's objectives--in particular, its objective "to further the work of scientists" and "to facilitate cooperation among them"--whether or not it is appropriate for AAAS to concern itself with policies having to do with the relationship between the individual scientist and his employer or potential employer during recruitment, the period of employment, and separation. (It is apparent that a number of the AAAS affiliates are now concerning themselves with these explicitly professional matters. Whether or not the concern of AAAS and, e.g., ACS or IEEE in such matters should be the same warrants the Committee's serious consideration.) Should the Committee view endorsement of a set or sets of such guidelines to be appropriate, then it should decide whether or not the present set warrants its endorsement.

Betty Vetter, Director of the Scientific Manpower Commission, has reviewed the Guidelines and reports that they are not as specific or as tight as, in her opinion, they should be but that they are a good step in the right direction. She thinks it important to have some set of guidelines in effect; the present ones, while not perfect, are reasonable both from the employer's and the employee's standpoint. She adds that adoption in the present form would not preclude adoption of stronger guidelines at some future time.

- ✓ 8. National Conference on the Urban Environment. Enclosed as Tab C is an invitation from the Izaak Walton League to participate in the National Conference on the Urban Environment to be held in November 1974. The Executive Officer recommends that the invitation be declined.
- ✓ 9. "Toward an Understanding of the Middle East Conflict." Benjamin B. Wolman, President of the International Organization for the Study of Group Tensions, wrote to the Executive Officer on October 24, inviting AAAS to cosponsor a conference entitled "Toward an Understanding of the Middle East Conflict." His letter follows:

Sometime ago, the International Organization for the Study of Group Tensions offered its services in mediating the Middle East conflict. We plan to send a team of politically uninvolved intellectuals for meetings with the feuding powers. We have corresponded with Drs. E. Amaldi, President of the Italian Academy of Science, E. Bouthoul, Director of the French Institute of Polemology, S. Dasgupta, Director of the Gandhian Institute in India, K. Lorenz, Germany, G. Myrdal, Sweden, J. P. Sartre, France, E. Schmid, President of the Austrian Academy of Science, and others, asking them to form a peace mission to the Middle East.

We have received a green light from the United Nations and we have turned for moral support to the governments of France, Germany, India, Italy, Japan, Norway, Sweden, Switzerland, United Kingdom, United States, Union of Soviet Socialist Republics. We have also established a friendly rapport with the Pugwash Group asking them to join us in the mission to the Middle East.

While we are awaiting replies from the governments of Israel, Syria and the United Arab Republic, we are planning to call a conference in the U.S. of Arab and Israeli intellectuals. The theme of the conference will be "Toward an Understanding of the Middle East Conflict." The committee on the Middle East mediation is comprised of Drs. A. Brown, C. E. Kew, H. Proshansky (President, C.U.N.Y.), F. Seitz (President, Rockefeller University) and myself. We are forming a committee on the above-named conference with the participation of (tentatively) H. Kelman, J. Spiegel (President, American Psychiatric Association), P. Wehr, myself and others.

We shall greatly appreciate if the American Association for the Advancement of Science would co-sponsor the conference and help us morally and financially in organizing it.

10. New Business.

William Bevan

December 7, 1973

## AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

Meeting of the Executive Committee  
December 14, 1973

Supplementary Agenda

- ✓ 1. Request from Science Service that Athelstan Spilhaus be reappointed to another term on their Board. (Note: At its March 1972 meeting, the Board established the practice of submitting to Science Service at least two nominations for each position to be filled.)
- ✓ 2. Invitation (attached) to become a member of the National Foundation for the Study of Health Science Liability (\$200 annual dues). The Executive Officer recommends that the invitation be declined.
- ✓ 3. Request (attached) to file amicus curiae brief on behalf of Albert J. Wahba (case of Wahba vs. NYU and Ochoa).
- ✓ 4. Consideration of a resolution passed by the Council in June:

*Proposed motion*  
Whereas there are reports emanating from several countries that scientists whose opinions and activities challenge governmental policies and practices are diagnosed as mentally ill and incarcerated in mental hospitals,

Therefore Be It Resolved that the Council of the American Association for the Advancement of Science request the Board to consider the establishment of a committee to investigate these reports and to report to the Council on their status.

- ✓ 5. Appointment of a subcommittee of the Board to study the Association's long-range financial problems.
- ✓ 6. Discussion of the effect of curtailed airline service on the holding of committee meetings.

Other enclosures: Letter from Lewis Branscomb concerning "Guidelines to Professional Employment for Engineers and Scientists (Agenda Item 7)

Revised budget pages (Agenda Item 2)

Friday, December 14, 1973 (con't)

to leave for the day during the discussion.) We decided to increase Bevan's salary to \$60,000 (from his present \$52,000), retroactive to July 1, 1973, and to continue his salary to the end of 1974.

We had a sandwich lunch in the Board Room. After lunch (before Daddario returned), we agreed that the Committee for liaison with the British Association for the Advancement of Science should consist of Rieser, chairman, Bevan, Holton, and Revelle and the Committee for liaison with the Office of Management and Budget (OMB) on the role of AAAS in national science policy should consist of Abelson, chairman, Bevan and Golden. We also decided that Bevan will try to get some action from Bolt's Committee to consider the role of engineers in AAAS. I exhorted Bevan to implement the action taken by the Board at the last meeting to start to implement international science activities and to find outside financial support for this; he said he now has Irene Tinker as coordinator for the AAAS-AID program who will devote some time to this new activity and has talked to Henry Arnold, new head of the Office of Science and Technology of AID, about the new AAAS international program and possible support from AID.

We declined the numerous invitations to participate in various conferences, committees, etc. We appointed Chuck Kidd as AAAS representative to the Scientific Manpower Commission. Daddario joined us at this point. We adopted the resolution on Equal Opportunity suggested by Janet Brown.

We discussed the selection of new Committee members. We appointed Harold Linder and Malcolm Smith to the Committee on Investment and Finance, Ted Waller to the Committee on Publications, and Betty Scott to the Committee on Science in the Promotion of Human Activities.

We next discussed the status of Arden House II. (At this point I gave Emilio Daddario a copy of Bob Leachman's letter to me, with attachments, of December 3, 1973. He said he will read this material, then call me about it.) As we continued the discussion of Arden House II, we more or less came to the conclusion that AAAS could accomplish the same objectives (i.e., plan the future of AAAS and discuss the general aspects of science and society) by holding more meetings of the Board Executive Committee so that a greater fraction of the time at full Board meetings could be devoted to broad discussions related to these objectives. Daddario left at about this time (3:00 p.m.).

We concluded the meeting of the Executive Committee; then Rieser, Golden and I met with Bevan to discuss our plans for his salary adjustment. I will send him (before the end of the month) a formal letter describing this after he has had the opportunity to consider it further and to discuss it with me by phone. With respect to Bevan's replacement, Rieser will make an announcement in Science concerning procedures of appointment.

I took a taxi to Dulles Airport. I called Linowitz at his office to learn about his talk with Lochak. Lochak was present with Linowitz, having just arrived on a late plane flight from Paris. I learned that, despite the recommendation from AEC that the December

31, 1973 deadline be extended for 90 days, the State Department decided not to do so on the basis that such an action might offend France. I suggested that Linowitz call Herman Pollack in the State Department, using my name if necessary, to try to find the background for this action with the hope of effecting its reversal.

I boarded United Airlines Flight No. 57, which left at 6:20 p.m. and arrived in San Francisco at 9:45 p.m. The pilot told us that every seat was taken, the first time in his years of flying this plane that this has occurred.

Helen met me and drove me home. Eric was home, having come from Davis today. Dianne was babysitting at the Shermans. Eric drove to Oakland Airport to meet Lynne, coming from Lafayette, Indiana, via Chicago, arriving about midnight.

Today's Berkeley Gazette carried an article (copy attached) about my election to the East German Academy of Sciences. The reporter had called the office for information about this during my absence; Sheila was a little embarrassed to discover that her conversation with the reporter was written up as an interview, although the article did present good background and also advertised the 1974 AAAS Annual Meeting in San Francisco.

Saturday, December 15, 1973 - Lafayette

I attended a meeting (10:00-11:45 a.m.) of "Lafayette Forward" at the Refectory restaurant where the topic of discussion was endorsement of candidates for the Lafayette City Council. John Kennedy presided until the election of George Wasson as Chairman. Among those present were: Jack Marchant, Jim Brown, Tom Henry, Dick Singer, Jack Schneider, Dolores Green, Arlene Black, Hubbard Anderson, Bob Kahn, Jop van Overeen, Lee Ann Lane, Betsy Page, Joan Merryman, Barbara Langlois, Alice Johnson, Natalie Davis, Gail Bicker, Claire Masters, Mary Kelley, Dick Kelley, Bob Wood, Charles Shepard, Norman Tuttle, Bob Augenthaler, Bill Chilcote, Lee Pfautch, and E. Hussig.

Wasson told us the names of some who intend to file as candidates for the Lafayette City Council: Andrew Newman, Ned Robinson, Barbara Langlois, Robert Pedder, Marston Watson, Thomas Henry, C. L. Odegard, Maurice Moyal, and Tom Whitten.

The deadline for filing is noon, December 27. The group will meet again at the Refectory at 10:00 a.m. next Saturday (December 22) to assure themselves that at least some satisfactory candidates have filed and, if necessary, to try to convince additional (satisfactory) candidates to file. The group will then endorse one or two to be chosen either next Saturday or early next year. It was then decided to hear presentations by the two candidates who were present.

Tom Henry stated he is a former Jaycee where he worked with Bob Kramer, thinks Lafayette has too much city staff, is against the state highway through Moraga, regards the merger of Lafayette-Orinda-Moraga as a major issue, thinks Open Space is important and is for it, thinks Lafayette SOS should have gone to PG & E to assess development costs on the ridges after which they might plan to buy only lower ridge

BERKELEY GAZETTE  
December 14, 1973

## East German scientists elect UC's Dr. Seaborg

Dr. Glenn T. Seaborg, Nobel laureate and associate director of the Lawrence Berkeley Laboratory, has accepted membership in the National Academy of Sciences of East Germany.

Seaborg, who has worked "vigorously" to achieve better scientific cooperation among nations, is also one of the few living American members of the Soviet Academy of Science, according to Sheila Saxby, his administrative assistant.

**SAXBY NOTED** that Seaborg was invited some time ago to join the East German group but felt it "inappropriate" then because he was serving as chairman of the United States Atomic Energy Commission.

She also pointed out that the Lawrence Berkeley Laboratory, unlike its counterpart in Livermore, does not do any classified scientific work for the U.S. government.

**SEABORG.** A professor of chemistry at the University

of California, is also chairman of the board of directors of the American Association for the Advancement of Science. Saxby said is the largest organization of its kind in the United States.

The group association will meet Feb. 24 to March 1 next year in San Francisco, and Seaborg hopes to get delegations from many foreign countries to attend, including Red China, which he visited last spring.

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lands to stop development, and thinks Lafayette General Plan is good; he is a stockbroker working for E. F. Hutton, a 1965 Berkeley graduate, and has lived in Lafayette (Burton Valley) since 1966.

Barbara Langlois stated she favors maintaining the rural character of Lafayette, work on traffic safety problems, development of downtown area, a new Open Space bond election, recreation facilities, attention to drainage in the city, is against the Moraga freeway, against the Lamorinda merger at this time, and thinks Lafayette City staff is not too large; she has served on the Lafayette Planning Commission, is a Berkeley graduate, taught high school for five years, has a husband who is a research chemist, and has lived in Lafayette (Happy Valley) six years and in El Cerrito 20 years before that; her grandfather settled in Alamo a hundred years ago.

Helen, Dave, Eric, and Dianne went to the San Francisco 49ers-Pittsburgh Steelers football game in Candlestick Park; the Steelers won, 37-14. They stopped by Dave's room in International House to pack him up for the move home over the holidays; he is moving to a single room next quarter.

Lynne, Suki and I took a hike on the Rim Trail around Lafayette Reservoir. We then had lunch and watched the UCLA-North Carolina State basketball game on TV from St. Louis; UCLA won, 84-66. Lynne left at half-time to drive to Davis to pick up Steve.

At dinner tonight, we had almost our entire family--Helen, Dave, Steve, Eric, Lynne, Dianne, and I. We ate, as we used to, at the table in the kitchen.

#### Sunday, December 16, 1973 - Lafayette

Suki and I took a hike on the Rim Trail around Lafayette Reservoir. We watched on TV the Oakland Raiders-Denver Broncos football game; Oakland won, 21-17, and has won the Western Division championship of the American Football Conference. Washington beat Philadelphia to win a wild card spot--play-off against Minnesota next Saturday.

Lynne drove in to pick up her friend Claire Alvarez. Then Lynne, Claire, Dave, Steve, Eric, and Dianne drove to a Christmas tree lot near Acalanes High School and bought a tree.

I attended a meeting of Lafayette SOS at the Chilcotes from 4:00-5:30 p.m. Present were Bill and Ann Chilcote, Mayor and Mrs. Wally Costa, George Ponomareff, and Alice Johnson. One purpose of the meeting was to pick candidates for the Lafayette City Council that we will support (as individuals, not as Lafayette SOS) and will try to convince Lafayette Forward to support. We agreed on Barbara Langlois and, as a second candidate, agreed on Richard Singer (of Burton Valley) if Jim Davy decides not to run for re-election. Ted Westfall (of Burton Valley) is another possibility.

We also agreed to push the idea of acquiring options on open space land with Lafayette City funds, but decided to delay proceeding until the new Council is elected in March. In view of the fact that

the new regulations limit the elections Lafayette can hold to three in 1974 and five total in 1974 and 1975, the best time for the Open Space Bond election appears to be March 1975 (at the time of the School Board election). The three elections in 1974 are the March City Council election, the June State-wide park land bond issue, and the November Congressional elections--all unsuitable for an Open Space bond election.

Claire Alvarez had dinner with Helen, Lynne, Dave, Steve, Eric, Dianne, and me. After dinner, the kids started to decorate the Christmas tree which was set up in the middle of the living room this year for the first time.

Monday, December 17, 1973 - San Francisco - Berkeley

Leaving LBL at 8:45 a.m., I rode with Jack Hollander (who drove), Andrew Sessler, Edwin McMillan, and Owen Chamberlain in an LBL car to the Jack Tar Hotel in San Francisco to attend a meeting with Senator Alan Cranston, arranged by Felix Bloch of Stanford. The meeting started at 9:30 a.m. and took place in the Twin Peaks Room. Present at the meeting in addition to our group, Senator Cranston and Professor Bloch, were Steve Sheffler (of Cranston's San Francisco office), Paul Flory, Arthur Kornberg, Robert North (Political Science Department, Stanford), Ted Baer (Los Altos businessman), David Hamburg (Stanford psychiatrist), and Elliott Leventhal (geneticist from Stanford). Also present were Mr. and Mrs. Fowle (she is Senator Cranston's sister); he reminded me that he had met with me some 15 years ago in my Chancellor's Office together with Ernest Bessig and Bill Roth on some civil rights matter.

Bloch opened the meeting with a statement saying that the purpose was to discuss with Senator Cranston the Middle East problem with emphasis on Israel and the related energy crisis. He then called first on Kornberg and then on Flory, who made statements expressing concern over Israel's present and future plight and emphasizing the scientific contributions that Israel can make to the western world. McMillan broke in to say that he thought that the United States should commit itself to defend Israel and that the energy problem is a long-range one independent of the present Arab attitude. Bloch then read his prepared statement, which was approximately along the lines of the attached. At the end of Bloch's statement, Cranston indicated that he basically agreed. Cranston then went on to say that he believes the energy shortage is real, as reinforced by the similar shortages in other parts of the world, and thus cannot be blamed on a plot of the oil companies; there are many sources of blame. He said that Israel will be blamed if she does not negotiate in good faith, which could lead to the exhaustion of patience of the American people and the risk of atomic war. However, he feels that this will not happen, that Israel will negotiate. He emphasized the need for a great effort to convince our people of the need for a negotiated settlement.

Sessler then made a summary statement (copy attached) on the energy crisis. He said that the Arab boycott only precipitated the crisis and is not the basic cause. He said that the near-term crisis could be alleviated by removal of the boycott and a cut in energy use

[HEADNOTE: This is a statement by a group of scholars in the San Francisco Bay area. During recent weeks, from the time of the cruel and senseless war in the Middle East, many of us have periodically gathered together to formulate, as critically as possible, a set of principles that might be kept in mind by those responsible for taking American initiatives toward the pursuit of peace.]

Events both political and military have moved so quickly that it would ~~commonly~~ be a mistake to dwell upon particulars.

Instead, basic principles are needed, and on that plane, durable truths.

We neither seek nor claim originality of formulation. Much of what we say is congruent with the aims and policies expressed by principals in the Middle East conflict and by informed authorities on the subject. We intend here only to crystallize our own thinking about the basic approaches that offer the best long-term solution to the agonizing dilemmas posed in that deeply troubled region.

Our number includes scholars in many disciplines, working at several institutions. ~~It~~ However, we speak neither as ~~px~~ specialists in Middle East affairs nor as representatives of our institutions but only in our private capacity as concerned Americans.

The over-riding interest of Americans/<sup>among others</sup> in the outcome of the current ~~xx~~ Middle East crisis ~~ixxfnx~~ resides in a stable peace. Every worsening of conflict there exposes the entire world to the ultimate risk. For the protection of all as well as ourselves, we must help deter military gambles and other forms of international coercion. When a driver leaves his keys in his unattended car, we rightly blame him for tempting the thief; when major powers signal their acquiescence to wouldbe coercion, they only produce more ~~nf~~ and more of that coercion.

It is essential, therefore, that public attitudes and official policies ~~must~~ not be clouded by the pain we may have to endure from the exercise of the "oil weapon", a means by which oil-wealthy Arab countries can deepen and exploit an already critical ~~depletion~~ <sup>deficit</sup> of available energy. The use of Arabian oil by the industrial economy of western Europe and of Japan has placed friendly allies in what is an apparently deeper predicament. But it should be recognized, by them as by ourselves, that had the Arabs waited another year or two without the world having made plans to counter such action, their <sup>still</sup> ~~power~~ <sup>opportunity for</sup> of coercion would have been even more potent. ~~Still~~, the oil-rich nations must be aware that the surest outcome of global quarrels over their oil would be the eventual loss of their own independence. The awareness that the total withdrawal of American influence in the area would merely result in a Soviet takeover presents a limit to the continued use of the oil-weapon gambit. Just as American, West-European and Japanese societies cannot afford that appeasement which only invites more coercion, so Arab countries cannot afford endless aggravation of the harassments.

The current use of oil-as-weapon should be seen in perspective: as a short-run attempt at <sup>extortion.</sup> ~~intensive immediate coercion~~. It cannot be allowed to weaken our resolve or our national and international interest by tempting us to abandon principled policies in our relations with other countries. History attests to the result of ~~any~~ such efforts to appease. One interest after another, one moral obligation after another, would be sacrificed in the wake of crises that could be engineered at will. Both collective self-interest and self-respect call for an unmistakable repudiation of such <sup>arbitrary, unilateral</sup> coercive tactics.

Taking into account both this immediate situation and the troubled history of the Middle East in the last quarter-century, we believe that the following principles provide a framework for an attainable and equitable peace agreement.

- rd.
- [1] We should welcome ongoing negotiations but also recognize that the road towards peace in the Middle East is long and tortuous. It is therefore essential that the essential outcome of peace not be endangered by <sup>insensitive</sup> impatient and ~~insensitive~~ responses to the course of events on the part of the United States, Europe and the Soviet Union.
- [2] The Arab countries and Israel all have a right to exist side by side as sovereign states in peace and security .
- [3] The Arab population of Palestine should have the right to determine their political destiny in ways that do not jeopardize Israel's security.
- [4] The permanent borders should be such as to allow Israel to defend itself against future invasions without subjecting its civilian population to great and unacceptable risks. The withdrawal of Israel to these definitive borders should take place in a series of steps allowing mutual confidence between the nations to evolve. Each step should be accompanied by reciprocal and meaningful gestures between the former adversaries that will help advance normal and friendly relationships between them.
- [5] Such regional relationships oriented to the peaceful solution of differences can provide the framework for working out mutually advantageous solutions to the difficult problems of refugee resettlement and economic development.
- [6] Demilitarized buffer zones must be established in the territories relinquished by Israel. Unilateral violation of this constraint would constitute an aggressive act, contrary to the purposes of the peace treaty.

[7] The negotiation and implementation of the peace treaty must be conscientiously supported by the Great Powers as essential for maintenance of the peace. This is consonant with our belief that great powers can neither impose a settlement nor alone guarantee its integrity. Only the sovereign nations in the Middle East can take ultimate responsibility for their own destiny.

[8] The interest of the United States in world peace is best served by encouraging an atmosphere of confidence and mutual respect among the nations of the Middle East. Toward that end, it is in the American interest to sustain Israel in her capability to defend herself against irresponsible attack and to support the clear need for secure and defensible borders.

We conclude ~~as we began~~ with a reminder of current political and social realities: <sup>[1]</sup> ~~The negotiations and the reconstruction of peace on the basis of the agreements then concluded may take longer than any of us would prefer.~~ The evolution of peaceful attitudes and policies depends on learning through experience how to exercise a peaceful way of life and on the development of national and international patterns of collective self-interest that make the resort to force ever less rewarding.

REMARKS ON THE ENERGY SITUATION: by Andrew M. Sessler, Director,  
Lawrence Berkeley Laboratory - Prepared for Senator Alan M. Cranston  
December 17, 1973.

We should separately consider the near-term crisis and the long-term problem.

#### A. NEAR-TERM CRISIS

1. Mideast Oil. The Arab oil boycott has precipitated the current energy crisis, but clearly this crisis was already coming. Already, before the Mideast outbreak, there were limits on the sale of petroleum by all countries except Saudi Arabia, and the price per barrel had gone from \$2.00 to \$6.00 in only three years. The economics of the situation were clear: the oil was worth more left in the ground than were the dollars in the bank (these dollars were going into the bank because they oil-producing countries were receiving more than they could reasonably spend).

Perhaps the War had at least one beneficial result: it awakened the American citizen to our increasing reliance on foreign imports of oil and oil products, a reliance that would grow to over 50% of our use by the year 1985 if the rate of growth in that use were not truncated.

2. Response to Problem. What should we do about the near-term situation? In the short-term we must either remove the boycott, or we must cut usage - or do both. Either would suffice to solve the problem in the United States (not true for other nations such as in Europe). Although both of these avenues are highly political, there are some scientific elements in the second which I would like to address.

3. Gasoline. Out of the 17 million barrels per day, three million barrels per day of which come from the Middle East, the automobile uses 7 million barrels per day. I believe that rationing, or, alternatively, a large tax with say the first ten gallons per week free of tax, seems fairer than a system that allows prices to rise. In fact, the fairest system is probably one in which individuals are allowed to deduct the cost of the tax, just as they now itemize deductions on their income tax forms in Form 1040. A system of tax deductions could be administered by the Internal Revenue Service, whether or not the taxation program, in fact, is a part of the income tax procedure. It is interesting to note that gasoline taxes now yield ten billion dollars per year, almost all of which is used for highway construction, and that a tax of only 1¢ per gallon on oil products would yield 2.6 billion dollars per year additional revenue. This additional revenue could be used for energy conservation measures and for research and development. It should be stressed that without

some additional system of taxation or rationing, we could not hope to save two million barrels per day by appealing only to people's sense of economy because such a savings would correspond only to 30¢ per car per day.

4. Parking Regulations. Regulations, such as those proposed by EPA, would have a substantial effect. Even a fee of \$50.00 per year per car (less per person for cars occupied by three or more people) would raise 5 billion dollars per year and, more importantly, would reduce the use of cars. The funds raised from such parking fees could go to rapid transit development. Note that one would raise in one year more than twice the cost of running all the rapid transit systems in the United States, which is two billion dollars per year.

5. Encouragement of Use of Rapid Transit Systems. This can be done, first of all, by providing subsidies for these systems raised from gasoline and parking taxes as stated already. Secondly, the convenience of rapid transit and bus systems should be far improved by developing improved schedules, better coordination of different transit systems, scheduling busses to vacation resorts, ski resorts, seashore, and so on, by providing bicycle racks on busses and trains, by constructing guarded places for bike-parking at transit stations, etc.

6. Conservation of Heating Fuel. Home and office space heating is an area where major impact could be made on our energy shortage. It is also an area where strong incentives are probably required in order to effect such savings. Here are some relevant facts (collected by Dr. Arthur Rosenfeld):

a. Our energy resources, such as gasoline, oil and natural gas, are quite interchangeable so, in large measure, conserving one is as good as conserving another. In terms of total energy consumed, gasoline is only one-fifth of the total of gasoline, oil, and natural gas consumed in this country. Therefore, in trying to conserve our resources, we should work on the four-fifths of our consumption as well as on the one-fifth. And examination of the use of domestic natural gas is important, because we use 9.4 million barrels per day equivalent of gas in comparison with 7 million barrels per day of gasoline used in our automobiles.

b. Perhaps it is easier to save natural gas and fuel oil than it is to save gasoline.

c. At the Lawrence Berkeley Laboratory, we are saving 1/2 to 2/3's of our fuel bill in particular buildings by shutting down the heat systems at night and on weekends, and by lowering the room thermostats. We are achieving an equivalent savings of 20 gallons of gasoline per person per week, which is more than enough to supply them with the suggested ration of ten gallons per person per week of gasoline, or the Mid-East import short-fall of 5 gallons per week per person.

d. Another area where a significant savings can be made is in the use of pilot lights which continuously burn gas. It is estimated that such pilot lights waste 1/6th of a million barrels of gasoline equivalent per day.

e. The cost of different energy sources are badly out of line with each other; the same amount of energy is five times cheaper from natural gas than it is from automobile gasoline. If we would tax the use of natural gas at the same rate as the 1¢ per gallon of petroleum tax suggested above, we would raise another 2.4 billion dollars per year. But I doubt that this savings in gas can be achieved by appealing to consumer economic sensitivity alone. Note that a savings of two million barrels per day in natural gas corresponds only to 6¢ per person per day. Therefore, it is necessary to significantly raise the price of natural gas with taxes and other means or, alternatively, to stimulate conservation of natural gas by such means as subsidizing the installing of switches on thermostats, installation of insulation in homes, etc. The installation of better home insulation is a very important route to savings in fuel. In one example, the investment of \$150 in home insulation released about two gallons of gasoline per week. On a national scale, extensive installation of home insulation could save as much as two million barrels of gasoline equivalent per day. However, this kind of program cannot be accomplished from the savings in fuel costs alone: in the example with \$150 of installation, the savings is only \$10 per year. Therefore, other incentives are needed in order to promote this kind of program.

Windows are also great fuel-wasters. Each window wastes the equivalent of ten gallons of gasoline per winter; roughly half of this wastage could be saved merely by placing sheets of plastic over the windows; if we assume there are two windows per person in this country, we could save 1/7th of a million barrels of oil per day. The cost of such insulation is only about 50¢ per window, which is a bargain because this investment would be equivalent to buying five gallons of gasoline for 50¢.

7. Conservation of Electricity. Another important item of waste is electricity for lighting. If we assume that an ordinary office consumes electricity from light-bulbs at the rate of about half a kilowatt, then leaving such lights on overnight, as is a common practice in many office buildings, would consume of the order of seven kilowatt hours of electric energy. This is, surprisingly enough, approximately equivalent to half a gallon of gasoline. (One KW hour equals .075 gallons): Each office worker who puts the lights off at night saves 2 gallons of gasoline per week!

## B. LONG-TERM PROBLEM

1. No Panaceas. There is no possibility of instant technological solution. There is no chance that suddenly, tomorrow, some scientist will discover a way out of the problem; rather it will take time and manpower. Firstly, we don't have sufficient manpower, and we must be training more scientists and engineers. Secondly, time is required because of the years required to implement technology.

2. Industrial Incentives. We must stimulate industry with incentives, such as interest-free loans for installation of solar heaters and insulation in buildings, and tax write-offs for developing new processes for energy production.

3. Early Demonstration Projects. We should put into effect the seven projects which Dixy Lee Ray has proposed for giving early demonstration of new technologies. These are:

a. Advanced reclamation of stripped land. This is aimed towards developing an environmentally acceptable way of extracting coal by strip-mining.

b. Production of liquid fuel from oil shale.

c. Production and use of methanol for transportation.

d. Construction of a nuclear power center; that is, a nuclear park.

e. A demonstration of advanced mining techniques, reclamation and conversion of high-sulphur western coal to synthetic crude oil, low-sulphur solid fuel and high BTU gas.

f. Direct combustion of domestic coal with less environmental impact.

g. Solar heating of federal buildings.

Let me comment on solar heating of buildings, since studies for this were done at the Lawrence Berkeley Laboratory (by Dr. Mel Simmons and Dr. Robert Budnitz). They show that it would cost 2.7 billion dollars to outfit 75% of existing federal office space, and as a result of this, we would save 20 million barrels of oil per year, at an equivalent cost of approximately \$20 per barrel. It would take five years to get the glass industry tooled-up to the point where it could devote 10% of its production to glass plates for solar heating. Thus, in 1978, 20% of new building construction could be equipped with solar heaters. This demonstration of solar heating for federal buildings would, presumably, stimulate private industry and private builders to follow the federal example - especially if the cost of petroleum increases as expected.

Let me also comment on the production and use of methanol for transportation, as some of this work was also done at this Laboratory (by Dr. A. Bassham and Dr. C. Wilke). Each year in this country, more than 120 million tons of cellulose waste are produced in a form which is readily available; i.e., as newspapers or from food processing. If 12 billion dollars was invested in plants, then this cellulose could be converted into gasoline and would produce gasoline at a cost of 50¢ per gallon. This should be compared to the present cost of gasoline, which is 15¢ per gallon at the refinery. The 120 million tons of cellulose would produce 1 million barrels of oil a day. Clearly, one could readily gather cellulose from other sources, and one could even contemplate producing cellulose for this purpose. Notice also, that, alternatively, cellulose could be used as a basis for the petro-chemical industry, thus also freeing petroleum.

4. Organization for Research and Development. I would urge support of the bill to establish ERDA, The Energy Research and Development Administration, and NEC, the Nuclear Energy Commission; these bills are S-2744, and HR-11510. The bill would allow the expertise of AEC Laboratories to be turned onto the problems of energy. To my mind, it is only the AEC Laboratories which have the manpower, the capability, and the experience with managing large-scale research projects, that would allow them to make an impact on the energy problem on the time-scale that is required. Also, in my opinion, it is only the AEC Laboratories which are broad enough to supply the breadth of expertise that is required for research on energy problems.

5. Geothermal and Solar Energy. Special to California, are geothermal and solar energy. In solar energy, I think we need more money spent than the 30 million dollars in the bill which Senator Cranston has already proposed, and I also believe that it is very important that the AEC Laboratories be involved. For example, the ideas (mentioned above) of converting cellulose to petro-chemicals and gasoline, is being pushed in our Laboratory, where it is a natural outgrowth of previous Nobel Prize-calibre work on photosynthesis by talent not available in other laboratories. Also, novel concepts of direct conversion of solar energy have come out of our division devoted to Research on Inorganic Materials.

Geothermal energy research is already under way, with the University of California very much involved; in fact, of the 4.5 million dollars recently released from impoundment by the OMB, 4.1 million dollars has gone to the University of California; that is, to Los Alamos, Livermore, and the Lawrence Berkeley Laboratories. It is projected that 20,000 megawatts in the year 1985 could be produced by geothermal energy. Present California usage is 35,000 megawatts, and that will probably double by the year 1985; so, 1/3 of California usage in 1985 could be obtained from geothermal energy, provided we get moving in this important area.

6. Funding. The 11 billion dollars to be spent over five years, as in the Administration bill, is minimal; a value more commensurate with the problem we face, is 20 billion dollars in the same period.

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and could perhaps even be eliminated by cutting use. He gave a number of statistics showing how a tax on gasoline, charging for parking, and cutting back on the use of heat in homes and offices (using LBL as an example of what has been accomplished) can be a means of cutting use, but he emphasized that a gasoline rationing system will be required. He indicated that the federal government should subsidize conservation measures such as putting time-clocks on home thermostats, the insulation of homes, and so forth. For the long-term crisis he pointed out the need to stimulate industry through the use of interest-free loans for solar heaters, the adoption of solar heating for federal buildings, the production of methanol from waste cellulose, and so forth. He said that it is important to pass the ERDA bill. He indicated that geothermal energy can play a big role in California even before 1985.

I then made a statement indicating that, important as conservation is, a vigorous R&D program is also needed. I emphasized the importance of ERDA and the indispensable value of putting the AEC national laboratories to work on all the problems of energy production, such as fossil fuel improvement, geothermal energy, solar energy, as well as nuclear power. I also emphasized the importance of developing substitute sources of gas and gasoline and indicated that the United States needs greatly expanded research and production programs for the gasification and liquefaction of coal and for the production of gasoline from oil shale. I said that we need much more than the presently indicated \$11 billion over the next five-year period, that we need to add on the order of tens of billions of dollars to that.

Cranston indicated that funding would be a problem and suggested that a good part of the money could come from cutting back military programs. He indicated that Congress can't leave this problem to the executive branch. He emphasized the need for continuing the detente between the U.S. and the U.S.S.R. because world peace is an important element, and he emphasized the concept of a Middle East Marshall Plan. He asked us as a group to help formulate such a plan by assessing its feasibility from an economical, technological, political and sociological point of view. He said our assessment should include looking at it alternatively with or without the cooperation of the USSR. We should look at it from the standpoint of expanding such a plan to include world-wide aspects. He came back to the request to us several times, and there was some indication from the group that we would take up this challenge.

Going back to Bloch's memorandum, of which he had a copy before him, Cranston indicated that he believes no one in Congress wants Israel to go back to its pre-1967 borders. Perhaps there could be some complaints, such as leaving the Sinai Peninsula largely unoccupied.

Kornberg asked Cranston if anyone else is thinking about a Mideast Marshall Plan, and Cranston said that he thought not but that it should be possible to get others to work on it. He indicated that such U.S. financial aid to the Middle East cannot come from the AID program because this is in bad shape. He said that the whole concept

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of international cooperation in technology is important and a very complicated issue and several of the group agreed with him.

Going back to Sessler's remarks, Cranston indicated that he is against a prohibitive tax on gasoline because this is inequitable for the poor. He indicated that he might agree to a small tax but in any case rationing of gasoline is imperative. He went on to say that Nixon's ability to handle the energy crisis has been greatly impaired by the Watergate matter.

Chamberlain emphasized the importance of solar energy, and, when the question of land areas was raised, he said that large land areas are inevitable due to the low intensity of solar energy. Hollander indicated, however, that only about 0.5% of the total U.S. land area would be required to generate the present total U.S. electric generating capacity--that is, 400 million kilowatts. In answer to a question of whether solar power utilizing satellites presented a feasible alternative, Chamberlain indicated that this solution lies about 120 years in the future.

The meeting ended at a little before 11:00 a.m. We drove back to LBL together as we had come, arriving at 11:45 a.m.

I talked with Andy Sessler about items being requested in the mid-year review. He told me that money for LASSY to the extent of \$50,000 operating and \$25,000 equipment was being requested as the highest Nuclear Chemistry priority item but no money is being requested for the third injector for the SuperHILAC. I mentioned Rogosa's offer to furnish money for an actinide chemist but indicated that perhaps we shouldn't complicate the picture now by adding this to the mid-year review request. We looked over the draft material being prepared by George Pappas's assistant for submission to the AEC for the mid-year review.

I had lunch at the lower level of the cafeteria with Kratz, Norris, Edelstein, Gradl, Ritter, Bucher, Stephens, Diamond, Poskanzer, Nitschke, and others. I learned that during my absence Kratz, Norris and Binder had a bombardment on Friday morning of gold with krypton ions (low intensity) to measure the range of products in aluminum foil and a bombardment of a gold monitor (about 60 charge nanoamperes) on Saturday morning. Gradl is going down on campus this afternoon to make infrared measurements on his synthesis product.

I called Robert Hollingsworth at 2:35 p.m. to describe the possible position in the DATRAN organization. I described the company, indicating that it will be 1977 before they are in full operation. Bob said that he is definitely leaving this month and would be interested in talking with Penisten. I told him that his call from President Hitch had come at my lead (which he had guessed). I indicated that we would very much like to have him out here but that we might have difficulty with the mentioned salary of \$45,000, and I questioned whether he might come down a bit. Bob told me that he did not quote the figure of \$45,000 but that the figure had come out of a conversation that someone had had with John Perkins about salary

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ranges. Bob said he did not name any salary figure but that he was leaving the AEC for financial reasons. I suggested that he should let them know of this and indicated that Penisten would have trouble coming up with such a figure also. I asked if he thinks ERDA has a chance; he said that it will get through the Senate and will probably pass the House next week.

I spent a couple of hours in the afternoon going over my accumulated correspondence with Sheila. I wrote the American Chemical Society, renewing my nomination of John Rasmussen for the Nuclear Applications in Chemistry Award (copy attached).

David Smith called at 2:50 p.m. to ask if I could give him an evaluation of Mitchell Lekas, who was a project engineer in the AEC Plowshare program and who is being considered for the presidency of Geokinetics. I indicated that I did not remember him so as to provide such an evaluation. Geokinetics expects to extract oil by nuclear explosions. He also asked about Geokinetics's investment potential, and I suggested that he ought to be pretty careful because this is a very long-range project.

Paul Lochak called just before 4:00 p.m. to bring me up-to-date on his activities. He is quite stunned by the opposition being shown by some people. He said that he learned today that the French Ambassador personally is in favor of it; however, the CEA makes direct communications to the United States as though they were speaking for the French government. He spoke with Dixy Lee Ray. She told him that the Commission has met and decided to grant the postponement but that it was then blocked along the way so that the Commission had to review it again and again decided to grant the postponement. He will meet again tomorrow with Casey. I asked if the Commission had simply reiterated their original position. He said that they have to find good reasons why the extension should be granted to these European utilities exclusively rather than making a blanket postponement available to everyone. Lochak said that his reasoning is that his group is speaking of cooperation with the AEC. He does not understand the difficulty in the State Department. Sherman Katz, Ambassador Linowitz's assistant, will join him with Casey tomorrow. He asked if I could project Casey's or Pollack's posture, and I said that I thought Pollack's motivation is for cooperation but that he could be blocked by someone. I also noted that Casey is in a little trouble; Lochak had heard this but still regards him as the key person here. He said that Donaldson will be taking over later.

At 4:00 p.m., I attended the regular Nuclear Chemistry Seminar, where Vic Viola (on sabbatical leave here from the University of Maryland) spoke on "Nucleosynthesis of Li, Be + B."

We decided today to shut down the Nuclear Chemistry Division's cave room in order to save money--we will shift Jim Harris to Ghiorso's research group.

On my way home, I stopped off at the Durant Hotel to attend William Morris's (the owner) annual Christmas cocktail party.

## LAWRENCE BERKELEY LABORATORY

UNIVERSITY OF CALIFORNIA

BERKELEY, CALIFORNIA 94720 □ TEL. (415) 843-2740

December 17, 1973

Dr. Justin W. Collat, Head  
Department of Research Grants and Awards  
American Chemical Society  
1155 Sixteenth Street, N.W.  
Washington, D.C. 20036

Dear Dr. Collat:

I am pleased to renew the nomination of Dr. John O. Rasmussen for the 1975 ACS Award for Nuclear Applications in Chemistry sponsored by G. D. Searle and Company.

John Rasmussen is an outstanding nuclear scientist of great competence in broad aspects of nuclear chemistry. He combines ingenious experimental expertise with extraordinary theoretical ability. In addition to this, he has the pedagogical talent of imparting an insight and understanding of complex problems and their solutions to his students and colleagues. This talent is enhanced by his warm and friendly personality.

Dr. Rasmussen has been a remarkably prolific author of scientific research papers. Each of these papers is a definitive and valuable contribution to the field of nuclear chemistry, and in sum they comprise a very significant contribution to the world's total knowledge of this complex area of scientific research. Each is characterized by a consistently high level of treatment of the problem involved and exemplifies his excellent grasp of the field in general. Dr. Rasmussen's training was in chemistry and a large measure of the success of his work is due to the fact that he has been able to handle the difficult problems of purification and separation of radioactive isotopes which often were needed for his experimental studies.

John Rasmussen entered the field of nuclear chemistry with the surprising discovery of an entirely new group of radioactive, alpha particle emitting isotopes of the rare earth elements. Previously, alpha radioactivity was known

Justin W. Collat

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chiefly in the heaviest elements above lead. Chemical techniques of rare earth element separation were essential in these studies. This study led Rasmussen into the first serious restudy of alpha decay theory in two decades. Over the years he has contributed more than 20 articles and two major monographs on all aspects of alpha decay theory, particularly on the microscopic description of alpha cluster formation in spherical and deformed nuclei.

In the early 1950's, Rasmussen was one of the first to recognize the importance of the Bohr-Mottelson (Copenhagen) description of collective effects in nuclei and to show that a large body of Berkeley data on complex alpha spectra of heavy nuclei provided strong evidence for the new theory. Since then, Rasmussen has used chemical and nuclear techniques to discover and study the radioactive decay characteristics of scores of isotopes of rare earth and heavier nuclei. He has made numerous experimental contributions to beta and gamma decay and to measurements of internal conversion of gamma radiation. He was one of the first to apply cryogenic techniques to the orientation of radioactive nuclei. He established one of the most convincing examples of the effect of chemical state on the lifetime of nuclear decay. He has used experimental observations of fission products of the spontaneous fission of  $^{252}\text{Cf}$  to obtain detailed information on nuclei far from stability and on angular momentum effects in fission. He is an expert on nuclear reactions induced by heavy ions. He has contributed many outstanding articles on the effects of pairing of nucleons on nuclear structure and excitation phenomena.

John Rasmussen is held in the highest esteem throughout the scientific world, and his record deserves the highest commendation and national recognition. He is most worthy of receiving the Award for Nuclear Applications in Chemistry, and I sincerely hope that he will be given serious consideration as its recipient.

Sincerely yours,

Glenn T. Seaborg

GTS/sms

Enclosures

Biographical Outline  
of  
Dr. John O. Rasmussen

Born August 8, 1926, St. Petersburg, Florida.  
B.S., Chemistry, California Institute of Technology, 1948;  
Ph.D., Chemistry, University of California, Berkeley, 1952.  
Nuclear Chemist, Lawrence Berkeley Laboratory, 1949-69, 1972--.  
Instructor in Chemistry, University of California, Berkeley,  
1952-53; Assistant Professor, 1953-57; Associate Professor,  
1957-62; Professor, 1962-69, 1973--. Visiting Professor,  
Nobel Institute for Physics, Stockholm, 1953-54; Institute  
for Theoretical Physics, Copenhagen, 1962-62; Professor of  
Chemistry, Yale University, 1969-73; Associate Director,  
Yale Heavy Ion Accelerator Laboratory, 1970-73.

Member: American Chemical Society (Chairman, Committee  
on Major Nuclear Facilities, Division of Nuclear Chemistry and  
Technology, 1967-68; Professional Awards Committee, Division  
of Nuclear Chemistry and Technology, 1970-73); American  
Physical Society; Board of Editors, Nuclear Data, 1966-69;  
Nuclear Physics Panel (Feshbach Committee), National Academy  
of Sciences, 1968-69; Nuclear Data Panel, National Academy  
of Sciences, 1969-71; Advisory Committee, International  
Conference on Nuclear Structure, Dubna, U.S.S.R., 1968;  
Executive Committee, Federation of American Scientists, 1968-73  
(National Chairman, 1969); Yale College Course of Study  
Committee, 1970-72; Visiting Committee for Chemistry,  
Brookhaven National Laboratory, 1969-72 (Chairman, 1972);  
Chairman, Executive Committee, Superhilac Users Association,  
1971-73; Chemistry Review Committee, Argonne National  
Laboratory, 1973-76. Participant in more than ten international  
conferences in Nuclear Chemistry or Physics, 1966--. E. O.  
Lawrence Award, USAEC, 1967; Guggenheim Fellowship, 1973.  
Co-author of more than 120 scientific publications.

## PRINCIPAL PUBLICATIONS OF JOHN OSCAR RASMUSSEN

1. Alpha-Decay in Isotopes of Atomic Number Less Than 83  
S. G. Thompson, A. Ghiorso, J. O. Rasmussen and G. T. Seaborg  
Phys. Rev. 76, 1406 (1949)
2. The Strong Surface Coupling Nuclear Model and Hindered Alpha Decay  
J. O. Rasmussen  
Arkiv Fysik 7, 185 (1953)
3. Alpha-Radioactivity in the 82-Neutron Region  
J. O. Rasmussen, S. G. Thompson and A. Ghiorso  
Phys. Rev. 89, 33 (1953)
4. Alpha Decay of Spheroidal Nuclei  
B. Segall and J. O. Rasmussen  
Phys. Rev. 103, 1298 (1956)
5. Alpha Radioactivity  
I. Perlman and J. O. Rasmussen  
Handbuch der Physik (Springer-Verlag/Berlin-Gottinger, Heidelberg, 1947), XLII, 109
6. Theory of EO Transitions of Spheroidal Nuclei  
J. O. Rasmussen  
Nucl. Phys. 19, 85 (1960)
7. Shell-Model Calculations of Alpha Decay Rates of Even-Even Spheroidal Nuclei  
H. J. Mang and J. O. Rasmussen  
Mat. fys. Skr. Dan. Vid. Selsk. 2, 3 (1962)
8. Energy Levels of  $\text{Bi}^{210}$  and  $\text{Po}^{210}$  and the Shell-Model Residual Force  
Y. E. Kim and J. O. Rasmussen  
Nucl. Phys. 47, 184 (1963)
9. Alpha Decay  
J. O. Rasmussen  
Alpha-, Beta- and Gamma-Ray Spectroscopy, Vol. I, ed. by Kai Siegbahn (North-Holland Publishing Co., Amsterdam, 1964), Chapter XI, p. 701
10. Nuclear Structure and Pairing Correlations for the Heavy Elements  
H. J. Mang, J. K. Poggenburg, and J. O. Rasmussen  
Nucl. Phys. 64, 353 (1965)
11. Electron Binding Energies for Highly Ionized Fission Fragment Atoms  
R. L. Watson and J. O. Rasmussen  
J. Chem. Phys. 47, 778 (1967)
12. Theory of Angular Momentum Distributions in Primary Fission Fragments  
W. Norenberg, J. O. Rasmussen, and H. J. Mang  
Contributions, International Conference on Properties of Nuclear States. Montreal (August 1969), p. 5

Suki and I took a hike to the water tank. Ben Orlove, Lynne's friend and a graduate student in archaeology at Berkeley, had dinner in the dining room with our family group. After dinner, the five kids and Ben finished decorating the Christmas tree.

The Earl Hyde family left for a vacation in Mexico this weekend, after which he will attend a symposium in Israel; Earl will be away for a month.

Tuesday, December 18, 1973 - Berkeley

I attended the meeting of the SuperHILAC Planning Group in Ghiorso's conference room in the HILAC Building from 9:30-11:00 a.m. Present were Ghiorso, the Alonsos, Nurmia, and Nitschke. We decided that the Alonsos will draw up a compilation of prospective experiments for use with LASSY. Nurmia will get in touch with me to discuss the tungsten stand-in experiments for element 106. Nitschke described his and Hulet's apparatus for introducing aerosols into the helium jet stream that deposits the product from heavy ion bombardments on the rabbits that transport the products to FAKE. We decided that the next meeting of our group will be at 9:30 a.m. on Friday, January 4.

At 11:00 a.m., I went up to Building 90 to confer with Jim Halverson regarding the splicing of my copy of my China movies into a rearranged, more practical order.

I had lunch at the table outside the lower level of the cafeteria, the weather being somewhat warmer than it has been during the last few days. Present were Edelstein, Ritter, Nugent, Poskanzer, Zebelman (working with Poskanzer), Stephens, Meyerhof, Kratz, Norris, and others. Nugent told me he had just learned that Herman Postma has been appointed Director of ORNL.

Cobble called to inform me that his AEC research contract is not being renewed, as he hoped, on January 1. Hence, he cannot support Roland Otto to come and work with me. I said I will put Otto on the LBL payroll with the hope that Cobble can pick up his salary later if his AEC research contract is renewed. Cobble then called Otto and asked him to call me, which he did, and we made arrangements for him to start work at LBL the first week in January.

I called Ivan King at 3:00 p.m. to discuss the letter I had received from Fred Jeuneman, who was afraid that the Velikovsky Symposium at the AAAS Meeting would not be a serious undertaking. King gave me some background about Jeuneman and his conversations with Velikovsky and Sagan about this and said that he will call Jeuneman for me. I indicated that I think AAAS should be doing this kind of thing and that we can't deal with questionable topics by avoiding them, and he agreed.

Stanley Greenfield called at 3:10 p.m. to tell me that the People's Republic of China Permanent UN Mission in New York wants to see him tomorrow in connection with his proposed project. He asked for my advice on how he would best be affiliated; he has several alternatives to suggest to the Chinese. One would be the New York Times International Book Distributor Project. Another would be a

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small publishing company which he owns himself. He is also President of the Publishing Division of Metromedia. I indicated that I did not know how to reply but did have some doubts about his using the New York Times affiliation for this purpose. He had tried to talk with Anne Keatley, but she is on leave until January. He has talked with Pat Tsuchitani at CSCPRC and with Wang in the Library of Congress. I suggested that for advice he might call Ezra Vogel or Emil Smith and gave him their addresses and phone numbers. I offered to let him see my China Journal; he will let me know if he needs it but he understands that it is entirely personal and that I do not wish for it to be seen by anyone from the PRC.

I wrote a congratulatory letter to Hyman Rickover upon his promotion to the rank of Admiral.

Glenn Penisten returned my call at 3:25 p.m. I told him that Bob Hollingsworth is interested in exploring the possibility of working with DATRAN. I gave him Hollingsworth's address and phone number, and he will get in touch with him.

At 4:55 p.m., Paul Lochak called to tell me that he has met with Herman Pollack this morning and then with William Casey and Herman Pollack this afternoon along with Sherman Katz of Sol Linowitz's office. He said that, although Casey was favorably inclined, as had been Dr. Ray in earlier meetings, Pollack is adamantly opposed to any extension of the deadline beyond December 31, 1973, for European utilities to sign up for U.S. enrichment services in order to qualify for these services before the requirement for an 8-year lead time goes into effect. I indicated that I would try to look into the reasons for Pollack's opposition because I know that Pollack favors cooperation between the United States and European countries in the uranium enrichment field.

I then called Justin Bloom at 5:05 p.m. and told him that I had just learned from Paul Lochak that Pollack is opposed to a 90-day extension in the December 31, 1973 deadline. Justin indicated that this is a very complicated matter and that Pollack is not opposed but still favors cooperation, but cannot see how this relates to the extension of the deadline. He said that the deadline only affects 23 nuclear power reactors which will come into operation before June 30, 1978, and that most of these plan to make arrangements for U.S. enrichment services before the December 31, 1973 deadline in any case. The next deadline is June 30, 1974 and this should give additional time for negotiations.

Justin told me, off the record, that Pollack met with Commissioners Ray, Larson and Anders this afternoon after his meetings with Lochak and that they reiterated that the cooperation must be between the governments involved on a non-discriminatory and multi-national basis and that they all now feel that there is no need for an extension of the deadline in order to meet this objective.

Going back to the meetings with Lochak, at which Justin said he was present, he said the problem is that no one understands what

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extending the deadline has to do with cooperation in the enrichment of uranium. Again off the record, he said that they are suspicious that the reason for the postponement is to give the European utilities a longer time to negotiate with EURODIF in order to get a better deal than they might get with the United States. Bloom said that, in trying to explain the reason for the requested three-month time extension in the deadline, Lochak said that this would be a "symbolic" gesture of great importance.

Justin said that they had learned that Lochak had met with many people around Washington including--besides Dr. Ray and the Commissioners, Pollack and Casey--members of the JCAE and John Sawhill of OMB, and he also had the impression that Lochak had met with Peter Flanigan.

Justin told me in the course of the conversation that his immediate superior in Pollack's division of the State Department is Bob Weber.

I told Justin about Bert Goldschmidt's statement that the reason the November, 1971 negotiations between the USAEC and Euratom fell through was because the United States demanded that a U.S. Architect and Engineer firm be given the unilateral privilege of assessing the French technical capability in their gaseous diffusion process with no reciprocal rights for a European Architect and Engineer firm to participate in this evaluation, including the evaluation of the USAEC capability in this field; Justin said that he had heard that Goldschmidt has made this assertion and agrees that, if this actually were the U.S. position, and he has no evidence of this, then the French and Europeans have a justifiable reason for their refusal to accept this condition. He feels that this would not necessarily be the present U.S. position.

Justin made it abundantly clear during our conversation that there is a strong desire in the U.S. government to negotiate cooperation with the Europeans, Canadians and Japanese in the uranium enrichment field on a multi-national basis but that no one understands how this relates to Lochak's request for a postponement in the December 31, 1973 deadline--a postponement that they are reluctant to make because it would discriminate against U.S. utilities who would not have the advantage of such a postponement, and one of their principles is to conduct business in a non-discriminatory manner as far as U.S. and European utilities are concerned.

I called Paul Lochak back at 6:00 p.m. to tell him that I had talked to someone knowledgeable in the uranium enrichment picture and the U.S.'s official position on this--not to Herman Pollack, however--and now had a better understanding of the problem. I said that the U.S. side is anxious to have international cooperation in uranium enrichment but no one understands what this has to do with the postponement of the deadline. Lochak said that he had repeatedly explained the reason for the deadline postponement. He said that if the deadline is not postponed, it puts EDF in a very difficult spot. Also, Wyart, the head of OPEN, and other representatives of OPEN who

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have asked for a postponement would be left holding the bag if there is no postponement and all would be subject to the taunt by CEA that this only illustrates that it's not possible to deal with the United States. Lochak thinks that a failure of postponement would mean that cooperation between the United States and Europe would be killed and that EURODIF would begin immediately in January, essentially as a French project, to tie up European utilities in contracts for enrichment services.

Lochak reiterated that the members of the AEC, or at least the majority of Commissioners, voted for postponement. I warned him that the AEC and the State Department are closer together than he thinks on this issue of not being convinced that a case has been made for postponement of the deadline.

I asked Lochak if he had talked to Flanigan about this and he indicated that he has not. I told Lochak that I didn't believe that the possibility of cooperation between the United States and Europe in uranium enrichment would be doomed if the postponement was not achieved and that he should work further on the European side, using as his basis of strength the fact that the United States is desirous of cooperation in this field. I also said that I couldn't say definitely that the possibility of postponement was zero and that he might still work toward that objective.

(It seems to me that the problem is approximately as follows: Lochak has talked to Dr. Ray on a number of occasions and each time convinced her of the value of postponement of the December 31, 1973 deadline for 90 days. On the basis of this, Lochak has gone back to Wyart and OPEN and EDF and told them that he has been successful in this matter. However, Dr. Ray was subsequently not successful in convincing the State Department, especially Pollack, of any crucial connection between this deadline postponement and international cooperation in uranium enrichment and thus she was not able to deliver what she had promised to Lochak. This has left Lochak holding the bag to such an extent that possibly he is right that this will strike a blow against cooperation between the United States and European countries in uranium enrichment. This situation is exacerbated by the unfortunate situation in France involving the negative attitude of CEA, which makes it necessary for a utilities group such as OPEN to try to negotiate directly with the U.S. government, which runs contrary to the U.S. government's desire to deal with European governments rather than directly with European utilities.)

Joan Duffield, with whom Steve has renewed friendship, joined Helen, Dave, Steve, Eric, Dianne, and me for dinner tonight in the playroom, where we watched the Blue-Gray Football game on TV from Montgomery, Alabama; the Blues won, 20-14. Lynne had dinner with Nat and Nancy Laks, then brought Nancy home for a visit later in the evening. Steve and Joan went to visit Lois Stein at her home.

Wednesday, December 19, 1973 - Berkeley

I met with Bernie Harvey to discuss Nuclear Chemistry Division matters. We would like to add four senior research people to the Division--a chemist to head the energy and environmental chemistry group, an actinide chemist, a research man for the 88" cyclotron group, and a research man for the SuperHILAC group.

At 10:00 a.m., I met with Art Poskanzer and Bob Budnitz to plan our search for a chemist to head up the energy and environmental chemistry program to be located either in the Nuclear Chemistry Division or the new Energy and Environment Division. We decided that we want an experimental chemist who would conduct his own research program as well as be in charge of a general program in this field. It was decided that Poskanzer and Budnitz will draft a letter today and the three of us will come up with a list of people to whom it will be sent. This will describe our need for such a chemist and ask the recipients who will be leaders in these general fields to request potential applicants to write us, enclosing curriculum vitae and supplementing their applications with supporting letters. We hope to have these typed and sent before the end of this Friday.

Joe Cerny called me at 11:25 a.m. about our program for employing undergraduates--that is, students between their junior and senior years--next summer. We agreed on a program of six people to be paid each \$100 a week for ten weeks and \$80 traveling money each way, coming to a total program cost of about \$7,000. Joe will prepare draft letters to Department Chairmen and so forth advertising this program and come up to see me before end of the week about a schedule for sending such letters.

I replied to a letter from Peter Laubereau, arranging for him to visit LBL during the week of February 11.

I had lunch at the table outside the lower level of the cafeteria with Dr. and Mrs. Jorrit DeBoer (he is with the Nuclear Physics Department of the Garching campus of the Technical University of Munich and is here on sabbatical with the Diamond-Stephens group until October, 1974; they have two children, ages 15 and 11), Dieter Proetel (from DeBoer's group in Garching, on sabbatical here with the Diamond-Stephens group), Kozi Nakai (from the University of Toyko, here on sabbatical until March, 1974 working at the 184" cyclotron and with the Diamond-Stephens group), Kratz, and Norris.

Andy Sessler dropped in at 1:45 p.m. He brought me up-to-date on his talks with President Hitch and Charles Townes on the problem of needed change in leadership in Donner Laboratory. Without going into any detail, he said that there is a plan of action that will solve this problem and this will be revealed by February. I also told him about our impending search for a chemist to supervise the proposed LBL energy and environmental chemistry program and said we believe that this program should be lodged in the Nuclear Chemistry Division.

At 4:45 p.m., I called Justin Bloom to discuss further the problem of postponing the deadline for U.S. uranium enrichment. Justin confirmed my impression that the deadline applies to all

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U.S. utilities and other foreign countries' utilities and thus a postponement would raise a question of inequity. The June 30, 1974 deadline applies to reactors that would require fuel between June 30, 1978 and June 30, 1982.

I said that Lochak believes that, in view of the promises that a deadline postponement would be granted, which he had relayed to OPEN and EDF and so forth, a failure to carry this out now would doom U.S.-European cooperation in uranium enrichment; the European utilities would be forced into a position of believing the contention by CEA that it's not possible to deal with the United States.

Justin said that Lochak had drafted a letter for Dr. Ray to send to Couture approving the postponement but that this was not sent because Dr. Ray couldn't get the necessary concurrences. He reiterated that Lochak had been told to get the French Foreign Office to request the postponement in an official message to the State Department and indicated that the French Ambassador had not sent any cables as indicated to me by Lochak. He said that Lochak had overstated Ambassador Irwin's position.

Justin reiterated that Pollack's main concern was Dr. Ray's dealing with a private individual rather than a governmental representative. He said he thought that, if Dr. Ray's approval of the postponement had gone ahead, this would have raised such a storm within the U.S. government that the situation for the European utilities would be worse than it is now.

Justin reiterated that, if the request for postponement would come through normal diplomatic channels (such as the Foreign Ministry of France's making a request to the U.S. State Department), there would still be a good chance that the postponement would be granted.

Justin said that today is the last day of work for Pollack before he leaves on a three-week vacation, but Nelson Sievering is following this matter closely and will be in a position to act.

I then called Paul Lochak at 5:15 p.m. He told me that he and Sherman Katz had met with William Casey today and that Casey was very favorable toward requesting a postponement of the deadline, which has led him (Lochak) to feel more strongly than ever that Pollack is the person blocking this.

In response to my query about the lack of cables from Ambassador Irwin expressing his view, Lochak said that, to the contrary, three cables had been sent over Ambassador Irwin's signature during the last two weeks making such a request.

In response to my comment that a postponement granted to European utilities would be discriminatory against U.S. utilities, he indicated that there is no real analogy here--the U.S. utilities have no alternate source of enrichment and the present European request for postponement is also unique in that it involves a consortium of utilities.

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I reiterated that his best course now is to get the French government to ask for the postponement and emphasized that the U.S. resistance to granting a postponement is not all due to Pollack, which I have ascertained on the basis of discreet inquiries (but not including discussions with Pollack), because there is resistance elsewhere within the U.S. government such as some members of the Atomic Energy Commission.

Lochak said that the question of postponement doesn't really apply to the French because there are no French reactors requiring fuel before June 30, 1978. The countries in this situation are Italy with two reactors, Switzerland with two reactors, and Spain with four or five reactors. I suggested that he get the governments of these countries to request postponement. He gave me the impression that this might not be too feasible and that, in any case, the utilities will ask individually for postponement of the deadline.

I reiterated that he shouldn't regard the situation, as concerns the broader problem of cooperation, to be hopeless if the deadline is not postponed, but should work with the European utilities on the broader basis that the United States does desire cooperation with European countries in the uranium enrichment field.

I then called Justin Bloom back at 5:45 p.m. and told him that Lochak has contradicted his statement to me that Ambassador John Irwin had not sent any cables and had told me that in fact three cables were sent. Justin indicated that these had merely relayed Wyart's arguments. I also reviewed for him the fact that there are no French utilities concerned with the deadline postponement and that the interest in this connection is confined to Italy, Switzerland and Spain--this was information with which Justin was familiar.

Justin told me, on a confidential basis, that Commissioner Larson is opposed to the postponement on the basis that he thinks the OPEN utilities would take advantage of it to use the three additional months for negotiations with EURODIF.

In response to my point that discrimination is not a very serious issue because this doesn't really involve U.S. utilities, Justin said that the question of other foreign countries creates the problem here. He also reiterated with respect to Pollack's attempts to get the request for a postponement to come from European governments, that Lochak repeats over and over again his contention that utilities such as EDF do represent their country's government.

I summarized by indicating that I thought it would be too bad if this all falls through because it is impossible to grant a postponement since the overall objective of U.S.-European cooperation in uranium enrichment is such an important goal. Justin said that the question might not be settled yet, particularly in view of Lochak's visit with Casey today.

Suki and I took a hike to the water tank. Lynne went Christmas shopping in San Francisco today; Joan Duffield joined us for dinner.

Thursday, December 20, 1973 - Berkeley

I called Richard Eppley to inquire about the delay in issuing the short summaries of the programs of each of the groups working at the SuperHILAC. He said he is having trouble getting the people to prepare these summaries; I suggested he put together and publish what he has at this time.

Joe Cerny came by with a draft letter to be sent to chemistry departments of colleges and universities soliciting applications from Juniors for employment with us next summer. These will be signed by me and sent out by Ron Lowder of the Personnel Department.

I called Dick Frankel at 9:30 a.m. to get a status report on the discussions with North American Phillips. He told me that the negotiations with them are now completely off. No numbers were mentioned, but they were looking for a bargain and Kevex was not. Frankel mentioned a selling price of \$5.5 million. He feels very optimistic about the status and future of the company. When Koller left, they discovered that the cash flow was out of order; this has now been corrected. Dick believes that, in the long run, Kevex will do better on its own.

Vic Viola came by in great elation, after working all night, to say that the RAMM group has been getting large krypton beams (from Adam) at the SuperHILAC for the last 48 hours. This represents a great breakthrough at the SuperHILAC. (The RAMM group is made up of people from Rochester, Argonne, Maryland, and Marburg.)

I went by to see Ralph McLaughlin and invited him to attend our Thursday luncheon meetings of the actinide chemistry group. I then went by to see Parsons and Edelstein. Parsons has made some pure Cf metal so we could measure its magnetic properties if we had the manpower.

I had the first luncheon meeting with the superheavy elements chemistry group in room 203 of Building 70. Present were Kratz and Norris (Binder is in Los Angeles for the holidays). These meetings will alternate on Thursdays with those of the actinide chemistry group. We discussed the status of the treatment of the data on the recent bombardments of uranium and gold with krypton ions and the way the yields fit on the yield curve. We will ask Binder to look for actinide elements produced in a uranium plus krypton ion bombardment in parallel with a similar search in the same target by the chemistry group (Wolfsberg et al.) at Los Alamos. The next meeting of our group will be on Thursday, January 24, 1974.

I had a phone call from Lew Keller in Oak Ridge from 1:40-2:10 p.m., which covered three topics:

(1) Hugo Bertini of ORNL recently returned from Dubna where he had a 1-1/2-hour talk with Flerov. Flerov asked him to urgently talk with Keller (and suggested that Keller phone to him his reply) to convey his invitation for Keller or one of his people to bring Cm<sup>248</sup> and Pu<sup>244</sup> target material to Dubna for bombardment with Ca<sup>48</sup> (furnished by Dubna) in their cyclotron. Flerov said he would be willing

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to devote their entire organization and their more than 3 million ruble budget to this problem for a year. Keller and I agreed that the best response in rejecting this invitation by letter will be to indicate to Flerov that ORNL does not have a man to spare for this purpose. There is a requirement that if they furnish such actinide elements an ORNL man must accompany them and their manpower shortage does not allow this. (Keller told me they are really short-handed, as exemplified by the fact that they are sending Dick Haire to Liege to work with Jean Fuger on the heat of solution program of actinide elements, bringing the actinides with him.)

(2) Bob Silva is planning to visit his parents in the Bay Area over the Christmas holidays.

(3) John Teem wants an independent scientific review of the ORNL transuranium program (HFIR and TRU), which is presently budgeted for \$6.8 million. Francis Perey, an ORNL physicist, is chairman of an Isotopes Subcommittee which will conduct this scientific review as part of a review which also includes the Calutron program. Keller said the review should include the chemistry and solid state actinide programs, thus it includes the solid state actinide program at ANL in the Materials Sciences Division, of which Byron Foster is the director. Keller said that this is a first-class program directed by Dan Lam (an Oriental American). They are studying the metallic state of Np, Pu, Am, and Cm, and they want to expand this to study Bk and Cf metals as well. Burnett and perhaps Van Dyken will visit ORNL on January 8 and 9 in connection with this review process.

I then wrote a memorandum to Norman Edelstein reporting on my conversation with Keller and the steps to be taken by John Teem for an independent scientific review of the ORNL transuranium program.

I wrote Professor Koh Sakamoto (copy attached) about his paper, "Terrestrial Plutonium-244; Possibility of Cosmic Dust Origin." I signed and sent about 40 letters to colleges, universities and some of the national laboratories, soliciting applications for our new environmental chemistry position (sample attached). I sent a letter to David Shirley (copy attached) supporting the advancement of David Templeton to Professor, Special Salary.

At 3:00 p.m., I walked up to the HILAC Building for the SuperHILAC annual Christmas party. A large crowd was present, including all of the SuperHILAC crew and the supplementary crew from the Bevatron. Large tables of refreshments and punch were spread through the hallways. The SuperHILAC jazz band played music.

Ghiorso summoned everyone into the conference room--the crowd overflowed out all the doors--and made some brief remarks. He then introduced Andrew Sessler, who described how for years he had heard about the SuperHILAC Christmas party and told us that his first official act when he became LBL Director on November 1 was to get the date of this year's party into his calendar. He made a few remarks about the priority in the LBL program of the SuperHILAC and BEVALAC project. Ghiorso then introduced Hermann Grunder who made a few

U.S.A.

December 20, 1973

Professor Koh Sakamoto  
Department of Chemistry  
Kanazawa University  
1-1 Marunouchi  
Kanazawa, Ishikawa, 920 Japan

Dear Dr. Sakamoto:

I have read your paper, "Terrestrial Plutonium-244; Possibility of Cosmic Dust Origin," with interest. It seems that cosmic dust should be considered as a possible source of terrestrial plutonium-244 on the basis of your arguments.

Probably the weakest component of your argument is the assumption that 10% of the cosmic dust influx comes from outside the solar system. So far as I know, there is no experimental evidence yet for any such component. Perhaps you should include a justification for assuming the value of 10%.

I enjoyed reading your paper.

Cordially yours,

Glenn T. Seaborg

GTS/sms

LAWRENCE BERKELEY LABORATORY  
UNIVERSITY OF CALIFORNIA  
BERKELEY, CALIFORNIA 94720 □ TEL. (415) 843-2740

20 December 1973

We are looking for a chemist to play a leading role in LBL's energy and environmental programs. This person should be trained as a chemist and have some experience in either environmental chemistry or chemistry associated with energy production or use. I am writing this letter as chairman of a search committee, whose other members are Robert J. Budnitz, Jack M. Hollander, and Arthur M. Poskanzer.

The AEC has begun to expand its program in non-nuclear energy sources and related environmental research. LBL has had a program in these areas for several years which has just recently been elevated to divisional status. This program now involves research in atmospheric chemistry, environmental instrumentation, radiation chemistry, and effects of trace substances in environmental media (marine, urban, etc.), geothermal and solar energy, and analysis and assessment of environmental and energy-related effects. It is anticipated that the program will both expand and broaden. We are looking for someone to fill a staff position as head of the chemistry part of this program in either the Nuclear Chemistry Division or the Energy and Environment Division. It is expected that this person would conduct his own experimental research, direct the research of a group, and interact with the larger program. The person should be vigorous, imaginative, and show promise of leadership.

Interested persons should send letters of application with curriculum vitae, and should arrange to have letters of recommendation sent to me. We would appreciate it if you would circulate this letter to people who you think might qualify.

Sincerely yours,

Glenn T. Seaborg

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DEPARTMENT OF CHEMISTRY

BERKELEY, CALIFORNIA 94720

December 20, 1973

Professor David A. Shirley, Chairman  
Department of Chemistry  
University of California  
Berkeley Campus

Dear Professor Shirley:

I am writing in support of the advancement of David H. Templeton to Professor, Special Salary.

I have known David Templeton since we worked together at the Metallurgical Laboratory of the University of Chicago during World War II and have been in a position to watch his work rather closely ever since. I chose him as a member of the select group that I brought with me back to the University of California when my assignment at the Metallurgical Laboratory was completed.

Dr. Templeton completed his Ph.D. work under Professor Isadore Perlman in record time (1947) and we were so impressed by his intelligence, initiative, general all-round ability (both theoretical and experimental) and potential, that we recommended his appointment to the faculty of the Department of Chemistry.

Dr. Templeton was appointed to the faculty to meet the Chemistry Department's need for a colleague to work in the field of the determination of molecular structure by the use of the x-ray diffraction technique. It was typical of his great versatility that although he had not specialized in this field, he rapidly attained a position as a leading investigator, and he has since maintained a status as one of the outstanding experts.

In this letter I shall attempt to summarize some of his most important contributions and to place these in perspective with respect to his field of specialization. This is by no means an exhaustive review of his research output, but it will attest to the international eminence which David Templeton has attained in the field of the determination of molecular structure by the use of the x-ray diffraction technique.

In the diffraction of x-rays by non-centric crystals, i.e., crystals composed of molecules having only a left- or right-handed form, violation of Friedel's law occurs. Although the effect is small, it is possible to determine the absolute configuration of asymmetric molecules. The actual effect in the diffraction process is referred to as anomalous dispersion. Some time ago Dr. Templeton published, in the International Tables of Crystallography, the first tables of anomalous dispersion values and developed the use of these tables to determine the absolute configuration of molecules. He also found that to ignore this effect in non-centric structures involving heavy atoms would result in significant errors in bond distances. He has not only helped to develop the method, but he has continued to determine the structures of such molecules--the results of which have been widely used by researchers in other disciplines who are trying to standardize their methods to determine absolute configurations.

A recurring problem in structures determined by x-rays has been the inability to accurately locate hydrogen atoms. This is due to the non-spherical nature of the electron density of a bonded hydrogen about its nucleus. Dr. Templeton is presently making progress in a theoretical investigation to develop a model that will accurately describe such atoms. When this has been incorporated into the calculations used for structure determinations, it will be possible to obtain bond distances to hydrogen that will be consistent with those determined by other methods, i.e., neutron diffraction.

Critical to the results of modern x-ray crystallography is the use of the computer. Dr. Templeton has been instrumental in the design of these programs and some are used internationally. He pioneered the use of the computer to do some of the first least-squares analyses to refine the atomic parameters. The Fourier program, which was developed years ago, has been modified and updated to the present modern computer and is in world-wide use. One of the most nagging problems in the processing of accurate x-ray diffraction data has been the absorption of the x-rays themselves in a multifaced irregular crystal. Recently he has implemented an absorption program that makes such an absolute correction. This program is presently being distributed, and the use of it should make a significant improvement universally in the accuracy of atomic and thermal parameters.

His research covers a broad spectrum of chemistry. His metallo-organic structural results have been used for their accuracy of the bond lengths and angles. He has solved the structures of a number of important molecules derived from natural sources and biochemical processes, implementing and devising

David A. Shirley

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new methods of structure determinations to do so. He was instrumental in confirming the formulation of a series of carborane cage complexes by structural analysis. He has associated entropy effects with the disorder observed in the structure of certain inorganic salt hydrates. He is one of the principal structural investigators in the new and exotic field of xenon chemistry. These structural results have had a significant effect on the theories of molecular bonding and atomic coordination theories.

In the process of determining crystal structures he has introduced and developed methods and techniques that have substantially improved the quality and accuracy of the results. These improvements have served as a guide to all workers in the field in upgrading their own standards. He has an international reputation and has been called upon frequently to serve the scientific community in the capacity of setting new standards and to criticize old ones. He has been an active critic of the scientific literature, speaking up and correcting serious errors that have appeared in the literature.

While carrying out this extensive research program Professor Templeton has by no means neglected his responsibilities of teaching, public service and other contributions to the University. He has had a full teaching schedule, which he has handled conscientiously and effectively, and he has supervised the work of a continual flow of graduate and postgraduate students. He has undertaken more than his share of administrative duties--as evidenced by his service on numerous time-consuming faculty committees, such as the Committee on Committees of the Berkeley Division of the Academic Senate, the Chancellor's Special Advisory Committee on Research Policy and Administration, the Advisory Committee to the Space Sciences Laboratory, the Physical Sciences Council, the Council of Deans, the Committee for the Earl C. Anthony Trust Fund, the Academic Senate Committee on Coordination of Chemical Engineering and Engineering, the Subcommittee on Long-Range Planning for the Computer Center at the Lawrence Berkeley Laboratory, and the LBL Nuclear Chemistry Division Program Committee. He is fulfilling with distinction his present position as Dean of the College of Chemistry. And he has served his profession well by work on such service groups as the Subcommittee on Intercongress Meetings in the United States for the National Committee for Crystallography, and as Local Chairman for the meeting of the National Committee for Crystallography to be held in Berkeley in March 1974.

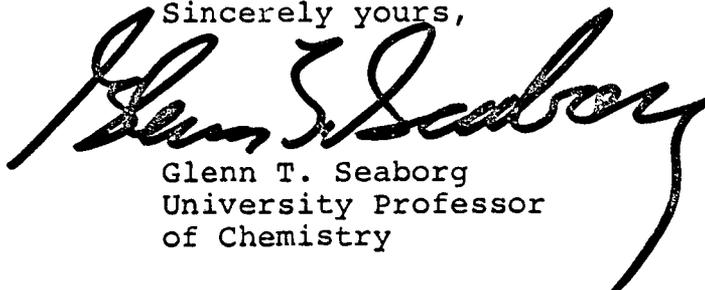
David A. Shirley

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I would urge very strongly that Professor Templeton  
be advanced to Professor, Special Salary.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "Glenn T. Seaborg". The signature is written in black ink and is positioned above the typed name and title.

Glenn T. Seaborg  
University Professor  
of Chemistry

GTS/ssk

remarks. I then spoke briefly, complimenting the jazz band on their improved performance and reflecting on the progress made at the SuperHILAC since the Christmas party two years ago just after my return. Jose Alonso then played Santa Claus and presented a series of humorous gifts to the leaders in the SuperHILAC program. This included a model of the SuperHILAC for Hermann Grunder (ostensibly for his use in the debugging operation)--a lemon had been placed under the trapdoor of Adam and other such symbols were tucked into the model at various places. They gave me a 1' ruler admonishing the reader "not to jam up my system by straightening up the mess on my desk." Similar kinds of gifts were given to Main, Ghiorso and others. I talked with a number of people and their spouses after the ceremonies, then returned to my office in Building 70A.

Suki and I took a hike to the water tank. Ben Orlove joined our family group for dinner in the dining room. Jeanette phoned to say she and Ray will visit us over Christmas, arriving the afternoon of Monday, December 24.

After dinner, we were joined by our neighbors Harold and Mary Paige and their friends Mr. and Mrs. Jack Thompson. We all (Helen, Lynne, Dave, Steve, Eric, Dianne, and I), together with Ben, the Paiges, and the Thompsons gathered in the living room where Ben showed us his slides of his 18-month stay in Peru in connection with his Ph.D. thesis work on the sociology of the Peruvian Indians. We were then joined by Lynne's friends, Nat and Nancy Laks. We showed the edited movies (the two "cultural" reels) of our visit to the People's Republic of China.

Friday, December 21, 1973 - Berkeley

I called Leonard Rieser at 8:50 a.m. I passed on to him the message that Sheila and I had received from AAAS yesterday (without identifying the source, Jim Mears) that there is a desire among AAAS employees to be consulted in connection with the choice of the new Executive Director. Rieser indicated that he thought this was a good idea, and he will proceed to implement it. I also told Rieser that I hadn't yet heard from Bevan in regard to the memorandum I might write summarizing his retroactive pay raise. We agreed that I would phone Bevan to call his attention to this matter because, if this memorandum was required before the end of the month, it would have to go out today since my office will be closed next week.

I then called Bill Bevan at 9:05 a.m. and reminded him of the memorandum concerning his retroactive pay raise and explained to him my timing problem. Bevan said that the AAAS attorneys have been working on this and in that connection have also concluded that there is no possibility of a tax shelter for Bevan in 1973. Therefore, the memorandum need not be sent before the end of the year and thus we agreed that Rieser could take care of it after January 1. I called Rieser back at 9:10 a.m. and informed of this.

I replied to a letter from Hulet Hornbeck in which he informed me that the Camp Parks (which I visited on July 13, 1972) problem has been solved. I sent additional letters to Asian representatives, inviting them to the AAAS meeting in San Francisco and to a luncheon

Friday, December 21, 1973 (con't)

on February 28 to discuss increasing scientific cooperation. These letters went to Yoichi Kaya, Japan; Angha Sabhasri, Thailand; Quintin Kintanar, the Philippines (copy attached); and Yusof Hashim, Malaysia. The letters will be transmitted by Lazaroff.

Ken Street dropped in to suggest that the Nuclear Chemistry Division hire a geochemist to continue this type of program after he leaves to start work at LLL on July 1, 1974. We discussed the suggested AEC budget for basic research (\$43 million in FY75 and \$300 million in FY 1975-79) in connection with supporting research for environmental and energy research; this is a potential source of funds for the Nuclear Chemistry Division provided we organize and acquire the needed manpower to take advantage of it.

Lynne, Eric and Dianne dropped by at noon to deliver presents for Sheila, Jane, Eileen, Sylvia, and Margie. After spending a quarter of an hour around the office talking with them, they joined me to go down to Building 88 to attend the annual Christmas luncheon. Here they met Bernie Harvey, Dave Hendrie, Joe Cerny, Hermann Grunder, and others. After lunch and before the speeches began, they left to go to downtown Berkeley for some Christmas shopping. Steve also spent the afternoon shopping in Berkeley.

Hendrie made a few remarks, then introduced Cerny, who made a few remarks before introducing Harvey. Harvey made a service award to a longtime graduate student, then spoke optimistically about the future of the Building 88 group, mentioning especially the possibility of AEC approval for constructing a cryogenic cyclotron along the lines of Dave Clark's original conception. Harvey then called on Clark, who spoke about his cryogenic cyclotron idea, and then called on me and I spoke briefly, expressing optimism for the future of the Nuclear Chemistry Division, the Building 88 group, and the cryogenic cyclotron.

I talked to Dave Clark about his conception of a cryogenic cyclotron. He said such a cyclotron could be built for half the cost and would consume only 1/3 the electric power of a conventional cyclotron. He has in mind a machine that will furnish, in combination with the 88" cyclotron as an injector, heavy ions like neon at energies of 30 Mev per nucleon and heavy ions like mercury at energies of 8 Mev per nucleon.

At 2:30 p.m., I went up to the HILAC Building to confer with Nurmia and Raunemaa, along with Ghiorso, on their program to study tungsten isotopes as a prelude to attempting to prepare and chemically identify element 106. They have bombarded  $\text{Ho}^{165}$  with  $\text{N}^{14}$  and, in the tungsten chemical fraction, they have identified, through their gamma rays,  $\text{W}^{174}$  (29 minutes half-life),  $\text{W}^{175}$  (34 minutes), and  $\text{W}^{176}$  (2.5 hours). They find discrepancies between their work and published work on other tungsten isotopes, however, and suggest I might want to have somebody work on the characterization of the radiation and half-life of these after their production by Nurmia and Raunemaa by the same means and separation by Michel in his mass spectrograph. Nurmia and Raunemaa have used the He jet method to look for Po isotopes from the bombardment of Pt with carbon ions; this proves the need to introduce

*American Association  
for the Advancement of Science*

GLENN T. SEABORG  
Chairman, Board of Directors

LAWRENCE BERKELEY LABORATORY  
UNIVERSITY OF CALIFORNIA  
BERKELEY, CALIFORNIA 94720

December 21, 1973

DR. QUINTIN KINTANAR

Dear Dr. Kintanar:

As you may know, I am interested in promoting the cooperation between scientists and science associations among a broad range of countries throughout the world. I am enclosing a copy of my talk as Retiring President of the American Association for the Advancement of Science (AAAS), "Science, Technology, and Development: A New World Outlook," in which I develop some of my ideas in this connection.

Together with other colleagues of the AAAS, I cordially invite you as a representative of the Philippines to attend the Annual Meeting of the AAAS to be held in San Francisco during February 24 - March 1, 1974. Enclosed is an outline of the meeting program for your information.

At that time, we would plan to meet with you and representatives of other Asian countries--perhaps at a luncheon on Thursday, February 28--to explore methods of increasing scientific cooperation between our countries.

I hope very much that you will be able to accept our invitation to attend the meeting in San Francisco in order to carry on such discussions.

With warm regards,

Cordially,

Glenn T. Seaborg

GTS/jk

Enclosures

aerosols in the He jet stream. We also discussed the proposed use of LASSY for direct detection of element 106 isotopes, combined with apparatus for detection of its radiation and that of its descendants with detection apparatus at the detection end of SASSY; this could all be coordinated with the experiments designed to make a chemical identification of element 106 by use of its volatile fluoride (for which the experiments with tungsten isotopes are being performed in order to develop the technique).

I then went by to see Kratz, who is working on a draft of our paper for the Journal of Inorganic and Nuclear Chemistry following receipt of a version of the paper from Liljenzin that he has worked on; I'll work on this at home over the Christmas vacation.

I next went by to see Edelstein to discuss the proposed scientific review of the actinide chemistry and solid state program. I told him I doubted that this review will involve our modest program. Ritter has gone home to visit his parents in Kansas over the holidays. Kim Williams has also gone back East for the holidays.

At 4:00 p.m., Bob Silva dropped in for a surprise visit. He is staying at his parents' home, having arrived from Mainz, Germany last Tuesday. I brought him up-to-date on our work here and he brought me up-to-date on his work at Mainz. We went down to see Nugent and he also visited with Harvey, Kratz, etc.

Helen had felt a little ill this morning (it began yesterday) and was still ill this evening, so Eric went to Colonel Sanders to pick up a dinner of fried chicken for himself, Steve, Dianne, and me. Lynne drove in to have dinner with Claire. David skipped dinner because of an upset stomach due to stomach flu. Dianne spent the evening with Julie in her home.

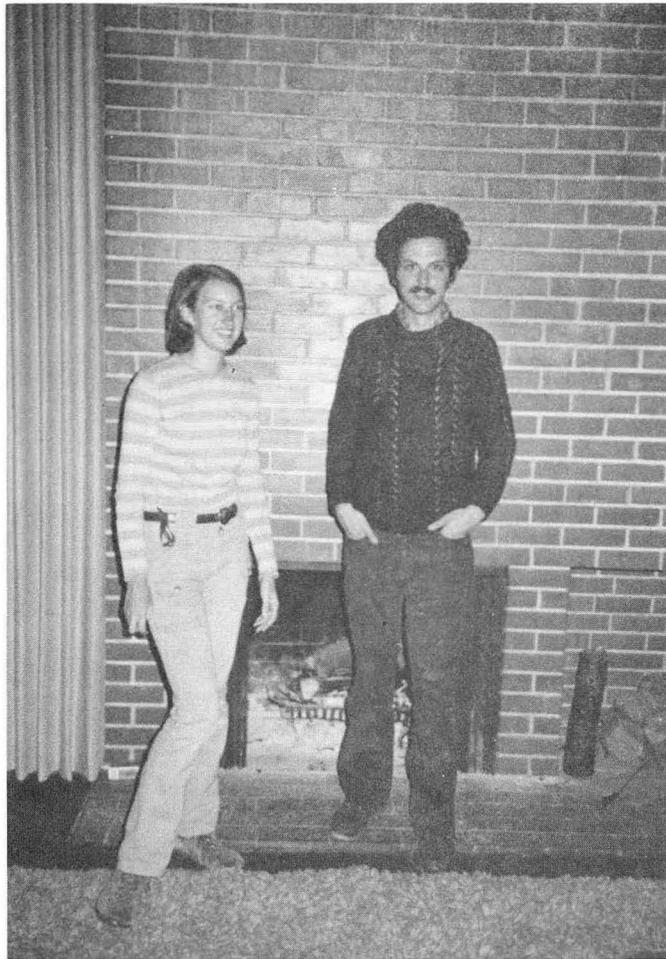
Saturday, December 22, 1973 - Lafayette

This was a day of watching football on TV. In the morning we saw the Washington Redskins-Minnesota Vikings game, which, unfortunately, the Vikings won, 27-20. In the afternoon, we saw the Oakland Raiders-Pittsburgh Steelers game which, fortunately, the Raiders won, 33-14.

Helen was still ill in the morning but began to feel better in the afternoon. She supervised the wrapping of Christmas gifts by Lynne and Dianne. Ben Orlove came by in the afternoon. Ben, Lynne, Suki, and I took a hike to the water tank.

Lynne, with help from Ben and Steve, prepared and cooked some potato sausage for our traditional Christmas Eve dinner, which we had this evening because Lynne is returning home to Indiana tomorrow. Our dinner group consisted of Ben, Helen, Lynne, Dave, Steve, Eric, Dianne, and me.

After dinner, we all opened our Christmas presents, which had been piled under the tree in the living room in the traditional manner. I was given the components of a stereo radio and record player and 8-track tape player (unfortunately not a recorder) which had been purchased by Steve. I took Bolex movies of the present-open-



Lynne Cobb and Ben Orlove in the living room at 1154 Glen Road: 12/22/73.



E. Coli, Steve, Dave, Eric, and Dianne (holding Moses) Seaborg, Lynne Cobb: December 22, 1973.

ing scene (one cartridge) and Olympus and Retina pictures of Lynne, Dave, Steve, Eric, and Dianne. Ben took an Olympus picture of this group that included me.

Sunday, December 23, 1973 - Lafayette

Gunnar Westman, who works with Olaf Bloom, called this morning from his sister's home in Menlo Park with greetings from Olaf.

We again watched football on TV, although it was somewhat off and on. In the morning, we saw the Miami Dolphins-Cincinnati Bengals game which Miami won, 34-16. In the afternoon, it was the Dallas Cowboys-Los Angeles Rams game which the Cowboys won, 27-16.

Lynne visited her friend, Louise Ballard, in her Piedmont home in the morning. About midday, Dave, Steve and Eric escorted Lynne to the Oakland Airport where she boarded a 1:10 p.m. plane home.

Suki and I took a hike on the rim trail around the Lafayette Reservoir in the late afternoon.

Monday, December 24, 1973 - Lafayette

Steve and I went to Pacific Stereo in Walnut Creek to exchange the 8-track tape player he bought for me last week for an 8-track player and recorder. We also bought a bookcase at Sears to serve as a stand for the entire stereo in my study.

Nat Laks came by to borrow our station wagon. Jeanette and Ray arrived in their camper in mid-afternoon to spend Christmas with us. Helen, with Jeanette, prepared and cooked some potato sausage for our second traditional Christmas Eve dinner. The group consisted of Helen, Dave, Steve, Eric, Dianne, Jeanette, Ray, and me.

Helen told me she had heard from Pete that he did poorly on one of his final exams--the ones he took last Thursday.

Tuesday, December 25, 1973 - Lafayette

Christmas Day.

Santa Claus came in his traditional way last night and left presents for everyone under the Christmas tree. I took some Bolex movies. Lynne and Bill called from their home in Lafayette, Indiana. Bill was just ready to leave to work at the Lafayette Crisis Center, then at his regular job.

We all had our Christmas dinner at 1:30 p.m. I took some Bolex movies.

Suki and I took a hike around the rim trail at Lafayette Reservoir. I bought a 1974 pass for our family and the two cars, good at the San Pablo as well as the Lafayette Reservoir.

At 5:30 p.m., we called Pete and Jane in Washington. They will celebrate their Christmas later this week.

Wednesday, December 26, 1973 - Lafayette

I spent a good part of the day getting the phonograph part of our new stereo to work and finally succeeded. Apparently the cartridge was not firmly in place.

Emilio Daddario called me from Washington to ask my advice on priorities for research and development on energy; this was in connection with his position as Director of the new Congressional Office of Technology Assessment. I suggested that the highest priority should go to gasification and liquefaction of coal and to oil shale (and oil tar sands), solar heating of homes and buildings, and the more available geothermal energy. I also tried to place conventional nuclear power, the breeder reactor, the fusion reactor, electricity from solar power and geothermal energy from hot rock in proper perspective. I invited him to visit LBL and to meet and talk to Jack Hollander, and he said he will try to do so in February.

Steve left in late morning to visit with friends in Berkeley. Jeanette and Ray left in late morning to return in their camper to their Long Beach home, planning to make a few overnight stops on the way. Eric left at 6:15 p.m. (Helen drove him to Berkeley) to take a bus to Fresno where he will spend the night at Ruthie Olson's family's house, then visit Yosemite for a few days with Ruthie, Janet and Tom.

Today it rained rather hard a good part of the day.

Thursday, December 27, 1973 - Berkeley - Lafayette

I took Dianne to lunch at Edy's on Shattuck Avenue in Berkeley. On the way home, we went by LBL to pick up a tremendous stack of mail and by Latimer Hall where I introduced Dianne to Joel Hildebrand.

The Walnut Creek furnace people came by to install a new furnace (Payne) to replace the worn out (heat exchanger cracked, motor failed, etc.) old 22-year-old Fraser, near the kitchen; the total cost was \$480. They checked our other old Fraser next to the master bedroom; it also needs to be replaced.

Steve again went in to visit friends in Berkeley.

Friday, December 28, 1973 - Lafayette

Steve rented a truck and, with the help of his friend Dave White (to whose sister I gave an autographed copy of the Handbook of Chemistry and Physics for Children), moved his furniture home here from his rented house in Davis. Dave White is a biochemistry major at Davis.

Harold Vincent, President of Walnut Creek Sheet Metal and Furnace Co., Inc., looked at our Fraser furnace next to our master bedroom; the heat exchanger is badly cracked, so I asked him to install a new Payne furnace (company owned by the Carrier Corp.; at a total cost of \$440). He will have his people do this next Thursday.

In the afternoon, Suki and I took a hike around the rim trail at the Reservoir. Dave went in to International House to move into his new, single room, number 441. Helen, Dianne and I had dinner together in the playroom. I wrote my editorial for the Annals of Nuclear Science and Engineering.

Saturday, December 29, 1973 - Lafayette

From 9:30 a.m. to noon, I attended a meeting of Lafayette Forward in the Refectory restaurant. Among those present were: Mr. and Mrs. Andrew Newman, Tom Henry, Richard Singer, Arthur and Betty Newburg, Al Rudderow, Chris Adams (Barbara Langlois's campaign manager), Claire Masters (Barbara Langlois's publicity chairman), Barbara Langlois (for the first part of the meeting), Hirsh Morton, Dolores Green, Betsy Page, Percy Whitten, Lee Ann Lane, Fran Dyer, Mary and Dick Kelley, Arlene Black, Mr. and Mrs. Charles Shepard, Mr. and Mrs. Shell Forschman, Jim Davy, Dave Kobel, Bob Kramer, John Kennedy, Bill and Ann Chilcote, Alice Johnson, Jop van Overeen, Joan Merryman, George Wasson, and Bob Gilliland.

George Wasson presided at the beginning. He identified the six candidates who have filed for the Lafayette City Council as follows: Barbara Langlois, Ned Robinson (incumbent), Robert Pedder, Maurice Moyal, George Wasson, and Lee Pfautch. (Robert Pedder and Maurice Moyal made their presentations to Lafayette Forward at their meeting last Saturday. The group at that meeting voted to endorse Barbara Langlois.)

Singer, van Overeen, Betsy Page, and Lee Ann Lane were nominated for chairman of Lafayette Forward to succeed Wasson (who resigned as chairman because he is now a candidate for the Lafayette City Council). Betsy Page was elected, essentially unanimously (in part because the others expressed reluctance to serve), and took over the chair. Attempts were made to get Lee Pfautch to come to the meeting to make a presentation, but these were unsuccessful. Betsy Page then called on Wasson to make his presentation. He has lived in southeast Lafayette for 17 years (13 years in Burton Valley), served on the Lafayette Improvement Association for 10 years, worked for incorporation, served on the Board of Directors of the Lafayette Community Center, various school parents' clubs, and other activities. He has a degree in electrical engineering from Purdue and a law degree from the University of Detroit. He is a registered patent attorney, works for Chevron Research (Bush Street office in San Francisco), is a recent President of the San Francisco Patent Law Association, etc. On local issues, he rates the traffic problem (especially BART parking problems in the future) as the number one problem, is against the Burton Valley freeway project, thinks Lafayette should continue as predominantly a single family residence community, thinks the Lamorinda concept should be studied carefully, and is in favor of the open space concept (but worries about the maintenance and thinks a second bond issue should set a smaller goal than that of SOS).

The group voted to support two (and only two) candidates, with the implied additional support of Ned Robinson (although Lafayette Forward does not actively support incumbents). The group then voted to support Wasson. Thus its two candidates are Wasson and Langlois.

The group elected Mary Kelley as Recording Secretary, Bob Kramer as Treasurer, Tom Henry as Corresponding Secretary (will write press releases), and these three plus Jop van Overeen and Jim Davy as members of the Executive Committee.

The next meeting of the group will be on call from the Executive Committee. There will be a solicitation of the group for contributions--an upper limit of \$25 (actually \$24.99) each was suggested to avoid the need of reporting the contributions.

I had lunch with Dave to discuss his problems in finding a research director. He has in mind a Ph.D thesis problem involving testing conditions under which two species can co-exist when ordinarily one would prevail over the other. In the late afternoon, he went to Berkeley to visit a friend and then went on to spend the evening in San Francisco.

Suki and I took a hike around the rim trail at the Reservoir in the afternoon. I drafted my statement to be used for my candidacy for the ACS presidency.

Sunday, December 30, 1973 - Lafayette

Today our family spent a good deal of time watching on TV the football championship play-offs. We saw the Minnesota Vikings beat the Dallas Cowboys, 27-10, for the NFC championship in the morning, and the Miami Dolphins beat the Oakland Raiders, 27-10, for the AFC championship in the afternoon.

Suki and I took a hike to the water tank. We had our dinner in the playroom while watching a CBS review of events in 1973 on TV.

After dinner, Helen drove to the Oakland Airport to meet Peter and Jody Biermann who arrived from a visit with friends in Dallas following a visit with her mother and stepfather in Moline. They spent the night with us.

I took movies of Peter, Jody, Helen and Dianne (and Helen included me in some) in the kitchen. Dave drove in to Berkeley to attend a party with his zoology department friends.

Monday, December 31, 1973 - Lafayette

I spent most of the day recording some old records on 8-track tape using my new recorder. Suki and I took our rim trail hike.

Steve left in late afternoon to visit friends in San Francisco and Marin. Dave left after dinner to attend a New Year's celebration of Hammarskjold House people in San Francisco.

Helen, Dianne and I, together with Peter and Jody Biermann and their friends Leslie and Carol Lampert (and little son Jason) watched the New Year come in in our traditional way--watching Guy Lombardo and his orchestra on TV from the Waldorf Astoria Hotel in New York City, and Ben Grauer at Times Square.

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