

**DR. FRANK PRESS
EXIT INTERVIEW**

This interview is being conducted with Dr. Frank Press in his office in the Old Executive Office Building in Washington, D.C. December 5, 1980. The interviewer is Dr. Thomas Soapes. Present for the interview are Dr. Press and Dr. Soapes.

SOAPES: Dr. Press, first I'd like to talk a little about your background and how you came into government service. What was your first contact with the government?

PRESS: My career has primarily been in universities as a scientist, professor, department chairman, but I had served as a consultant to many different government agencies and I was on President Kennedy's Science Advisory Committee, which was a Presidential appointment at that time. And I had consulted for the Arms Control Agency at the State Department and NASA, the Department of Interior, in many aspects of science and technology policy and international affairs.

SOAPES: You had been with the Geneva team in '58--

PRESS: Yes, yes. I was involved in the nuclear test ban negotiations as a member of the U.S. delegation.

SOAPES: Harold Brown was with you--

PRESS: And Harold was with me and, of course, I know Harold even from before that; we were graduate students together at Columbia University.

SOAPES: [What is] your specialty as a scholar?

PRESS: I'm a geophysicist and that means I've worked in oceanography and study of the planets through the space program in natural resources, minerals, earthquakes, and so on.

SOAPES: Then your contacts with the Carter Administration--how did your appointment here come about?

PRESS: As near as I can piece it together--after the cabinet was appointed and so on, the time came for the Executive Office positions, and the President had received a slate of nominees from leaders of American science and technology, and I suppose my name was on it. And when I had first met with him in early February of '77, he simply said, "I looked over the list and your background is the one that interests me most because I do have concerns about environment, about energy, about natural resources, arms control, relations with countries like the Soviet Union, and you've been involved in all of these things and that's why I selected you. Will you take the Job?" I hadn't worked with him

before. I had no connection with the campaign before.

SOAPES: Now then once you took office, what was your place in the chain of command? To whom did you report?

PRESS: The Office of Science and Technology Policy has a checkered history. It was a very effective and strong office under Kennedy and Eisenhower. Its influence waned under Johnson, who viewed the office with its contacts with scientists and University people as a source of opposition--the Vietnam war and so on. And then Nixon abolished it entirely, but in '76 Congress created an Office of Science and Technology Policy and President Ford signed the bill. And in the last six months of his administration, he appointed Dr. Stever, but he was not re-elected and so Carter, upon his re-election, did make the appointment of me as director of the Office of Science and Technology Policy and as his science advisor.

But, frankly, coming into this office, I had to face the situation where all the previous tasks assigned to this office had been subsumed by everybody else in town with different White House advisors because there was a vacuum and people moved in and started to do the kinds of things this office had done before. And most of the Carter people had no ideas how to use an office like this; so it was a matter in the early months of building confidence, making connections with the other White House advisors and with the President to show him how an office of professional scientists and engineers could be an effective tool of the Presidency. And we did that, I think, successfully. I felt that I could report to the President. He invited that. I felt that I was working for him. On the other hand, I had to work very closely with the other senior advisors in the White House because there are many issues that you don't take to the President that you solve within that group. And then I also had very close connections with key cabinet officers who have major R & D [Research and Development] programs within their agencies. And this was the network that I had to build in order to be effective.

SOAPES: Could you give me an example of a decision that would be solved below the level of the President?

PRESS: Say a proposed environmental regulation comes in and it's technically flawed--we don't want to second-guess a cabinet department or an independent agency, but after all things do come in and the President asks his staff for opinions. Say a proposed environmental regulation comes in and we find that the scientific basis for it is very weak. Since regulations have economic impacts, health impacts, political impacts, I would work with the appropriate senior officials in the White House and we would go back to the agency head, whether it's FDA or EPA or (OSHA) and say, "Look, are you sure you want to do it this way? It's going to be criticized very severely because the technical basis seems flawed. Or the economic impact is so great." Whatever. And that would be an issue that we'd try to resolve below the President. Sometimes it would have to go to the President.

SOAPES: Did you feel that you had adequate access to the President when you needed him?

PRESS: Yes, yes. I was amazed that the mean time, the average time for him to respond, say, to a note that I would send him would be something like two or three days. And I was shocked very often to get a response within hours on a complicated issue. So I feel that I had that access. [I] felt I could write directly to him and it wasn't shunted aside by a staff person.

SOAPES: Having been here in the Kennedy Administration and somewhat also in the Eisenhower, how would this access and response compare with your experiences from earlier years?

PRESS: Well, I didn't have this job in the Kennedy [Administration]--I was an advisor. My main job was elsewhere; so I couldn't make that comparison. I would have to compare my job and its access and effectiveness with the full-time science advisor of those days. My own assessment is that it is as good--my effectiveness because of the President's use of this office was as good as the best. Also, I have had this job longer than all of my predecessors, four years, almost four years.

SOAPES: What were the principal subjects in which your office became involved?

PRESS: Well, the modern Presidency involves issues of all kinds. A great many, if not most of them have scientific or technological components. Take arms control; the technical basis for arms control is extremely important when it comes to verification, the impact of an arms control agreement on our technological military systems and so on. Take the defense budget; decision like the M-X. It's a highly technical system. Alternatives, strategic systems are available that the President had to decide between, and so we were involved in that.

Energy, alternate energy technologies [are] of great importance; decisions on solar energy, what is achievable now and in the next ten years [and] in the next forty [or] fifty years. Issues of breeder reactors, fusion, new provinces for oil exploration like the deep continental margin. All of these we've been involved with because the President has been involved with them.

I mentioned environment, risk assessment, risk benefit assessment when it comes to carcinogens, the whole area of agriculture and agricultural research. Our rate of productivity increase in agriculture is declining. We need some new ideas. We're the world's greatest nation of agricultural productivity because of the research that was done thirty [or] forty years ago, but the soils are becoming depleted. International needs for food are growing. We need some new ideas. in technologies, new kinds of crops that can respond to this, so we've worked in this area with the Cabinet Secretary and so on.

Natural resources, the world's resources are running out, but does that mean that we can't do other things in terms of new materials, substitutes, producing more effectively lower grade ores? So we've been concerned with that issue.

What kind of space program should we have? The President appointed me chairman of his policy review committee on space.

What would be our relations with developing countries? These countries--there's no way that they're going to feed themselves by the year 2000 unless we find ways of farming poor soils with new kinds of crops. So our international relations with the third world have a heavy component of technology transfer.

Issues of technology transfer to the Soviet Union; what kinds of things should we license and not license? This requires an evaluation of how they would use it. We've been involved with that.

A major component of normalization of relations with China involved a science and technology agreement. We are now training several thousand Chinese students in this country as part of that agreement. I'm told that this cooperative agreement was an important factor in normalization of relations with the Chinese. So, in domestic and international areas you can see that of all of the issues that come across the President's desk, a great many of them, if not most of them, involve this kind of input.

SOAPES: Were you involved in the Three-Mile Island problem?

PRESS: Yes. I flew up there with the President when he went to visit the site. I was involved in the few days afterwards as part of the White House team monitoring it hour by hour. I was involved with the notion of setting up the Kemeny Commission and then I became the main contact point for that commission to the White House. And then I was involved with responding to the report. The commission made a report to the President and the President had to translate that report into policy. And I was involved in that very deeply in that use of the report and its translation into executive orders, the appointment of an oversight committee, recommendation for new policies at the Nuclear Regulatory Commission and the Federal Emergency Management Agency and so on.

SOAPES: One of the great controversies that this raised, was highlighting, was the debate over nuclear power and its role. How would you characterize the attitude of this administration towards nuclear power?

PRESS: Well, the administration, especially Carter's Administration, was a very broad one. There were advocates, there were anti-nuclear elements in it. My assessment of the President's position was that he recognized that nuclear energy was an essential component of a national energy policy. However, he stressed over and over again that safety comes first and if it couldn't be performed in a safe manner, nuclear energy should be reconsidered. But he believed that with adequate regulations, supervision, monitoring with cooperation by industry, in fact with industry assuming primary

responsibility for safety because that is their responsibility--that with new practices, we could have safe nuclear energy. [The] President was very sophisticated in energy matters; he understands the technology, and he also understands that there are problems with other sources of energy. They are also dangerous. The combustion of oil and coal, for example, releases carbon dioxide into the atmosphere which sometime in the next century might trigger profound climatic changes. So we need options available to us now to be ready then for energy sources which are not based on combustion. What are they? [They are] nuclear, they are solar, fusion, and others. We have to keep all of these viable in order to be ready for shocks in the future.

SOAPES: Did you play a role in writing his numerous energy speeches and if so how did your input get into them?

PRESS: I didn't play the lead role in writing the energy speeches because if you go over those speeches you'll see they were mostly social-economic in nature, in terms of the international energy crisis and so on. I did play a role in the energy area in several ways. I wrote a very important paper which affected the President and he circulated it to his whole staff as must reading, laying out for him what technology can do in the near term and the intermediate term and in the distant term to solve our energy problems, pointing out that the near term was primarily relying on present know-how and solving the economic and political problems of energy as his first priority. That led, of course, to deregulation, conservation, and all of the elements of his energy policy.

Each year in the budget cycle, major decisions have to be made on investment and new R & D energy technologies. We're a very rich nation, but not rich enough to try everything; so we have to make decisions on priorities--how much do we want to put into solar, into fusion, into breeder reactors, into improved coal technology, biomass, and so on. And there I've worked with the President, the Cabinet Secretary, the Director of OMB in deciding those priorities. So I would say my role in the energy area was in the technological components of energy through the budget process, through my interactions with the President about what technology can do for our energy problem in the near term and in the distant term. In the area of nuclear safety, in reform and reorganization of the Nuclear Regulatory Commission, where I played a major role at the invitation of the President.

SOAPES: Did you get involved in some of the foreign policy implications of our nuclear power policy, such as the disputes over the sale of nuclear power equipment in the international market?

PRESS: Yes. I served as a member of the policy review committees that made these decisions and in that way I could have my input. The Tarapur [fuel] sale, for example, on [the] non-proliferation policy-- as a member of those committees my views could be presented.

SOAPES: And what was the thrust of your feeling about what our policy should be in that area?

PRESS: By and large, I agreed with the non-proliferation thrust of our international nuclear energy position. However, I did differ with some others in the administration in the sense that I didn't believe our policy was convincing the other nuclear powers. [It] was effective in changing their minds about the plutonium economy. We tried very hard to achieve a system of international control of plutonium. And we tried to set a model for the rest of the world by not going into breeder reactors which would create plutonium. And after the first two years of our policy when I saw that France and Germany and the other nuclear powers simply were going their own way, I tried to express the view that rather than holding the plutonium economy, which we failed to do, we should work for an international system of controls that was air-tight; that we knew exactly where all the world's plutonium was and could protect against its diversion to a nuclear weapon manufactured by countries which do not now have nuclear weapons. I suspect that had the administration been re-elected [to] a second term, we would have moved in that direction because I could see increasingly support for this position. I supported the President's views on breeder reactors not only for the proliferation problems, but I simply didn't think that they were economical. They were too expensive as electric power generating plants, and there wasn't a sufficient uranium shortage to justify that investment. [I] was very pleased to learn that just this last month, the French, who are most advanced in breeder reactors in the Western world, have decided themselves that it was not economical. Power production was too expensive with breeder reactors, and they were pulling back from that position. Early in the President's administration I brought in a group that had studied nuclear energy and its international aspects. It was the Ford-Mitre study, a very famous study. The President was extremely impressed with their analysis, again, which showed proliferatin concern, but more so showed that breeder reactors were simply not economical. And he used that as the basis of his own discussions with the Japanese and with other countries.

SOAPES: You mentioned that there were differences within the administration on a number of these issues as there always is. You're a scientist, an academic, here in a political world where the rules of the game are somewhat different, I suppose. How did you feel that you were treated by the political people of the administration in the role that you play here?

PRESS: I think my relations with the political elements in the administration evolved over time. I think, from what they tell me now, they found me to be a very credible source of advice; we have all our biases, but that's life. But I tried to be as professional as possible in laying out an evaluation of an issue, but also I expressed my opinions on some of these things as I have just done to you. So, I think they came to evaluate me as a fair person as straight, as open, letting people know exactly how I felt about these things, but also they saw the President's response to some of the things that I have done. They saw that it was positive and that is a very important signal to them, that they should take me seriously. And so because of all of these things my direct relations with them and my relations with them through the President, I found a very positive

response and I felt that I was used adequately and well in the best sense of the word.

SOAPES: What role did your office play in the Law of the Sea Conference?

PRESS: The Law of the Sea Conference, as you know, has been going on for seven years. It predates this administration. By and large the U.S. position was relatively independent of Republican or Democratic politics; in fact, our Ambassador was Elliot Richardson, who was a leading Republican. I served on the interagency committee that monitored our position at the U.N. Conferences on the Law of the Sea that instructed Ambassador Richardson-- [He] was a very independent guy and mostly did what he wanted to, but he was sensitive enough not to do foolish things and he's very experienced, smart. He was a good ambassador for us. So, I followed it very carefully. On certain issues that did come up about what the U.S. position should be, I did register my opinion. I didn't find it to be terribly controversial within the administration. My own particular concern was to make sure that scientific research at sea was not proscribed by some of the regulations in the early versions of the Law of the Sea Treaty, research in oceanography, sea-floor, would have been severely hampered if not completely paralyzed by some of proposed diversions of the treaty. And I think we softened those significantly. And I was particularly concerned about that.

SOAPES: One of the areas, of course, of science that was popular in the Sixties was the space program. Now it has been somewhat de-emphasized. What were the principal objectives of the space program for this administration?

PRESS: The space program had three elements. One, of course, was the scientific exploration of space--our planetary programs, our study of stars and distant galaxies using satellites. The next component was applications of space for the good of mankind. As you know, space communications has revolutionized communications throughout the world--television broadcasts across oceans, communications for commercial purposes. This was a profound contribution, in fact, it may have paid for our entire space program right there. And remote sensing from space is going to have enormous importance in the years ahead.

We will be able to find new resources from space, analyze agricultural productivity from space, predict in advance agricultural production so that we can make long-range planning in case there are shortages, we can see incipient disease from space, the use of lands, land use planning would be extremely significant to be affected by space technology; problems of water, hydrology can be monitored from space, navigation, weather forecasting. We're doing that now. We can do it better in the future. So the growing exploitation of space for the good of humanity will be extremely significant. The President feels this very strongly and our programs with developing countries, more than most people know, involve the use of space helping these developing countries with their plans, with their economic mineral exploitation, with their agriculture.

And then, of course, space has an important national security component in the intelligence area and the military area. The space shuttle will serve all of these

functions--science applications, defense, national security, and our commitment to the space shuttle because of its importance as a transportation system for the remainder of the century is our highest priority. No other nation will have that kind of capacity of launching satellites using the shuttle, of retrieving them and fixing them. This will be an immense capability. And that's why we're supporting it despite some of its very expensive problems in these months before it's launched next year.

SOAPES: Of course, the plans for many of these predate the administration with a long lead time in development. What do you think are the most important contributions this administration has made in the development of the space program?

PRESS: I would say that assuming and enunciating the obligation for space sciences with the new starts that we have commissioned. We are going to have a Venus orbiter. We have fought, in some cases, with congressional appropriations committees to preserve the commitments made by previous administrations, for Project Galileo, for example, and the space telescope, even though those were committed by previous administrations. There were almost successful attempts to cancel those and we've worked very hard to preserve them. And then we've had our own new initiatives, like the national oceanic satellite and the Venus orbiting imaging radar that I mentioned to you. We have approved NASA's re-entry into the space communication area. They've been out of it for ten or fifteen years. We've told them to go back and develop the next generation of communication satellites. So maintaining the past having new initiatives on our own in the sciences and applications has been the major element of our policy. We have decided not to embark upon major space ventures like sending a man to Mars or space colonization at this time. The reason for that is that we felt that after a 100 billion investment in space, we should start extracting some benefits in the near term for the good of mankind. And that's why we stressed the areas that I've mentioned, plus a very viable space science program. I would have liked to have done more in the space science area and applications, but the budget constraints were very severe and under those circumstances we did the best we could.

SOAPES: One of the debates that I understand that runs through the space program has been a dichotomy between the engineers and the scientists. Is that a useful dichotomy in looking at some of the debates on space policy in this administration?

PRESS: That debate was emphasized more in previous years, for example, in the Apollo program where the engineers would've liked to have stopped the program after the first flight to the moon because they showed that it could be done, and then they wanted to go off and do other things. Whereas the scientists argued that look, we have this capability and we want to go back to the moon many times and really study the moon scientifically. And there it was resolved, the scientists did make their case very successfully. This kind of debate will go on forever. The engineers want new challenges all of the time and once they've done something, they want to develop a new system. Whereas the scientists say look, you've given us this capability, let's use it now for scientific purposes. So this is a natural issue of controversy that reasonable people can work out over time.

There are two areas that you haven't mentioned that I think you should know about. They are perhaps the most important things that this administration has done. The President, very early in his administration, wanted to become associated with major initiatives in support of basic research in the country. He felt and for the first time enunciated the concept that basic research is a federal role, is an investment in the nation's future and should be viewed as an investment rather than a near term expense, and he understood that today's research can lead to tomorrow's new industry. And he also understood that this country's future in terms of international trade, employment, the basic economy would rest on our ability to get new industries going or replace obsolescent industries. And he's supported increased research budgets as best he could. And his rhetoric was directed toward increasing the morale and the sense of contribution of America's scientists and engineers. And so he had noticed that in the previous ten years there had been a decline in the support of basic research by the federal government, and he wanted to address that. If you take the last two Ford budgets and all of Carter's budgets, we have turned around that decrease, so that in deflated dollars we should be at an all-time peak in the support of basic research in this next year. And so addressing that as one of his major themes was rather unique, and he was very proud of that and he kept saying that.

The second area that is very important is that dealing with industrial innovation and productivity. As you know, our rate of productivity increase in the past decade has been very disappointing compared to other countries, and to increase productivity requires many things. Industry needs capital to invest in new production lines and new capital stock, but it also needs ideas, inventions to develop into new products, new ways of doing things. The President asked for a major review of industrial innovation as it is affected by the federal government. The federal government can either inhibit innovation or can encourage it. It could inhibit it by an insensitive regulatory policy. It can inhibit it by tax policy which does not encourage investment. It could inhibit it by under-investing in basic research. It can encourage it by having patent policies that encourage innovation and invention and doing the positive things that I've mentioned before. And so this review that the President commissioned, the fact that he commissioned it, that it was Presidential, that it involved the cabinet, was the highest level of attention this issue had received in the past twenty-five years that it has been floating around. So I'm very proud of the fact that I brought that to the President, that he adopted it, that Stu Eizenstat and the Secretary of Commerce adopted it, and we did what we did. It led to a number of executive orders, proposed legislation--some of which has passed--and a tax policy in which the prime element was rapid depreciation allowances, accelerated depreciation allowances, which is precisely what industry said they needed to make the investments in new plant and new capital stock and to exploit their own R & D as well as the government's research.

SOAPES: The President has placed a great deal of emphasis on education. Back in the Eisenhower Administration when this subject came up, it was closely related to science and defense policy. Was his interest in education that closely tied to his interest in science here or was it a broader interest?

PRESS: I think it was a broader interest. He did serve on a school board, as governor of a state; he had to be intimately involved with educational policy. He, of course, was concerned about opportunities for minorities, for women. He was concerned about the erosion of basic skills--reading, arithmetic and mathematics--of our school children, and so he was very sympathetic and that led to targeted increases in the education budget, and, of course, to the Department of Education.

About a half-year ago, I brought to him a serious concern that I had about coming shortages in the nation's manpower in engineering particularly. With our initiatives in synthetic fuels, in defense, with our re-industrialization policy, we needed more than ever large numbers of engineers and scientists. The industrial leaders that I met with frequently brought that to my attention, that there were shortages, that they were being held back in increasing their productivity by these shortages. And so he commissioned a major report. He asked the Secretary of Education and the head of the National Science Foundation to analyze this and to come back with recommendations, which they did a few months ago. And, indeed, we do have these serious problems, the problems of shortages, but they also pointed out something else that is equally serious--that in the nation's primary and secondary schools there has been an erosion, a degradation in the training in the mathematics and sciences of all our school children. And so we have to do something about that, and we'll do what we can in the remaining months of this administration, but we will have to leave for the next administration some of these problems. I think we'll do significant things in the months ahead to address some of these problems.

SOAPES: What role did your office play in the SALT negotiations ?

PRESS: The SALT negotiations were very mature when I came to the office. The committees were organized. The negotiations were very advanced, so I did not have a leading role in that, although I knew what was going on and I was briefed. In the arms control area I did have a leading role in the nuclear test ban, in the early discussions of possible anti-satellite warfare treaties. I served on the interagency committees that dealt with chemical warfare treaties and so on.

SOAPES: I want like to talk a little bit about the organization of your own office. I have an organization chart that was dated May of this year. I don't know if that is how it was--could you tell me a little bit about the breakdown of responsibilities among your various associate directors?

PRESS: Okay. The office is organized in a natural way according to the issues that we address, so we have three associate directors. One dealing with national security and international affairs, developing countries, our relations with China, the Soviet Union, the agreements we signed with Japan, the kind of technological cooperation agreement with Japan, for example, the arms control; our participation in defense budgets, our participation in national security policy review committees--that would fall under

associate director for these issues and Ben Huberman is the associate director there. He is a person who has worked for the Arms Control Agency, the Nuclear Regulatory Commission. He was in the SALT I talks. He's worked with several administrations. A real professional in these areas.

In the area of human resources and social and economic services--the issues of environmental regulation, energy, nuclear safety, that we've already discussed, natural resources, materials policy--let me back off. I want to start over. The areas that I've just mentioned to you in natural resources, energy, environment, fall under Phil Smith, who is associate director for that. And his division is natural resources and commercial services. This is the main entry point for American industry to the White House in a sense because of the innovation productivity issue.

So the office as I told you was organized around three associate directors. I mentioned the national security-international affairs and I've mentioned the natural resources and commercial services dealing with areas of industrial productivity, energy, and the environment. And then something that has grown very rapidly in this administration as compared to previous OSTP's, is the area of biomedical health matters, questions of risk assessment, incarcinogenicity, nutrition, regulation as it affects innovation in the pharmaceutical area, and so on. And Denis Prager, who was from NIH has joined me as associate director in covering all those areas. The biomedical health program is a major portion of the federal support of research, so we have to pay a great deal of attention to that. The whole debate of the safety of recombinant DNA research, for example, is focused in that area.

In addition to that, we have two statutory bodies that Congress inserted into our act and they're both good. One deals with our relations with state and local governments--some \$8 billion of the federal R & D budget can help, even though they weren't directed that way, they can help local and state governments operate more efficiently and more productively. So, this is a panel that looks at the entire federal R & D program and provides input to the agencies as to how those federal programs with slight changes can be more effective in helping state and local government. It's a panel that consists of governors and mayors and state legislators and my co-chairman is the Governor of North Carolina. It's a pretty effective panel, growing in influence. And finally, the Federal Coordinating Council for Science, Engineering, and Technology is a council that I chair consisting of the Presidential appointees in charge of Science and Technology in each of the major agencies. You might say the chief scientists of Energy, of Defense, so on--Interior, the Department of Commerce, the Assistant Secretary of State that deals with international relations in these areas. They are members of this coordinating council; it's an effective instrument for coordinating federal policy, so that instead of being piecemeal approaches agency by agency, we could have an overview through this coordinating council. The office has about thirty professionals, drawn from industry, from universities, from other government agencies. Some of them are extremely talented and experienced. Many of them have double degrees in, for example, MD's and law degrees at the same time or Ph.D.'s in physics and law or economics at the same time, or degrees in engineering and economics. These are all individuals that I'm

thinking about so they have very broad training, very professional, rather young, but surprisingly experienced.

SOAPES: Okay.