unilateral disarmament at all, but about possible forms of inspection in a disarmed world. In fact neither Szilard nor the Council ever advocated that the U.S. disarm unilaterally. Burdick evidently did not take the trouble to find out what Szilard had actually said, but decided instead to repudiate the Council and return all the checks—no small task or easy decision, since they had come from hundreds of supporters and totaled over $14,000.

None of the other recipients of Council funds followed Burdick, though all were under considerable pressure to do so, and indeed some were eloquent in defense of the Council when it was attacked in the Senate. It is also some measure of the Council supporters' faith in their leadership that almost every one of the checks returned by Burdick was immediately sent back to the Council, to be used as its leaders saw fit. If a final stamp of respectability were needed by the Council, that has been supplied by none other than President Johnson, who wrote in June to James Patton, head of the National Farmers Union and a member of the Council's Board of Directors: "I hope that Dr. Leo Szilard's death will not in any way slow down the good work which you are doing. We in the government benefit greatly from a responsible and informed public opinion which is concerned with world peace. I wish you success in your efforts toward this vital goal."

The Council has never developed on the scale that Szilard had hoped. Instead of 150,000 supporters it has attracted about 3000, and its budget in no way approaches the $20 million a year that he had hoped to be able to dispense. But in a city where lobbyists outnumber members of Congress in a ratio of more than ten to one, it is no small thing to be noticed at all, and the Council for a Livable World has done a good deal better than anyone probably had a right to expect.

—ELINOR LANGER

Ranger VII: Briefing for Johnson Brings Out High Level Chit Chat on Various Aspects of Space

Last week, following NASA's brilliant success in photographing the moon with Ranger VII, several space agency officials visited the White House to brief President Johnson. Speaking to the President were Homer E. Newell, associate administrator of NASA for space sciences and applications; William H. Pickering, director of the Jet Propulsion Laboratory, which directs the Ranger project; and Donald F. Hornig, the President's science adviser. The following excerpts are from an official transcription of the briefing distributed by NASA:

The President: What did you find that you didn't expect to find?

Pickering: We hadn't analyzed the pictures yet, but I think what we can say is this sort of thing gives credence to some theories and discounts other theories. In other words, people have been speculating about the surface of the moon. Now we have some real evidence that shows what it actually is like, at least this one spot on the moon.

The President: Does this in any way confirm for the American people that you folks had known what you were doing?

Pickering: Yes, I think it does.

First of all, it confirms we know what we are doing technically when we design something to do this job. Secondly, that as far as the Apollo program is concerned, it confirms that the basic assumptions that they were making about the sort of surface we are going to have to land on is probably correct.

The President: So there is some justification in this achievement for the faith that some of us have had in this adventure. . . .

While I think of it, to put it in perspective, what similar achievements, scientific achievements, can we compare to this? Is there a notable, famous, or progressive step that we made that you would—

Newell: Dr. (Gerard P.) Kuiper (the principal investigator) was asked this question yesterday. He stated he felt this was comparable to the photographing of the sun in the ultraviolet light by means of rockets that was done by the Naval Research Laboratory a number of years ago.

Someone else said that this amounts to a big jump in lunar science, equivalent to the jump that occurred when Galileo turned the telescope on the heavens.

Hornig: Might one not say that the gain in resolution is as great as going from Galileo to the 100-inch telescope?

Newell: Absolutely. The gain between this picture—the last picture I will show and this picture—is a factor of a thousand. You will recall that we were hopefully attempting to get at least a factor of 10. This means that the Jet Propulsion Laboratory has done better than what they had hoped for by another factor of 100.

The President: What period of time is then involved in this endeavor?

Newell: This project started back in 1959–1961. So the Jet Propulsion Laboratory has been working very heartily.

The President: How much is involved in this?

Newell: $260 million, which covers the next two Rangers to be fired.

The President: And the launching vehicles?

Newell: That covers the whole project.

The President: Are you satisfied with the return on your investment?

Newell: I am completely satisfied. In fact, I am delighted.

The President: Elated.

Newell: Elated. . . .

The President: Does this development of the last few days and the time that you have given our people and the world information, that we may have made considerable and satisfactory progress since Sputnik?

Newell: Yes, indeed it does.

The President: In other words, some of the questions that were common in our country with Sputnik One and Two can now be supplanted by encouragement and certainly much greater hope?

Newell: This country does not need to hang its head by any means.

The President: That does represent progress from where we were when we first learned of Sputnik.

Newell: It certainly does.

The President: You don't anticipate a Congressional investigation?

(Laughter.)

Newell: Not of this. . . .

The President: How far away from the object is the camera? . . .

Voice: Over 100 miles.

The President: There is not any likelihood that any of these UPI and AP boys have a camera like that after my boat. [A reference to news photographers using telescopic lenses at the President's vacation retreat in Texas.]

(Laughter.) . . .

The President: These pictures are very exciting. But are we correct in believing that the biggest scientific questions will have to await the manned landing?

Newell: Yes, I think we are. There are many questions that cannot be

solved by just looking from a distance. When the man gets on the surface, he will be able to select a range of materials to bring back from the lunar surface for analysis.

The President: That is what you want.

Newell: We sure do.

The President: And this is essential [to?] through that landing and extremely helpful and necessary.

Newell: This is essential to that landing. It is also essential to the landing of the Surveyor, which will provide even more detailed data in support of the Apollo lunar landing.

The President: But the payoff is the landing and bringing back what you find there?

Newell: That is correct.

The President: Are we reasonably hopeful that we can stay on schedule?

Newell: I am hopeful. These data have provided a reassurance that the range, design range, that was used in designing the lunar excursion module, is sufficient to take into account the difficulties of landing that will be encountered.

The President: In your opinion, it is desirable to get there as soon as you can?

Newell: In my opinion, yes.

The President: If you are going, you ought to go as quickly as possible.

Newell: You ought to go as quickly as possible, do it as effectively as possible; yes, Mr. President.

The President: There is very little doubt about really the desirability of going?

Newell: Not in my mind, not at all.

The President: What do you think would be the result if I made the decision—if the government made the decision, or the Congress made the decision, that we have had enough and it is a little too difficult for our country and we are going to get back in our rocking chairs and let the rest of the world go by?

Newell: I would feel that we were backing down from the real challenge, the kind of challenge that we have never backed down from before in our history.

The President: So what?

Newell: To me that is not the sort of thing that the United States should do.

The President: What do you lose by backing down?

Newell: You lose leadership, you lose the thing that has made America great.

The President: Leadership in what?

Newell: Leadership in world science and technology, leadership in achievement and accomplishment.

The President: Leadership in the world?

Newell: Leadership in the world.

The President: Do you think that we can be first in the world and second in space?

Newell: I don't think so.

Pickering: No sir, I don't think so, either.

The President: So if we sit with our hands in our pockets, and yield this leadership to other powers, we are in effect becoming their followers in the world in which we live. Is that what you think, Doctor?

Pickering: Yes, sir. I think that all we have to do is remember back on what happened after Sputnik to recognize what could happen. I think that what we have done since then illustrates what we can do. I think an example of this Ranger shot shows the tremendous strides we have taken. We have got to keep on taking them.

The President: I assume that you can't compliment [?] the type of mind that thinks in terms that this is only a stunt. This is really a battle for leadership and real existence in the world, isn't it?

Pickering: I believe so.

The President: A battle?

Pickering: I believe so. In our civilization the technological achievement is a mark of leadership, and it is an essential mark. It is essential that we demonstrate our technological achievement in these areas.

The President: In effect, the British dominated the seas for centuries and led the world, didn't they?

Pickering: Yes, sir.

The President: We have dominated the air with leadership, and I think unquestionably have been the leaders of the free world since we established that dominance, haven't we?

Pickering: Yes, sir.

The President: And the person that leads in space is going to have an equivalent position, isn't that true?

Pickering: It certainly appears to me that space is the next domain where this leadership must be exercised. . . .

The President: The result that will follow this adventure and the subsequent landing will in your opinion retain for us leadership that is essential for our civilization?

Pickering: Yes, sir, I believe so.

The President: If we were to conclude—If I were to conclude, if the Budget were to conclude, or if the American people should conclude that we want to effect a savings here of a few billion dollars, would it be your opinion, Doctor, that we would be penny-wise and pound-foolish?

Pickering: It would indeed, sir, because I believe that this is truly an investment not only which is needed to demonstrate our leadership in the relatively near future, but it is a long-term investment for the future.

The President: Do you have any comments?

Newell: I agree completely.

The President: Why? I want to develop that a little bit. I conducted the hearings [while a member of the Senate], the investigations, the aftermath, the retrospect after Sputnik I when everybody said where has America been, what are you doing, wake up, Rip Van Winkle. I sat there for days, weeks, and months, hearing our scientists explain to us why we were second.

Then out of those hearings came the Space Act, and the special space committee and the standing committee of space, all of which had some opposition, and was achieved with some difficulty.

Now we are putting $20 billion—

Newell: $20 billion.

The President: $20 billion in this project which is 40 percent of what we spend in one year on military preparations, and a good many people say to me that is a lot of money. We know it is. We have been paying high taxes that we would like to avoid.

Is it conceivable now to you that we could do that and still expect to occupy the position in the world that we cherish for America?

Newell: It is not conceivable to me that we could do that. My feeling is that the answer to your questions rests in looking at the total scope of the lunar landing program. One should not look just at the matter of landing a man on the moon, but what has to be achieved in order to do that. It is that achievement of advances in technology, ability to operate and move about in space, ability to choose what you want to do in space, that laying of the groundwork for future living in a space age. That is the important thing.

The President: And if we had lacked the imagination and ingenuity and inventiveness and desire to move ahead, we could have been content with the (unintelligible).

Newell: We could have.

The President: Or the single-motor plane flown at Kitty Hawk?

Newell: We could have.

The President: But if we are to preserve what we have and survive and provide the kind of leadership that our people demand, we are going to have to move on to the supersonic plane, into space, and into a manned landing on the moon and things of that kind so that we can really explore and develop our potentialities.

Newell: I thoroughly believe that, Mr. President, and not to the exclusion of doing other things.

The President: What are some of the by-products of your effort to this date, insofar as scientific discoveries are concerned? List three or four. I assume you made unbelievable progress in weather forecasting, haven't you?

Newell: The weather situation is far better now because of the weather satellite than it used to be. Nations like Japan and the Malagasy Republic, which are subjected to surprises in the matter of tropical storms, welcome this device, the meteorological satellite, because it can give them advance warning of the approach of such storms.

Everyone is also familiar with the application of satellite technology to communications satellites. And here again, we have a great advance in an important commercial and military area.

The President: I gather that our scientists, some of them, anticipate that these pictures would reflect a deep layer of dust on the moon and if the astronauts were dropped in there, they would immediately sink through it and be enveloped in it. That gave you great concern. The pictures dissipate that and say "it ain't so." . . .

Hornig: Mr. President, these gentlemen understate their case. They are very modest. They and their colleagues have really made a monumental step forward, and they have taken us a long, long way on the road to our final goal, when we get men to the moon. This is a step which will be and is being voiced all over the world—not only a scientific but a national achievement.

Anyway, they have understated what they have achieved. . . .

Announcements

Rensselaer Polytechnic Institute has been named to administer an interdisciplinary study program to develop **"science courses for modern baccalaureate education."** The project, to be supported during the next 3 years by a grant of $192,260 from the Charles F. Kettering Foundation, is a combined effort of Rensselaer's school of science and the school of humanities and social sciences, and a group of individual faculty members from other schools. The study aims to develop courses with new content and organization, stressing the relationships of the sciences to other disciplines. Scientists interested in participating in the project are invited to contact the chairman, V. L. Parsegian, at Rensselaer, in Troy, New York.

Grants, Fellowships, and Awards

The National Science Foundation will award grants to defray partial travel expenses for a limited number of U.S. scientists to the ninth international **grassland congress**, 8–20 January in Sao Paulo, Brazil. Deadline for receipt of applications: *31 August*. (Division of Biological and Medical Sciences, National Science Foundation, 1951 Constitution Avenue, Washington, D.C.)

Meeting Notes

The American Physical Society plans an international conference on correlation of **particles emitted in nuclear reactions**, 15–17 October in Gatlinburg, Tennessee. Papers are invited discussing theoretical and experimental aspects of the problem. Deadline for receipt of abstracts: *1 September*; for 1500-word summaries; *17 October*. (A. Zucker, Oak Ridge National Laboratory, Box X, Oak Ridge, Tenn. 37831)

The International Atomic Energy Agency and the Joint Committee on Applied Radioactivity will hold a symposium on the chemical effects associated with **nuclear reactions and radioactive transformations**, in Vienna, 7–11 December. The topics to be covered include theoretical aspects of hot-atom recoil products, chemical effects of nuclear recoil in both the solid and the liquid phase, and chemical effects of radioactive decay. Papers are invited for presentation at the meeting; abstracts of 250 to 350 words are required. Deadline for abstracts: *15 August*; for completed papers: *15 October*. (Papers from U.S. scientists should be sent to J. H. Kane, International Conferences Branch, Division of Special Projects, Atomic Energy Commission, Washington, D.C.)

Scientists in the News

J. Stanley Ahmann, head of the psychology department at Colorado State University, has been appointed academic vice president of the university, effective 1 September.

Ralph E. Thorson will begin a leave of absence as head of the biology department at Notre Dame University as of 1 September, to serve as professor of parasitology and tropical health in the school of public health, American University of Beirut, Lebanon. **Robert E. Gordon**, associate biology professor at Notre Dame, has been appointed acting department head.

Winston Edward Kock, vice president, research, at the Bendix Corporation, Detroit, has been named to head the NASA electronics research center in Boston, effective 1 September.

Robert M. Mazo, associate chemistry professor at the University of Oregon, will become director of the university's Institute of Theoretical Science, 16 September.

Alvin R. Luedecke, general manager of the Atomic Energy Commission, has been named deputy director of the Jet Propulsion Laboratory.

Robert H. Perry, program director of engineering and science facilities at the National Science Foundation, has been appointed professor of chemical engineering at the University of Rochester. He has been on leave as chairman of the department of chemical engineering at the University of Oklahoma to serve in the NSF post.

The American Council on Education recently named **Edward L. Katzenbach, Jr.**, director of its Commission on Administrative Affairs. He had been Deputy Assistant Secretary of Defense for Education.