Oral History of Dr. Ruth Lillian Kirschstein, Deputy Director of the National Institutes of Health
Conducted in Building 1 at the National Institutes of Health
16 August 1999
Interviewers: Dr. Victoria Harden and Dr. Caroline Hannaway
Please Note: These Interviews Have Not been Verified for Accuracy

Harden: Dr. Kirschstein, I thought we would begin this session by talking about the six years so far of the Clinton Administration. One of the major initiatives was the reinventing-government initiative that the Vice President was involved with. The Government Performance Review Act, I think, was the official title. Can you comment on how that affected NIH and what response we made?

Kirschstein: Yes. First of all, I think there is differentiation between the Government Performance Review Act and the Clinton Administration's reinventing government. The Government Performance Review Act was a piece of Congressional legislation that the Clinton Administration may have endorsed, but it really came out of a group of people, planners and assessors and so forth, who had been around for a long time, particularly a man named Joseph Wholey, who was in the Office of Management and Budget.

Harden: This is the second beginning of the interview of the oral history with Dr. Ruth Kirschstein on 16 August 1999. There was an error on the first tape, and we will try to recover that, but we are beginning again. At the time that we stopped, Dr. Kirschstein was talking about the Government Performance Review Act [GPRA] and what it meant to NIH.

Kirschstein: What I had been saying was that there was a separation, or there should be considered to be a separation, between reinvention of government as the Vice President conceives it and the Government Performance Review Act, which is a legislative mandate, and all the agencies of the federal government are required to work on that.The science agencies were particularly concerned because one cannot do the kind of assessment of science, the counting of widgets--I have done 12 papers, I have edited six manuscripts, etc.--that other agencies can do. The Office of Science and Technology Policy [OSTP] [of HHS?], under its associate director for science, [Dr.] Marcy Greenwood, was asked to take a look at this, and she asked the Committee on Fundamental Science, which was chaired by herself, [Dr.] Neal Lane, who, at the time, was the director of the National Science Foundation, and Dr. Harold Varmus, to decide how to go about this. That group chose to put together a subcommittee of scientists more at the working level in the various agencies that comprised the Committee on Fundamental Sciences. Marcy asked me if I, along with an individual from the Coast and Geodetic Survey, would chair this subcommittee, which was going to be called Assessing Fundamental Science, and I said yes. Now, the gentleman, who was a very distinguished scientist, a geophysicist who was head of the Coast and Geodetic Survey, found himself in a position of deciding he could not do this after we started because that organization was under tremendous fiscal siege by the

Congress, which wanted to get rid of it. So he asked to be relieved, and I ended up chairing this group by myself. We had a number of scientists at fairly high levels, but not at the very highest level, in the committee, the work group, or whatever it was called. It was, frankly, one of the most contentious committees that I have ever chaired, because no scientist can absolutely agree with anybody else, no less another scientist, as to how one could measure increments in science. We worked and we worked, and we argued and we argued, and finally wrote something which suggested–and which, I thought, was going to be adopted by OSTP--using a different method of assessing scientific achievements rather than what other agencies were using. But, in the end, that did not turn out to be.

I was quite dismayed and almost did not want any part of it anymore, though the document is around somewhere. We worked for probably six or eight months on it. When it came to be time for the GPRA, as everybody calls it, or GIPRA, to be implemented, Dr. Varmus asked Dr. Lana Skirboll, who is the associate director for science policy, to take it over. When I suggested to her that she might want to use a different methodology for it, she said no, and I have not been particularly following it since. It is clear that in good Office of Management and Budget [OMB] terms--that is the group that is responsible for implementing GPRA--and [also for] the fiscal managers of the various departments, it is their idea that even a science agency ought to be able, in one way or another, to

measure certain things. So Dr. Skirboll has devised certain things that can be measured relatively easily--how we build our buildings, how we do some other activity such as peer review, and so forth, measuring how many study sections you need, etc.--but we are a little fuzzier on how to do the measuring of actual scientific advances and scientific achievements. We have tried to keep that very general. At the most recent budget meeting with some of the people in the OMB and also the Department [of Health and Human Services] who are management and budget types, it was clear that we will have to do something, and I am glad that somebody else, not me, has that job to do. Now, reinventing government, which was the Vice President's idea, was to try, first of all, to implement something called the Reduction in Paperwork Act, and also to make a lot of simplification of many of the things we did. There were reinvention laboratories that could be established to do some of these. Dr. [Wendy] Baldwin, the Deputy Director for Extramural Research, has been extremely successful in streamlining or reinventing a number of activities related to grants processing, reviewing budgets for grant applications, and so forth. Dr. [Michael] Gottesman, who is her counterpart in intramural research, has figured out some administrative things that could be simplified, and [so have] several other people. I note that there is not as much discussion recently, on reinventing government, as we had before. Whether it is because the Vice President is onto other things, I do not

know. But GPRA seems still to be very serious. How long all of this will last is hard to tell. We have had other things which have gone on awhile and then gone away--PPO, managing programs by objective.

Harden: Performance objectives?

Kirschstein: Performance objectives, and somehow they have all disappeared. Maybe this will, maybe it won't. However, I think the one thing it probably has done that is good is that it has made us all think about how we justify what we do and why we should be given the privilege of having this enormous budget. That is probably a good thing.

Hannaway: From your years of testifying to Congress, you knew Congressman William Natcher [D. KY] very well, and you had asked us previously if we would remind you to tell us about his funeral.

Kirschstein: Let me start by saying, yes, I knew him very well. Actually--I do not remember if I have told you about this before–the first two or three years that I started testifying, which would have been spring1975, 1976--I am talking calendar years--I do not remember whether it was 1977 or not, probably not--were in front of Daniel Flood [D]. He was the congressman who was the chair--[it was] HEW then, I guess he was still in there–of the Labor, Education, and Health Subcommittee. He was from Pennsylvania and was probably the most flamboyant congressman there was in the Congress. He had been a vaudeville performer in his youth. He had, if you remember, a big mustache with twirls on it. And he was intimidating,

to say the least. I managed to get through two years of Mr. Flood. Everything was fine. Mr. Natcher, in contrast, was one of the most charming gentlemen from Kentucky that one would ever meet. He had all the charm of a Southerner and was very deferential, not just to women, which he was, but to scientists as a whole, and he was totally dedicated to making sure that NIH's budget would be as good as possible. He had a wonderful staff as well, and I became quite friendly with many of them. Then, when Mr. Natcher became ill, he was hospitalized at the Naval Hospital [Bethesda] for a long time. [At the NIH], we had decided sometime before he became ill, in fact, maybe eight or ten years [before], that the outlying buildings in which the programs for extramural scientists, the scientists who handled the grants and peer review, were housed, particularly the one that was known as the Westwood Building, which was on Westbard Avenue across from the Giant shopping center over there beyond River Road, were becoming almost uninhabitable. I cannot tell you how many times the alarm would go off [at the Westwood Building] and there would be bomb threats and so forth, and nobody ever found anything. So, many of us wanted to have a new building. I particularly, from the moment I became the director of NIGMS, felt very keenly that the only way a scientist who handles the grants portfolio or peer review process could maintain his or her currency in science was to be able to participate completely, not necessarily at the bench with the bench

scientists, but in the seminars and the scientific activities that go on this campus. Now, the bus schedule for going between the Westwood Building and the main campus was abysmal at best, and driving your car meant almost as much trouble as it does now because people could not find any parking. So people did not come over to the campus. It really was a bad business. I began lobbying quite hard under [Dr. James] Jim Wyngaarden and other people to have a building built, and I got some sympathy. Finally it was agreed that we would, when we could, get a building. The Government Services Administration, GSA, had to approve of all buildings, and we have a special problem on this campus because we have historic buildings and so forth. And they agreed for the first time that it would be okay to build a building under what was called the GOCO arrangement: Government Contracted, GOCO. You would put up a certain amount of money and then, under a contract, the contractor would build the building. We would pay rent to the contractor for a certain period of time, and at the end of that time--I think it was something like twenty years--the government would own the building.

We wanted the building here on the campus, and in general nobody had been willing to do that. But the administrator of GSA in that era--it was probably in the early 1980s, maybe 1983 or 1984--agreed to do so. When we went to talk to Mr. Natcher about it, he said, "I think you should have the building. It is important enough that you have it." It was probably

later than that now that I think about it. "It is important enough that you have it and I will give you an appropriation for the building." I had a great deal to do with that, and so the building was designed and Mr. Natcher came out here after Dr. [Bernadine] Healy became director. So my dates are off somehow or other. We broke ground for the building and began to build it, and during the time that it was being built, he became very ill. Now, when Dr. Varmus came, the building was to be very large. That is a picture of it there [in Dr. Kirschstein's office]. He decided--we did not have a lot of money in those years because in the early stages, 1993, 1994, the budgets were not remarkably good--that we would only build half of the building or the smaller half, which is in the picture to the left, but we would build the auditorium, which is downstairs. Mr. Natcher used to watch its construction from his hospital bed, which actually was over at the Naval Hospital, and he was able to see it [from there]. His friends would come and tell me how much it meant to him to see it, and a number of people at NIH were getting messages like that. He actually had been given some medical advice by people here at NIH and so forth. He died sometime in early 1994. Harold was already the director, I was the deputy director, and we got invited to go to his funeral. That was a great honor. The funeral was in Bowling Green, Kentucky. They sent a large assemblage of Air Force planes, so I had to get up very, very early the morning of the day, get to the Capitol, buses to Andrews Air Force Base,

planes to somewhere in Tennessee, and a bus from there to Bowling Green. It was a long, long day, and it was raining like crazy, but we did it. Harold and I traveled together on one plane with a number of other people. We had a bouncy ride. Coffee went up in the air and hit Dr. Varmus's tie. I did not drink it. And the President [Bill Clinton] came [to the funeral]. We went through the receiving line, and that was the first time I had met the President. It was an absolutely magnificent [funeral], if funerals are magnificent--I am not a great believer in big funerals--but there were very touching words about Mr. Natcher.

Hannaway: Was it in a church?

Kirschstein: Yes. It was in a very large church, which apparently was the church he had been [a parishioner] at. It was fairly new. The church was filled and it was quite lovely. We got home very late at night. The funeral was probably in April or May, because by the time we got home, which was very late, it was still a little bit light, so it must have been daylight savings time already, now that I think about it. We then, in June, I think it was, dedicated the building and named it for him. Whether we would have named it for him if he had not died, I do not know, but we did indeed name it for him. As you know, we have buildings all over this campus. Some of them are called Building 1, some of them are called Building 31. We have named buildings for everybody. Building 31 is named for Claude Pepper; we never call it the Pepper Building. Building 10 is

named for Warren G. Magnuson [but] except on formal documents; we never call it that. This one [Building 1] is for Dr. Shannon. That building is number 45, and everybody calls it the Natcher Building, which is very nice. It is wonderful. First of all, the scientists in NIGMS that I wanted so much to be on the campus are here, and I think that is marvelous. It has also got the best meeting facility on the whole campus. It has this wonderful auditorium which can be closed off so that you [can] have a smaller group and then [have] two separate groups up in the balcony. It [also] has the breakout rooms, and it is oversubscribed. Everybody wants to use the building. The First Lady has commandeered it on several occasions, the Vice President has commandeered it on more than one occasion, and it could be filled 24 hours a day, I think, if we wanted it to be. So it has been extremely successful. Unfortunately, because we did not build the other half, which at least in that picture looks like it is larger than the smaller half, not all the extramural scientists could be accommodated. So we still have extramural scientists off the campus. The difference, I think, is that the Westwood Building was very old and nobody was going to do anything about that building. They are building new buildings out on what is now the Executive Boulevard corridor, and they are all very nice, very modern. They have parking, so lots of extramural scientists like it very much. They are within walking distance of each other pretty much–the Rockledge corridor that is what it is called–

so they are beginning to establish something of a community, and they have scientific activities out there. The other thing that has happened is that I remember, when I first became the director of NIGMS in 1974, saying to the then chief of what is now the Office of Research Services, "We have got to run a better bus service." He said, "But not enough people ride it." I said, "Well, the reason not enough people ride it is you don't run enough buses. You have to run your buses empty, if necessary, for a sufficient period of time so that everybody is assured that if they don't take their car, they will be able to get their bus on time." He just pooh-poohed the whole idea. He tried it for a week and it did not work, and it [the experiment] was over. Well, now we run wonderful bus service all around the campus and to Rockledge, Executive Boulevard, it takes 10 minutes, to downtown where cars can be parked, and we bring it back. So we have a marvelous, much better transportation system. Now we can get transportation to Natcher, for example, if we do not want to walk it. During the height of this recent construction that bollixed everything up, most of us were taking the bus simply because it was too hard to walk on broken ground and so forth.

Harden: Maybe you will talk with the Washington Metropolitan Transit Authority and convince them that we need buses on the streets that run more frequently!

Kirschstein: But, actually, we have much better service than when I first came. We

now have the Ride-On buses. What we need is [to have something in] that corridor between Montgomery County and Prince George's County so you do not have to drive the Beltway. But we do have one major [system], as you know; the metropolitan subway is wonderful.

Harden: Oh, yes, absolutely.

Kirschstein: I just love it. So that is the story about Mr. Natcher's funeral.

Harden: I have two follow-up questions. Will the second part of the Natcher building ever be built, do you think?

Kirschstein: Not if Dr. Varmus has anything to say about it. I doubt it at this point because we have expanded in such a way that you probably could not bring everybody back, particularly because the Capital Planning people would not allow the kind of traffic that might be needed for it. Secondly, they have established this lovely corridor with beautiful new buildings, so I doubt it. It is too bad in a sense. I still think the campus would be a better place for having the intramural scientists understand what grants are all about and that they are not the only people on this campus at NIH, and [it would give] the extramural scientists the benefit of the scientific interactions. Those [interactions] are somewhat better, and one of the reasons for that--one of the wonderful things Dr. Varmus and Michael Gottesman have done is to set up seminars, which now are given the imprimatur of the Director. The Director's Wednesday afternoon seminars [are held] every week in the winter months or winter/fall/spring months,

[always] at the same time so that people can plan for them. [There are] groups that meet for small seminars that both extramural and intramural groups can be welcomed to, all the big seminars that are held in Natcher, and it is easier to get to Natcher for some of the people on the bus and so forth. So I doubt it [that the other half of Natcher will be built], but the purpose that we played by stirring things up led to a lot of this, and I am grateful that we have this small ability.

Harden: My second follow-up question has to do with naming buildings after people. The Shannon Building is the only one at the NIH named after a scientist, and there were, for a time, some buildings named after congress people who had died, and then we started to shift to get some. In fact, I got a call from the press about this at one time. I did not think you were supposed to name buildings after living people. So I wondered if you could comment on this.

Kirschstein: Our general feeling was that we would not do so. Most of the buildings were not named by NIH. They were named by congressional legislation so that a series of parts of various appropriations language led to the naming of those bills, or the authorization. The Magnuson Building was named that way; the Claude Pepper Building was named that way. When Weicker left the chair of the Senate Appropriations [Committee]--he is still very much alive, I understand he is thinking about running for President, Building 37 was named the Weicker Building. It was already

up. Nobody ever calls it that. Then Building 49 was named the Conte Building. Mr. [Silvio] Conte [R] did die before [that], and it was named after he died. One of the early ones that was named long after the individual had died was the Lister Hill Center, that beautiful building. The legislation required that Stone House be named the...

Harden: Chiles.

Kirschstein: Lawton Chiles Center. Mr. Chiles [D] actually came up for the dedication, and he died shortly thereafter. The legislation that gave us the new clinical research center suggested it be named the [Mark] Hatfield Building. At that point, several of us were concerned because we were naming the buildings after chairmen [of congressional committees], and there was a very interesting tendency. At least two of us, I and Francine Little in budget [Office of Financial Management] said, "We have had a great congressman who for many years was the ranking African American member of the Appropriations Committee," [and he is] a dear friend of mine. So we now have the [Louis?] Stokes Building, and that is very, very appropriate.

Harden: Why not scientists, though, if I may ask?

Kirschstein: Well, I would agree it might be more difficult to decide which scientists to name them after. This building was the Shannon Building because he [James Shannon] had had such a long tenure. I do not know whether we will have a Varmus Building. I hope we do. But Dr. Varmus is going to

live a long and happy life. We did not name this building until Shannon died. The other thing is that clearly there has been a certain amount of political thought given to this, without any question.

Harden: I am sure you hear the same questions from scientists.

Kirschstein: Sure.

Hannaway: We have not yet got the Pat Schroeder Building!

Kirschstein: No.

Harden: But we will have the Ruth Kirschstein Building.

Kirschstein: No, I do not think so. But we do have an Alan Rabson Conference Room.

Harden: Yes, we do.

Kirschstein: Which is wonderful, that is more important than anything else.

Hannaway: That is important.

Harden: That is generous.

Kirschstein: That is my judgment.

Harden: Let us turn to another political issue. A recent issue that has confronted the NIH was the report of the Institute of Medicine by the Leon Rosenberg Committee on the need for more public involvement in setting NIH research priorities. You indicated in an earlier interview that you would like to discuss this in more detail, and I would very much like for you to talk some more about the thinking of the NIH. I know that Anne Thomas worked with a committee of Institute directors in writing a statement on how NIH sets priorities. Could you perhaps tell us how the two sides

thought about this and where it is now?

Kirschstein: Okay. Part of the Government Performance Review Act ideas were to help organizations that could not possibly have sufficient funds to fulfill all their dreams concentrate on deciding which of their dreams were feasible, which of their dreams were of the highest priority, which of their dreams would be of the most importance to the people of the United States, and on how they used their stewardship–that is what it is all about--of federal funds to give what is important about your mission back to the people. Now, many of us have fought for a long, long time, but NIH has always done that in several ways, first of all, by the peer review system, which basically determines what is important science at the cutting edge, which [research] needs to be prodded so it does not become humdrum, and we have had some of that; by thinking about what diseases we can make headway against and, [for] those that we cannot, how to get to the point where we can really make headway. In fact, the whole of NIH is organized along that type of theme. However, as a result of several things that have happened over the last probably six to eight years, where advocacy groups have begun to push the notion of why not spend more money on my disease, [or] on our disease. The first start of this was actually the war on cancer in 1971, where a group of people did indeed say, “We are going to single out the Cancer Institute, we are going to give it a certain number of special authorities, we are going to declare a war on

cancer and we are going to increase its budget and proceed hence. We think we know where we should be going." The war on cancer had a lot of activity related to viruses as a cause of cancer. We [have] talked about that. It was thanks to some very wise virologists who felt that one could learn a lot from [investigating] lots of viruses in general that might be important in cancer, and not just by concentrating on those few viruses which at the time were known to cause cancer in animals. And this went on. The clearest, most recent example--well, there are several. The first was when the digestive diseases and kidney and diabetes people first started to realize that they should have their own institute as opposed to the institute that also had the arthritis and musculoskeletal and skin component, and we had that split. It happened when the Eye Institute was split off from the old Neurological Diseases and Blindness [institute], the deafness people [were] next. Aging split off. We have talked about all this. But, probably, the most recent example in the 1990s was the advocacy of the AIDS group, which was very militant. We have had strikes and stand-ins and demonstrations here. And they got a very substantially increased budget for AIDS research. The next group was the breast cancer women who took their cue from the AIDS group, except that they did not demonstrate in quite the same way. But they went to Congress and they collected petitions and they got this enormous number of petitions and got to the White House. They are the ones who had

sufficient influence for the Secretary [of HSS] to come out and spend two days here at a breast cancer meeting with advocacy groups that I put on, and they got an enormously increased budget for breast cancer.

The diabetes people have done this very recently with a bang and [have obtained] a budget that many people think is a little bit unrealistic to be spending just on that [disease]. So a number of congressmen and a number of scientists, as a sort of counterbalance to that, said, "Well, let's talk about how one sets priorities." There was also considerable concern and asking of the question, particularly by some of the current congressmen, about the burden of disease. "Why are you spending $1.3 billion on AIDS, which is a disease that is not an enormous burden in general on the public compared to diabetes or heart disease, and which could probably be taken care of if people were sensible? We don't really need that disease. We could get rid of that disease. People have done that to themselves."

NIH, in discussions with the congressional people, first in an authorization hearing, an oversight hearing, because it did not result in an authorization, held by Senator Nancy Kassebaum [R], when she was chair of the Senate Authorization Committee that had oversight and authorization and responsibility for NIH, held a hearing. Dr. Varmus spoke and talked about how he sets priorities. Institute directors spoke, and many of us [also]--I spoke for oversight in the Office of the Director. [Dr.] Vivian Pinn, [Dr.] John Ruffir, and I guess [Dr.] Wayne Jonas actually spoke for a while, and

[Dr. William] Bill Harlan, [had a] short session. Some other senators have felt the same way. So NIH was asked to attempt to write something that could talk about how it set its priorities, and a group of institute directors was put together with Anne Thomas. They worked mightily, came up with a report, which Anne did a very good job of editing, and I think is useful, but it did not satisfy [Congress?]. Then along came Senator [William] Bill Frist [R], who had taken Nancy Kassebaum's place when she decided to retire. Senator Frist is a physician, a cardiac surgeon, who was on the faculty at Vanderbilt [University], and his father was the founder of one of the very large health maintenance groups [that is] all over the country. I cannot remember which. Columbia AHC, I think. I am not absolutely sure. So he also held some hearings, and then with a lot of encouragement from advocacy groups, decided to get a study done by the Institute of Medicine. I cannot tell you how Leon Rosenberg became the director, or the chair, of that study committee, but he did. Many of us were called down to talk to the committee, and many of us listened to all the things that happened. There were advocates. There were a couple of very good basic scientists. There were disease advocates, there were professional advocates, nursing and some other people, and out of it came the report which you have seen, *Scientific Opportunities and Public Needs*.

Now, let me back off for a minute and say that Dr. Varmus has been, for quite some time as part of his budget priority setting, developing scientific

themes, scientific opportunities, things that he has called variously areas of opportunity, [or] areas of emphasis, in which he perhaps would have all the institutes say what they would do in this [area]. Then that area would be given a certain amount of emphasis, and the money would be spread among the institutes. The Institute of Medicine report starts off with a first recommendation [after saying] that NIH is wonderful and then proceeds down the line. Some of the recommendations were better than others. However, we have taken them all very seriously. One of the recommendations was that we add people who have more public interest in what NIH supports to the Advisory Committee to the director, and we have done that. Another recommendation is that the director hear from public representatives more carefully. So he has set up a new committee.

Harden: But didn't he carefully not let that committee turn into a committee of representatives of advocacy groups?

Kirschstein: Yes. I am going to talk about that. The Council of Public Representatives. For this we advertised for membership, we asked people to self-nominate, we asked organizations to nominate. Anne Thomas did a magnificent job of reading through [the applications], with a committee, and she had every application--she got something over 200--and chose a group of, I cannot remember [exactly how many], short of 30 for Dr. Varmus] to finally pick a group of about 18 or 20. They picked extremely carefully, and the representatives were terrific. They are terrific. They

held their first meeting last April [1999]. Now, before that, in October, she had had a preliminary meeting of people that we sort of chose before the nomination process. They were people we knew, and we got excellent discussion. From that came the idea that, while these people would be broadly representing the citizenry of the United States, both healthy and ill, they were asked to leave their advocacy of a particular disease at the door. In general, I think that at that first meeting, most of them did. What has been just wonderful beyond, I think, all our expectations is the enthusiasm of these people. Did either of you attend the meeting?

Harden: No. I heard about it.

Kirschstein: The next meeting is on 22 October, I believe. It would be worth coming to.

Harden: Yes.

Kirschstein: It really would be. These are people who are not the distinguished scientists who are jaded by having been on every NIH, NSF, and other committee for a very long period of time and are very busy so that they can always find a reason for not coming, though the ACD [Advisory Council to the Director] has done quite well. They are enthusiastic and fresh and ask wonderful questions and make wonderful statements. There is this absolutely fantastic young woman, Pam Fernandez. She has diabetes and she is blind, and she does Special Olympics for the triathlon. She rides bikes, she runs, she climbs. Amazing. Lots of the people are like that.

Absolutely wonderful. So that, although there was skepticism about that recommendation [of the IOM report], I think it has worked out extremely well. The issue was that when this [IOM] committee presented its recommendations for the first time, it did not come to talk, it came to preach, and nobody reacted very well, unfortunately. However, I think we have all learned to live with it, and everything is much better than it used to be. So that is the story of the group.

Harden: May I ask one follow-up question? Are the disease advocacy groups satisfied with this, too, or are they still wanting more input?

Kirschstein: It is hard to tell. The decision was made to appoint each of these people for a one-year term for this Council of Public Representatives--usually we put people on for three- or four-year terms--because we wanted to see how it was going to work. This will only be their second meeting in October. One of the things that we did do was to take all, about 180 of the people who were nominated but not chosen, and call them the COPR, Council of Public Representative, associates. So they get sent a newsletter about what is going on and all sorts of things, and they feel empowered, and they write. It is still too soon to say. There are a few disgruntled people, I think, who may be biding their time because this has received good press. Congress is pleased with it, and so forth. We will have to see. If the budgets remain good so that there is a constant increase of 15 percent, which I think is unlikely this year, and then maybe there will not be as

much to fuss about. If we begin to be constrained [in the NIH budget], then I suspect there will be a problem again.

Harden: One other thing that concerns me is the mechanism. I got the sense that many groups, especially those that have some sort of celebrity person to speak for them, went around [the NIH committee?] and straight to Congress.

Kirschstein: They still are [doing that].

Harden: So this NIH group may not have any impact on that if an advocacy group wants to go straight to Congress and can get the ear of a congressman.

Kirschstein: That is true, and they are still arguing about that. The more sophisticated congressmen and senators, certainly the ones on our Appropriations Committees, have begun to realize that this just does not work. You cannot listen to just one group. Mr. [John] Porter [R] is dedicated--Mr. Porter is now the chair of the Appropriations Committee. I was going to say he took over from Mr. Natcher, but that is not quite true. After Mr. Natcher died, there was a period when the Democrats were still in charge, and, in fact, at Mr. Natcher's funeral, the chair who was the Democrat, whose name was Smith, and who had never attended our hearings although he was the ranking Democrat but he was really not interested particularly--he was from Iowa, I think, and he was primarily interested in agriculture--became chair for a year. Mr. Obey [Dave] became chair for a very short period of time and then the Democrats lost the election, and Mr.

Porter became the Republican chair. He is from the [Muskegee?], Illinois area and has been a marvelous advocate. He and Mr. Natcher had been close friends and actually worked very closely together. Mr. Porter will not allow earmarking in his committee.

Harden: That is interesting.

Kirschstein: But what has happened is that there is lots [of lobbying] by a particular group of patients or something, and you have to pay attention to it. So there are all sorts of things that have happened along the way. Appropriations language has become a vehicle for actually establishing a new institute or a new center. The National Center for Complementary and Alternative Medicine was established through language attached to the appropriations bill as, not just conference, but as legislation at the very end of fiscal 1998, and we now have that institute. So it is very hard to say exactly how this will happen.

Harden: Let us switch to one other current event, as it were, or issue. The editor of the *New England Journal of Medicine* resigned recently because of disagreements with the publishers over the use of the journal's name in publications that were not rigorously refereed. And, of course, the *New England Journal* is one of those journals that a fair number of NIH physicians like to publish in and is highly regarded. I thought I would ask you to speculate on what is happening here with regard to biomedical publishing and the authority of journals. Are you willing to do that?

Kirschstein: It is not my area of expertise. It is clear that the Massachusetts Medical Society, which owns the *New England Journal,* decided it also wanted to have these journals, which are more similar to what we are doing with COPR, aimed at the public. It asked [Dr. Jerome] Jerry Kassirer, the editor, to promote them in some sort of capacity in the *New England Journal*. Jerry refused and resigned on principle, and he has had a great deal of congratulatory activity [for that], and I agree. I think he should have done that. I do not think this will change the prestige of the *New England Journal,* and I do not know what it is going to do. I gather the Massachusetts Medical Society will probably stay firm on this, though I have not heard. It is supposed to have named an acting editor, and to all intents and purposes from what I have read that means that [Dr.] Marcia Angell will get it. She has been there longer than Jerry and she does not seem to be standing on such firm territory. I do not know quite why except that I am sure she wants to become the editor. I do not know. This is not quite the same thing, although people want to make it a parallel to [Dr.] George Lundberg.

Harden: Yes. We are going to get to that one too.

Kirschstein: [Lundberg] who I think was fired because he was perceived as doing something that was political. I do not know if he did or not. The *New England Journal* and *JAMA* vie with each other for getting the public's attention. Each one of them wants to have on a weekly basis a news story

on NBC news or CBS news. That is why they put out their embargoed copies and let the reporters have them before anybody else. Does that impugn editing to begin with? A very good question. I would only say it probably does. On the other hand, some journals do not seem to have the need for this, but I would say that *Science* also does much the same thing, as does *Nature*. The scientific enterprise has become big business.

Harden: Let us follow that one more step. What does that have to do with the public's confidence in [science]? If they get a new finding every week, some of which contradict previous ones, what is anybody to believe?

Kirschstein: In fact, that has been pointed out. The coffee stories, the alcohol stories, the cholesterol stories, on and on.

Hannaway: The fiber stories.

Kirschstein: The fiber stories. On the other hand, this cannot be all bad, because it has made the public more aware of the importance of good scientific enterprise--not enterprise--research in a way that it has never been before. If it is handled properly, you can even educate the public about the fact that we do not know for sure, and that is why you are getting this, and why we have to get a definitive answer. Certainly it is better than having stodgy things that nobody looks at or thinks about at all. On the whole, I think it has probably not been bad for science, little bits here and there and the other way, and I do not really think that these journals are going to come a cropper as a result.

Hannaway: They could become less authoritative in some circles.

Kirschstein: They could. We need to have some time to see what is going to happen along the way. One of the things that, to me, makes the *New England Journal of Medicine* a really remarkable journal, besides the articles, which of course, don't kid yourself, they pick very carefully to get the maximum out of it, and you have to know people in most of these journals [to get published]. *Science* does the same thing in [its selection]. But one of the most remarkable parts of the *New England Journal of Medicine*--I used to read them faithfully when I was a medical student, an intern, and a resident, but not as faithfully now–is the case reports. Those are absolutely fantastic. I remember, as a medical student, having read a case report and being in student rounds with somebody and [there was] a patient with a very strange disease. I raised my hand and said what it was, and it turned out I was absolutely right because I had read about it in the *New England Journal of Medicine*. So it is a great journal, always has been, always will be. *JAMA* is now a great journal. There was a period when it was not. It was a very good journal. It remains to be seen what is going to happen. And George Lundberg seems to have gone off into the Internet.

Hannaway: An online medical journal editor.

Kirschstein: He is doing medical things through the Internet, and I do not know what Jerry Kassirer will do. We will have to see.

Hannaway: Then there is Dr. C. Everettt Koop on America Online Health Section news. We have a Dr. Koop moment each day.

Kirschstein: Yes, we do. We also have, but I am not going to talk about it, E-Biomed or E-Bioscience. I will leave that to---

Harden: Oh, no. We will get there. And, actually--

Kirschstein: I do not want to talk about it.

Harden: But, if you would, maybe this is the point at which we ought to talk about it, because it does feed into this and the question of whether or not these journals will continue as print publications.

Kirschstein: I do not know what Harold [Varmus] thinks about that. I think they will for some time. I do not think the country as a whole or the scientific community as a whole is absolutely ready for this complete conversion, but I think I applaud him and his colleagues greatly for bringing this to the fore for discussion because I think it needed the discussion. I have watched Dr. Varmus for a long time now, and I have been enormously impressed by the way he thinks and by how he begins to think about something, brings it forth, lets all discussion occur, and then modifies the way it will come out to being as close to the right way as possible. If he had not started at this end, it might not have gotten started.

Harden: Sure. Well, there is a huge problem with the costs of journals.

Kirschstein: That is right.

Harden: They have done nothing but go up, and libraries have had to choose which

journals to get.

Kirschstein: Absolutely. You also have a huge problem, however, with scientific societies that make money on these journals.

Harden: That is a problem, and whether they are going to have to charge page charges that would prohibit publication.

Kirschstein: And whether they are going to have to increase their dues, which means people won't join.

Hannaway: And one cancels publication.

Kirschstein: Cancels publication. These are all things that need to be discussed. I do think that by discussing them, he [Dr. Varmus] has brought them to the fore, and that is very important.

Harden: At least it gives the scientists themselves some input to the process.

Kirschstein: Actually, of course, the first group that began to do this was a much smaller group of scientists, the physicists, who have been doing online publication. In fact, from what Michael Gottesman tells me--his son is a theoretical physicist–they sort of do a work in progress, put it on online, and ask their colleagues who are in the same field to comment. Then it gets revamped and then there is more comment. They do not count publications the way biological sciences count them these days.

Harden: Do they count? I mean, would that set people up to steal the idea? That is always a problem.

Kirschstein: It is a problem maybe, but not so much. Biological sciences are in the

competitive mode that probably the physicists were in some time ago.

Hannaway: Especially the theoretical ones, yes. Maybe the experimental ones still operate more like biological scientists. You have just been talking about Dr. Varmus, and we would like to turn back now to a little more discussion of some general issues. We had phrased our question as asking you to describe for the record the day-to-day division of responsibilities between you and Dr. Varmus.

Kirschstein: I am not sure I can, because I do not think they are absolutely clearly defined. Clearly, the very large issues--the budget, personnel decisions, policies related to cutting-edge areas of science, use of human embryos, use of fetal tissue, stem cells, etc.--are articulated by him and discussed in broad circles. Clearly, he is the scientific and management leader of this great institution. His management skills are very, very good. Clearly, he has a vision of what he wants this institution to do and has accomplished a great deal of it. I do not know if you heard me when I gave the brief introduction to when we had, whatever it was-- the celebration of his [first] three years.

Harden: Yes, I believe so.

Kirschstein: I think I articulated some of this then, and you might go back and look at it. Clearly, there are certain things that I do. I, in the beginning, was doing the time cards for every senior executive, scientist, service person in OD. They personally took that away from me because they never could find me

in my office to do the cards. I attend many of the meetings downtown that he does not feel that he has to go to. I represent him and give talks for him. I have become the bona fide opener of conferences other than really important ones, and so forth, and I enjoy all that. I have certain things I do. I chair the committee that handles the management fund and the service and supply fund, and we have revamped that whole thing, keeping him informed of what we were doing. I chair the Performance Review Boards for the Senior Executive Service people who have to be reviewed each year. I chair the Executive Resources Board, which evaluates the recruitments of such individuals. He makes the appointments except for the ones who report to him. I try to keep issues that I consider not of the highest importance and soluble away from him simply to save his time. I clear all correspondence that he has to sign, and I spend a lot of time doing that because I have discovered that too few people write the English language well, and he demands that it be done. So I spend a lot of time rewriting things. It is too bad. I do not see why I [he?] should have to do that.

Harden: Rewriting memos coming through the system?

Kirschstein: Memos coming through the system, letters, responses to congressmen, etc. The executive secretariat has done one round and I do another round. I do that every night.

Hannaway: I can imagine that is very time-consuming.

Kirschstein: It is time-consuming, but I do not think that he should have to do it, and besides which, I am almost ashamed to show him how badly some people write. I am the person who does the first evaluation of performance of a number of people, simply because by doing that, he can be the reviewing official and we do not have to send it downtown. But I know what he wants to do and I would not dream of doing it otherwise. And so things like that. I am in some ways the individual who runs the day-to-day activities of the Office of the Director, but I consult with him as necessary. For example, we are about to pick a new executive officer for the Office of the Director. Steve Benowitz is stepping down. We have been through the process. I have told him who I think should be selected, and he will interview the individual. For lots of things he has a group to share. He is a person who very much knows where he wants to go and will pick the expert to come in and talk to him about it, and he will deal one-on-one with that person. We then have small meetings and talk about them, but he does things that way. What else can I say about it? That is the way it goes. I also try to manage the crises so that they are manageable, and there inevitably is one when he goes away. But we keep him informed as necessary. This morning I just reported on one [crisis], but we largely solved it before he got back.

Hannaway: And you have had ample experience in solving many problems.

Kirschstein: Yes.

Hannaway: And running many meetings.

Kirschstein: Yes.

Hannaway: We also, from your long-term perspective at the NIH, thought it would be interesting if you would talk a little more about interaction with the Congress. You have talked about a number of specific instances, but we were interested whether you had a longer-term view of how congressional interaction with the NIH has or has not changed significantly.

Kirschstein: The Shannon years were very interesting from what I can tell. First of all, the NIH could not help but grow in that period. There was sufficient money to have it grow, maybe not in an enormously steep curve, but it was growing quite well. And the institute directors did testify in those days. But Dr. Shannon had enormous power. It was his interactions very specifically with individual congressmen and senators, and so he and he alone, interacted with Congressman [William] Fogarty, who was the chair before Flood, of the House Appropriations Committee, and Senator Hill. Institutes did not talk to each other very much and did not interact except under relatively formal circumstances with Dr. Shannon. In the early years when I was director of NIGMS, the institutes and their directors, if they were clever, interacted a great deal behind the scenes, under the table, out of the limelight, with various congressmen as their constituencies, their advocacy groups, could arrange it. That meant that for an institute like NIGMS, we did not have a constituency, and it was a very difficult period.

NIH went through some hard times, and we never got very much money. As I told you, the recombinant DNA revolution changed that, but I worked very hard at it and finally did get the attention of some congressmen and senators. But basic science professional societies began to realize that they could do something about it too. So, that probably was more an era of them going [to Congress], working. But also, the Congress began to want, as it saw NIH getting larger, to make sure that no wrong things were going on. That actually was manifest even earlier, before I became the director of NIGMS, in a congressman from down in North Carolina whose name I cannot remember. He did oversight and was worried about the indirect costs and about how much we spent on curtains and all sorts of things. He had so much influence that it led to the building of NIEHS down in North Carolina. And I cannot remember his name. [We will find it]. And Congress, particularly the Authorizations Committees, which had a lot of power in the early 1970s, began calling individual institute directors to testify, Cancer particularly, Heart and Lung, etc., and they began having new institutes. Of course, there was the disease of the month club for a while. The director of NIH was important, but it was sort of a shared importance and interaction with Congress. Dr. Wyngaarden was called constantly for testimony but he did not particularly enjoy testifying at all and I think he really did not want to do it if he could get away with it. It is hard to tell. I think Bernadine [Healy] enjoyed

testifying except in front of Mr. [John] Dingell, and nobody enjoyed testifying in front of Mr. Dingell in those days.

Harden: But her testimony will never be forgotten.

Kirschstein: I do not remember it exactly.

Harden: Who is on first. He finally made her so mad in jumping back and forth.

Kirschstein: That is right. I had forgotten that. Now the pendulum has swung back to lots of institute directors testifying, on aging, on this, on that, and the other thing, but Dr. Varmus being clearly the leader, receives such respect from everybody in the Congress, even when they are tough on him. Senator [Arlen] Specter [R], who is chair of the Appropriations Committee, can be a little biting. He cut Dr. Varmus off when his opening statement was too long one year. Dr. Varmus continued and he said, "I said you said enough, Dr. Varmus." Nevertheless, they are friends and he has been very good with us. And Dr. Varmus testifies beautifully. There is absolutely no question about it. The relationship with Congress is partially very comfortable now and partially not. The comfort is primarily in the area of appropriations, not just the committees, but the real feeling by the vast majority of congressmen and senators that we really should get that budget doubled at some point. I am not sure how it is going to work out because we are spending--they cannot spend money beyond what anybody gives them, but we will see how that goes. Then [there are] a few congressmen, probably not senators that I have seen, who want to make their mark in a

way not dissimilar to Mr. Dingell in relationship to showing that this big organization does not quite know what it is doing and the director cannot possibly handle everything. We get letters that then lead to hearings related to some misconduct or other, some person who did not use good judgment in realizing conflict-of-interest situations, occasionally scientific misconduct issues. Those people, those congressmen, are not in the main leadership, and indeed that may be why they are trying to establish themselves. It is hard to tell. And some of it depends on the staff people who look to make a reputation. I believe that was what was going on with Mr. Dingell, too, who is a very fine man. He really is. He hides it very well, but he is.

Hannaway: You mentioned that you get on quite well with him.

Kirschstein: I get on very well with him, and with his wife. His wife is very interested in women's health. But, nevertheless, they are a little nagging, nattering, and the place where this seems to be happening right now, mainly with staff, is in the case of the National Center for Complementary and Alternative Medicine. It is the darling of one group, and these people want to show that it is not doing the right job, so we will have to see how that comes out. I think it evolves with who the congressmen and senators are, it evolves with how much else they have to do, and it evolves with the changes, with whether it is an election year or not, particularly a residential election year, which seems to be starting two or three years before the

election takes place. So I think it is an evolving process.

Harden: Now, you are talking about policy coming from Congress. Some policy initiatives, of course, come from the NIH. I am thinking about the fairly widely publicized recommendations that Dr. Varmus just made that the NIH would work better if we could simplify it down to five or six institutes and put them into disciplinary categories, and that the OD be given more authority. I have heard this number of times from NIH directors, and the conventional wisdom says that this plan will never be successful because nobody does the molecular biology. This was part and parcel of your problem at the NIGMS in getting money, because people do not buy [the need for] general medical sciences, they buy the disease, and since the Second World War, NIH has been categorically oriented. What is your take on all this?

Kirschstein: First of all, I am sure you know that Dr. Varmus was thinking that he was hypothesizing about this. I think he said--I have a copy of the thing somewhere--that he was just throwing something out to discuss. What I think he was saying has certainly a lot of good common sense. If we continue constantly to proliferate smaller entities, it will be literally impossible to govern this group, if you will, and that is not good for science as a whole. What I do not think he said was anything that had to do with molecular biology. Actually, I think he was talking in bites that were relative diseases. He did not call it the Neurosciences Institute; he

called it the Institute of the Brain if it were going to be. Now, he did not say it should be. He called it something in genomics. He left cancer, he left heart disease and cardiovascular [problems]. So I think he was thinking in very broad health [terms] with or without the disease entity, strokes. Again, probably as he did with E-Biomed, now E-Bioscience, he set out, in his own mind, to be provocative, because it was a talk that was supposed to be given about the next millennium. He threw the topic open for discussion, and I am sure his views will evolve over time. Whether he will evolve his ideas to the point where sometime before he leaves he will really indicate what he thinks, I don't have any idea. But the talk has some interesting things in it which everybody has thought about. I doubt that any changes will happen for some time to come. Now, the part about the Office of the Director being given more authority, I think he did that just to be very provocative because he has spent most, in fact, all, of the six years, keeping the Office of the Director--the Office of the Director, not the director--with its various programmatic, management, and other offices as small as possible. Indeed the budgetary increase for the Office of the Director over these years has been smaller than that for the institutes. He has not wanted to have the Office of the Director have grant-making authority at all. He thinks the action is in the institutes, and he brings his institute directors together in groups or in larger units for meetings. He has instituted in a way that no other director of NIH ever has

principals-only meetings on Thursday mornings. It has always been called the Institute Directors' Meeting, BID Directors' meeting when we have BIDs, IC Directors' meeting when they are ICs, and it has always had a whole gathering of people around the periphery, lots of people from the OD, some people from here, some people from there. He has had principals-only institute directors almost on a regular basis where the only people who attend regularly are he and I and then some of the deputies, depending on what is being discussed. If a new grants policy is being discussed [then], Dr. Baldwin. If the graduate school is being discussed [then], Dr. Gottesman and so forth. The reason I think that he has done this is because he feels--and I agree completely; in fact, I am absolutely overwhelmed by his success--that he has managed to recruit some incredibly remarkable scientists cum policy thinkers to become directors of the institutes. It is absolutely startling what he has been able to accomplish. Most of them are from the outside, but not all. He appointed [Dr. Stephen] Steve Katz as director of the National Institute of Arthritis, Musculoskeletal and Skin Diseases. Steve was an intramural scientist in the Cancer Institute, a dermatologist. I was overwhelmed by the interview with Steve, and Steve has become one of our really outstanding directors. Now, to her credit, Dr. Healy did the same thing with [Dr.] Richard Hodes, and he, too, is one of the outstanding directors. But he will have had an opportunity [to pick more]. I have to count [how many directors he has

chosen]. Cancer. It will be DDK. It is not now. AMS, Neurology, Deafness, Mental Health, Fogarty. That is at least seven. There may be four more. And depending on how long he stays, there may be a couple more. But it is remarkable. Oh. Alternative Medicine, he will appoint [someone].

Harden: Right. That appointment has not been made.

Hannaway: The *New Yorker* recently reported that Dr. Varmus may be leaving to go to the Sloan-Kettering Memorial Hospital in New York. Assuming he should leave for this or another position, we wonder if you would speculate on how you see NIH's future in the post-Varmus era.

Kirschstein: No, I won't do that. First of all, I do not think we know what is happening. Second, we are in the middle of the election now. I think it is going to depend very much on the country's financial status, on who is the Secretary, on whether we have a Republican or a Democratic president, on Congress's makeup. I will say that I do not think there is any question but that his influence will have been so great and so remarkable that--whoever becomes the next appointed director--because I do not know what is going to happen in the interim. There are some rules and laws that have changed how a person who is acting for a presidential appointee can be chosen. That has to play out, and nobody has figured that out yet–but the next appointed director, and the next several appointed directors, cannot help but look at what he has done and use their wisdom to try to build on it. It

would be the height of foolishness not to do that. So that spells for me a great future for NIH, unless some catastrophe happens. If we have a serious 1932-type Depression in this country, then bets are off. Or if the health-care system goes absolutely to pot-- But there is so much still to learn, and his vision has been so remarkable. I think the *New Yorker* article says it all. I really do.

Hannaway: That was a very good article, yes.

Kirschstein: It was a magnificent article.

Harden: But what got us thinking about this was that, of course, he will leave eventually, whether he goes to Sloan-Kettering or not. .

Kirschstein: Of course. He himself has said that, and I think when he came, he made a statement to me that is no secret that he knew that there had been an IOM report, I do not know when, in the early 1990s, something like that, which suggested that there should be a fixed term for the director of NIH of six years and be done off budget. Now, I do not know how you do that, because if you have six years, you will be off budget the next time, and that will get you to 12 years, and then you will be on budget. I do not mean on budget, I mean on election of the president. Excuse me. So I do not know how you do that. But he said he thought six years was about right. It was clear to me that he was not ready to leave at four, even when there were some people who were saying that [Senator Robert] Dole was going to win. I do not know whether he is ready now. He has always been

a person who keeps his own counsel. You know that Anne has been authorized to say that he has been to New York and he has been looking at many possibilities and that Sloan-Kettering is one of them, and that is all we know. When the time comes, we will know.

Harden: If he should leave before the election, do you think that there will be an appointment until after the election? Do you have any idea?

Kirschstein: The law is very difficult to read, and it depends on when, so I do not know.

Harden: I would like to shift to a few loose ends as we wind up. As we ended our discussion the last time, we mentioned [Dr.] Richard Wyatt's editorial on NIH involvement in vaccine production that you had reviewed, and that I had reviewed as well, and you commented that his take on the contribution was different from what yours would have been. I started thinking about that.

Kirschstein: I cannot remember what he said.

Harden: Basically, I got the feeling he was saying that NIH has made great contributions to vaccines, the people today stand on the shoulders of giants, and we have this wonderful history of vaccine things. So I was not quite sure which way you would have taken it.

Kirschstein: Okay.

Harden: But having been in that program–you were in Biologics for so long--I wanted to hear.

Kirschstein: NIH worked on infectious diseases and clearly made the contributions that

allowed vaccines to be developed. The scientists who did such work were giants. There is no question about it. But the discovery of the mutant strain of yellow fever virus that made the yellow fever vaccine possible was done at the Rockefeller, and the Rockefeller made the vaccine, followed by people at Rocky Mountain spotted fever laboratory, which was an emergency situation to be done during war, and the laboratory gave it up because manufacturers wanted to make it instead. The law does say--it is the Biologics law and Biologics is now not part of NIH anymore, but part of FDA--that if there is a public health need and if no manufacturer can be found, then there is a requirement that the federal government produce the vaccine. Polio vaccine was developed solely on the basis of private foundation money by both Salk and Sabin. Now, some of the developments that led to what Sabin was able to do were supported by the NIH because it supported CDC and Morris Schaeffer and C.P. Lee's and Charlie Armstrong's, years ago, adaptation of the polio virus to mice. But the vaccines were produced in a totally different way. Influenza virus vaccine was done under the aegis of the Army, not NIH. In fact, NIH as whole, and to [Dr. Robert] Bob Chanock and [Dr.] Brian Murphy, was not studying influenza at all. All the encephalitis viruses, the things that we had to contend with in military theaters in the South Pacific, in Africa, in South America, and so forth was done under the auspices of the Army because they needed them. The Walter Reed Army Institute for Research

was basically an equivalent organization in many ways to the old National Microbiological Institute, and, indeed, people left there and came here– [Dr. Joseph] Joe Smadel, [Dr. Wallace] Wally Rowe, a couple of others. Some of them from there went to industry–[such as] [Dr.] Maurice Hilleman. The DPT vaccines or toxins, toxoids, were developed sort of in combination, but the basic stuff was done by state health departments. Measles, mumps, and rubella. The first measles and mumps [vaccines] were developed by Maurice Hilleman at Merck. Rubella was done at three places: a guy in Child Health, who is now at Children's Hospital here; Hank Meyer and [Dr.] Paul Parkman in Biologics; Maurice Hilleman. [Dr] Robert Chanock.[?] was interested in vaccines, and he worked and developed, along with his staff, a number of possible vaccines. What maybe Richard [Wyatt] was going to say was that the basic work was done here, and as it was done at WRAIR [Walter Reed Army Institute of Research], but I do not think the actual development of a vaccine that would work was done so much here at NIH. The way I read his article, it sounded like that to me.

Harden: I think he probably may have had that in mind... Wasn't it the rotavirus and then the rickettsial vaccines before the war, before World War II, when _____.[?]

Kirschstein: When some of them were given... Yes. RML, but some of them were done elsewhere too.

Harden: Yes.

Hannaway: I suppose NIH contributed to an understanding of the virus.

Kirschstein: Yes. I am not saying that we have not contributed. Hepatitis was done here with [Dr. Robert] Bob Purcell, but, again, Hilleman did a lot of the developmental work. We do not have the possibility of doing that here, and I do not really think we should.

Harden: The whole responsibility, too, has evolved with the standards, from Biologics setting the standards.

Kirschstein: Now, what we have decided is that we are going to get that possibility for the future and have the vaccine laboratory, and we are going to do it for AIDS, presumably. The President sort of said we had to. We will see.

Harden: All right. I want to ask one follow-up question on this. Dr. Kirschstein, we had talked about a number of things last time when we were finishing up, and you had mentioned, or I had mentioned, the situation with Senator Heflin about revealing data from intramural research.

Kirschstein: Heflin?

Harden: Of Alabama?

Kirschstein: Shelby.

Harden: I don't know where I got Heflin, then. I apologize. Senator Shelby.

Kirschstein: Heflin, I think, is the other senator.

Harden: From Alabama. Well, I must have Alabama on my mind.

Kirschstein: Okay.

Harden: But, at any rate, the issue is the issue of who should have access to the data. I think many people in the intramural program who know they have no control over their data--I mean, it literally is subject to freedom of information requests--they may wonder why the extramural community is so upset, but certainly one understands why it might be. I just wondered if you could give us your thoughts on this and where you think this is going to go and how it will affect science.

Kirschstein: Let us start with the fact that I feel that the intramural people--and I do think that it is one of the few unfortunate aspects of being a federal employee, and that is why they do not have the protections that the others have--I think if we could ever win the entire battle, we ought to get it for them as well. But that, at the moment, is a daunting task, and I must say that until this all came up, I was not aware of the fact, even though I was an intramural scientist for just short of or maybe slightly more than 20 years. I was not aware of that fact at all.

Harden: We found this out when we had an oral history interview, a FOIA request was submitted and we found out that the intramural data were not even protected. Wally Rowe, I think, is the person who was the test case, and he lost it. They required him to give up his notebooks.

Kirschstein: I did not know that. Having said that, the reason for being concerned about the legislation that has passed is not because I--and I know he testified that way--or Dr. Varmus are concerned about openness of

information. When the information is validated, when the information is complete, when it is such that the interpretation can be made correctly--whether it will be or not is another story--because there is complete data, [that is one thing]. But when the data are not complete, when you are in the middle of a clinical study, or in the middle of even a basic study that is not completed and there is a good possibility or any possibility of a vast correction being needed in what the data tell you, then the idea of having your notebooks opened at that time is not a very good one. It is harmful to patients, it is harmful to physicians it is harmful to the data and to the interpretations and to the well-being of everyone. There are other ways to do this. The problem--Dr. Baldwin uses the expression that FOIA is a blunt instrument, and that is what I think is concerning us. Now, having said that, the OMB has gone a long way toward improving this, but they cannot, under the strictures of the legislation, make it much better than it is.

Harden: Do you know if anybody has asked to see certain data under this law?

Kirschstein: I do not know. You would have to ask. Well, no. Let me take that back. The law is probably standing and in effect, but it does not get implemented until OMB puts out regulations. OMB published draft regulations, under a circular that they call Circular A110. There was a time for comment, and a great deal of comment was made on both sides. People who are interested in or convinced that the federal government is hiding things and that

scientists are hiding things said the law did not go far enough and others said something else. There were some constructive things said. OMB has either just published or is about to publish a re-announcement of proposed Circular A110, and I cannot remember whether it has asked for a second set of comments or not. It may not have, in which case at the end of the period, it will codify those [regulations], and then it will begin to be done. The material will begin to have to be released.Meanwhile, of course, as you know, there has been one congressional hearing in front of Congressman Horn. It is government oversight of some sort. I cannot remember the details of the name of that committee. I actually testified in front of him about freedom of information and committee management, but I do not remember the name of the committee. Dr. Varmus testified, and he called for getting rid of the legislation. He testified very much along the lines of what I said.There is some minor evidence that Congressman Horn and a couple of other people might be interested in trying to do something. There was a piece of legislation that was introduced to undo the bill by probably the greatest friend of science in the Congress that we have ever had, George Brown It did not succeed, and Congressman Brown died shortly thereafter. Some people have said, “Can we do something about this in his name?” But so far none of this has happened. Congress is very busy, and it is hard to believe they will get around to it. So I would assume that when the OMB rules go into effect,

then we will see what is going to happen.

Harden: I heard something on the ABC News last night that might be a part of a larger picture of all of this, and I do not know whether it is or not. They were saying that a number of universities were trying to circumvent the peer review process of NSF and NIH and get funds earmarked [for projects]. The argument was, "We want to do targeted research, and basic research people of NIH and NSF have not told us what we have gotten for all this money we have put in over these years."

Kirschstein: I do not think that is related to this law.

Harden: Not at all?

Kirschstein: That actually was on the first page in the clips yesterday, and it was a story in the *New York Times*. The greatest proponent of universities getting earmarked funds directly from the Congress is John Silver, the president of Boston University, and others have followed suit. They say that they want to get the money to do targeted research, which is needed to bring important things to the American public. I do not think the argument that we have not explained what we are doing works very well at all. But it is an increasing problem and will continue to be one if the Congress cannot come to grips with the problems of how to appropriate money. We have not had a markup of our bill for the year 2000, we are five weeks from the end of the fiscal year, and there is not much evidence that there will be one markup. The university presidents see this as a great opportunity to get

what they want at a time when presumably philanthropy, for some of them, is flagging and failing, and we will have to see. I think it is very unfortunate. President Silver's argument, the one I read the newspaper yesterday, was that, "Who says I am not entitled to do that? The Congress can peer-review this as well as anybody else."

Harden: I asked the question because, of course, the idea of federal funding for research just was not there until World War II for many of these same reasons, and so it is kind of an ongoing tension. Some years it is one way and some years it is the other way as far as people attempting to circumvent or support the idea of peer review.

Kirschstein: You know, you are right. There was not a great deal of funding for research, particularly biomedical research, until the end of World War II. But there was research money for what was needed to be done. A great deal of the research that started being supported by NIH relating to biomedicine had been started under the aegis of the Department of the Army to be in support of what was needed in World War II. Chemical research, of course, was supported by industry for many years in the 1930s and 1940s. But think about the balance of how much we thought we knew that we could do compared to the money, and you can see that it is a rolling cycle, because the research was not ready and there was not any money; then things got a little better ready and there is money; the more money, the more research; the more research, the more money, to some

extent. And we have gotten to this wonderful era which we hope will continue.

Harden: Is there any other policy issue that we have not discussed that you can think of that you would like to talk about before we move into a more general discussion.

Kirschstein: My problem is I do not remember everything we have discussed.

Harden: We think we have covered the major things. But if there was anything on your mind with respect to NIH policies or even major programs that you wanted to talk about that we have not brought up, we thought we would ask.

Kirschstein: Did we talk about alternative medicine?

Harden: Not a great deal.

Hannaway: No, not very much.

Harden: That, of course, is another thing I would very much like to hear your thoughts on because one hears all these stories, such as a woman whose husband died because they took some supplement. And she said, "How could it hurt us? It was called natural." This brings us, of course, back to the FDA and the need for regulation as well. Yet the NIH, which has never supported alternative medicines, is now the home of this [center], and how the public perceives things and how NIH perceives things may be very different. So there are a whole lot of issues. Do you want to talk about any of them?

Kirschstein: You gave me a very broad array. I think it is hard to say that the NIH has never, up until 1993, really supported alternative or natural medicine. You think about all of the botanicals that have made important drugs. Digitalis is the clearest example.

Harden: But when you get down to it, everything is natural, is it not?

Kirschstein: Yes. And when we refine things, we do a great deal of chemical synthesis.

Harden: But chemicals are natural. I mean, it depends on how you want to---

Kirschstein: Yes.

Harden: I do not mean to argue about the definition.

Kirschstein: Actually, we are not talking about natural when we talk about what we are calling alternative medicine. Alternative medicine is the treatments that are used which are outside of what is called traditional Western medicine as it is taught in the medical schools of the West, particularly in the United States. That is what the now center is giving as the definition. I was at an alternative medicine conference over the weekend in Natcher on the use of alternative therapies in chronic liver disease. It was pointed out quite quickly that what we are calling alternative therapies are well accepted in Europe, in Asia, and in many other places. Indeed, in Asia, much of it is traditional medicine, in China, for example. There has been over the years a great deal of interest, and it has come in waves. The waves of the 1820s of Benjamin Rush and the medical school in Philadelphia that was the Homeopathic College of Medicine, or the College of Homeopathic

Medicine, I guess, is the proper name of it, is no longer in existence. It was replaced by one of the other medical schools. I think it is Hahnemann, as I remember. But over the years there has been an increased interest in this in this country by people. This is almost a grassroots movement. The billions of dollars that are spent by people who seek dietary supplements, things to relieve their pain, things to lose weight, etc., are clearly an indication that these things are in demand. I, at least, have said on more than one occasion that part of the reason that this happens in this country is that the physicians no longer have the kind of time they had to sit and talk with their patients. So the patients are looking for other sources of making them feel better, and these preparations are being sold over the counter. That then turns into some action on the part of some fairly influential people who influence congressmen and senators. So in 1992, I guess it was an Office of Alternative Medicine was established within the Office of the Director. There is no question that in those three years, maybe a little more, that it took, NIH really did not want that office, paid little attention to it, and it did not do very well by itself. It went through a series of directors, it went through a series of changes. It was one of the problems that I found when I first walked in here and became the acting director, but it did not go away. Indeed, the interest in it grew and grew. And with the increased use by the American public of HMOs for health care, where the number of minutes that a doctor can spend with his or her patient is

rationed, it is going to get worse. But what we found, and what people told everyone, was that when you were really sick, you were not taking this alternative therapy versus this. That did happen early on with some of the cancer alternatives. The laetrile and the chlorbiazin [sp.] and the Hoxsey treatment were all people who said, "There's nothing for me in the panoply of regular drugs for cancer, so I'll go here." They were wrong because there was something for them. Maybe it was not as much as there is today. And so by taking those materials, they actually shortened their lives. They would have had an opportunity if they had gone for whatever ill-defined and not terribly successful cancer chemotherapy there was, but they did not even try that. And some of those were truly harmful. It is also true that some of the materials that are being used today are harmful. The most obvious example of that was the amino acid supplement, Tryptophan, which something like five or six years ago was found to have this toxic substance. It was in one particular batch, maybe more than one, from Japan and caused a severe eosinophilic myositis disease which was very debilitating. I think people determined what the toxic material was in that. But none of these over-the-counter-sold things that are being called alternative medicine are really reproducibly produced. That came out very clearly in this conference the other day. But people are using them, and if it is not causing them any harm and they think they feel better, then using them is complementary now to the important drugs that their physicians

are prescribing for them. Some of them are telling their physicians and some of them are not. So the notion is that it is complementary and alternative medicine, not just alternative medicine. The Office has had a meteoric rise in budget, and now it is a center free-standing. That was passed, not by the ordinary way in which legislation is passed to establish a new NIH entity, but was hooked on at the last minute, in the middle of the night, to the omnibus appropriations bill. We are searching now for a director, and hopefully we will have one soon. It has had terrible growing pains, and it is not settled down yet and I do not think it will be for a long time, but we are going to work at it.The other thing, though, is you talk about FDA. There is an enormous move in the Congress, as you know, regardless of whether the people really want it or not, to constrain the FDA's ability to regulate drugs and foods.

Harden: Or the nutritional supplements, I think, are the most---

Kirschstein: Supplements and regular drugs and dietary supplements. It is the same phenomenon as this new ad that is running on coverage of prescription drugs, which is, "I don't want that government in my medicine cabinet."

Harden: We could go on at length about government and its pros and cons.

Kirschstein: But, at any rate, that is why there are some problems, and FDA is very badly hamstrung.

Harden: Yes. I would like to continue this discussion, but I think perhaps we should move on.

Hannaway: We had come back to these questions we had already given to you, that you are known as a mentor to young women in biomedicine. We would like you to reflect, if you would, on how career challenges have changed for young women over the time since you decided to go into medicine.

Kirschstein: Let us start off with the mentor. I am pleased to help give advice, if people wish to take it, based on my experience, for anybody who walks in the door. I have had a fair number of young men come in, as well. I think the difference is that young women generally are a little less secure in their minds, probably without reason--they should be equally secure--to men, and so they come more often. They also hear in discussions with other women and with people generally that they need mentoring. You hear that about women, you hear that about minorities, as well, and you hear it particularly about people who have not had the full advantage of the ability to get training and so forth. I never had a mentor. I think we talked about that before.

Hannaway: Yes, we did.

Kirschstein: I guess I had lots of people who, in the technical sense, gave me advice, but I never had one person that I would go to for mentoring, per se. I also was not hesitant to go and ask people for advice, but I would ask Dr. X for advice on Y subject, and Dr. A for advice on B subject. I did not tend to do it with one person for everything. I do have a fair number of people who seem to keep coming back and say, "I am not going to do this until

you tell me it is all right," or "I am not going to do this till I talk to you." In terms of young women, the doors are wide open if they know how to take advantage of it. But it is also, as I think I said earlier, in some ways harder. Now, the doors are open because there is much less in the way for women of bias in graduate education, medical school education, residency programs, becoming starting faculty at universities and medical schools. As we said, something on the order of 50 percent of the overall classes at medical school are now women, and in the biological sciences, particularly microbiology and cell biology, women are 40 to 50 percent of the graduate students. Nevertheless, what happens to them as their careers progress is probably more problematic, to the point where many of the professional societies are concerned about this and have committees for women in cell biology, women in microbiology, etc., and the American Society for Cell Biology, which will be meeting in Washington in the beginning of December, is going to have a workshop on women's careers in cell biology and research in general. These things seem to help. These women seem to crave this and to find the need for it, and if that is serving a useful purpose, I am all for it. Women seem to think they need role models. I suspect the reason for the role models is because there is this bunching of the women faculty members in the starting and the lower middle-level positions in academia and not very much in the upper-level full professors, administrators, deans, presidents of universities.

Hannaway: Even in chairs of departments.

Kirschstein: Chairs of departments. There was a marvelous article in last Sunday's *New York Times*, on the front page, about the chairman of the board of Intel--I think it is Intel--who has just appointed a woman CEO. This came out in July, I believe. She was announced. And how the chairman got to the point where he thought about that, and also showed a graph of what has happened to women in high-level positions in the business--he had been the CEO, was promoted to chairman of the board--as a relatively young middle manager of this company. I think it is Intel; I would have to check, but I am pretty sure. It was on the first page just above the fold, in the middle. His wife became very ill and died. She had been the person who ran the house completely, took care of everything for him, the children, the whole kit and kaboodle. And she left him with two daughters, I think, maybe three, but two who were nine and five or something of the sort. At that time he did not have family that could help him, and he was not in a management position where he could ask for time off and get it. He juggled for a very long time--the entire situation of his career, the young girls, the household, learning to make some food for them, etc.--and became very appreciative of what was going on. So he did move up the chain of command and was very cognizant of this and he began to give women the opportunities to work part time and yet move into a bigger job, and so forth. The graph is really quite remarkable as he

has moved up the line.

Hannaway: There are more women being employed.

Kirschstein: Somebody in the *New York Times*--and I cannot remember who wrote the article; I should... I do not think I have it. I have to ask Anne for it because I should have saved it. It was so good–he saw fit to write it up. And they quoted his daughter. One of his daughters is the CEO of another top company. She is 29, the other one is 25 or something of the sort, and they have careers. He has remarried. It was quite a remarkable story. I was very taken with it. Anyway, so the challenges are not to get there, not to be serious about it, but to think your career through, and maybe that is where, for some people, mentoring comes in, to help you decide really what you want to do and then how to work toward it in a real way. But the other piece of the challenge is the thing--I think I have said it before--that I did not have. That was the ability, if you could pay for it to get household help and not to feel guilty that you are not cooking every day and doing all the things that make you a housewife. Now, you do lots of them even then, because the household help does not do it quite the way you want to and so forth. But these people have a harder time. There are not people who are good people, people that are really appropriate to take care of your children these days and so forth. What they may have going for them, though, these young women, is a much greater understanding, right from the moment they even marry or decide that the twosome will start a family,

is that whatever duties have to be performed are shared responsibilities. I was enormously impressed five or six years ago when one of the young people at a high-level command in the Department came out here to NIH to visit. We were talking, and he suddenly looked at his watch and he said, "I am going to have to leave this afternoon. It is my day to pick the children up from day care and take them home and get them supper."

Hannaway: That is quite a shift.

Kirschstein: I had a husband who was extremely supportive, and we did all these things together, but I have lots of friends for whom that was not so.

Harden: I was going to say that the thing that strikes me as you talk is that (a) you did have a supportive spouse, and (b) I think it was your parents. You did not question whether it was okay to have a career. I mean, you did not bite your nails about whether you should--

Kirschstein: No, not at all.

Harden: So that is a hurdle for some people.

Kirschstein: Yes, that is the hurdle. And that hurdle is changing. You read the wedding announcements in the Sunday *New York Times*, and every one of those young women are working at some sort of an interesting job. Many of them are keeping their name. That is a different thing. There was a real feeling among, not my mother and father and not my husband's mother nor his sister, but my other relatives, and certainly the people that I knew in more traditional situations about not changing your name. That is no

longer a factor at all along the way. But what we still have to work at is getting these young women to decide what they want to do. If they want to do administration, to feel they can do it, or if they want to move into fields that are not just like their mentor--and by mentor, I do not mean their advisor, but their research professor, the professor who awards them the Ph.D., thinks is a field that is important.

Hannaway: And another area is in medical training, of course. We still have not made many changes in the internship and residency programs.

Kirschstein: There are beginning to be some. Vivian Pinn probably has more data on that than I have. There are some shared residencies and some shared internships, sometimes between spouses, but sometimes between two women who will take longer to get through but share it. The other thing is that Vivian has this program that I do like very much, which she calls the reentry program, for women--and, frankly, for men, too--who, perhaps like the middle manager, have to leave a job or take a lesser job for a while even though they are professional because of household responsibilities, and who then need to get up to snuff in their own professional life because they lost five years or something of the sort. She has a program to support them for reentry into research, which I think is very good. There are reentry fellowships, and I think that is terrific, and I like that a great deal.

Hannaway: That seems a very sound idea.

Harden: Do you find support for all of this among the senior men? I know there

are some dinosaurs out there still who think that a woman's place is in the kitchen. But, overall, do the males with whom you--

Kirschstein: I think, overall, males are becoming more supportive of this. I am not sure that these are the males who are always in the highest positions of authority. Some of them are, some of them aren't. I am not sure that all the male deans of the medical schools in this country would be totally supportive of that, or the presidents of the universities. I think there will be many who would be. A lot of it depends on how they were brought up, on their parents, and on whom they chose to marry along the way.

There was one other thing I was going to say about the fact that there are some flexibilities. I do know that there is a real attempt in the matching plan for interns and residents as to where you will end up going to be an intern, and that presupposes you will stay for residency, to make a special matching situation for couples, who are either already married or planning to get married, or significant others or whatever you want to call them, along the way. So, in general, [they are] at least in the same city, very often the same hospital.

Hannaway: If there is a couple, they will be together.

Kirschstein: If it is a couple, they will be together.

Hannaway: But they still have not altered too much the hours that they will spend in the hospital.

Kirschstein: No, though interns have begun to demand more of that.

Hannaway: Yes.

Kirschstein: Many of them have unionized, as you know. There was a real flurry about that and the time, the hours they have to work, when a couple of well-known people, and one who was not, died unexpectedly at Cornell Medical Center in New York of some severe infections. There was a question of blame and so forth. It turned out that, in each case, the doctor who was taking care of them was coming off of a 36- or 48-hour period of time [working]. It was written up in the *Times*, considerably, and they began to try to shorten the hours a little bit.

Harden: Now, I want to circle back here. You have told us about your husband's strong support for your career as it developed, and I wondered, as we wind these interviews up, if there is anything else you would like to say about your partnership.

Kirschstein: It has been wonderful. It has been a true partnership in every which way. Life is just wonderful. I think that if you like people in general and you love and respect your partner, then everything else follows. When there are hard times, you are in it together, and there is a protective aspect of, "I'll go this one alone for a while until you, because I don't want to burden him," or her, and it just works out very well. Now, I have to say that I think the NIH atmosphere helps that along a great deal because of not having to have two scientists who perhaps have to juggle getting grants. People do it, and Dr. Ehrenfeld and her husband, and I can name you many

of them. I think this atmosphere is particularly helpful, so that you can devote yourself to your work. Goodness knows, there is no question, we both work very, very hard. But you do not necessarily have some little black clouds hanging over your shoulder that says, "If this doesn't happen, you're going to be down and out." We have had a couple of stormy times of it, and they [have] come out all right. I think the most interesting part of this is that I have acquaintances--I would not say close friends, but acquaintances--who will say, "When we are finished with our work, no matter how hard we work and how long we work," in research or medicine or whatever else, "we go home and we don't even want to think about it, we don't want to talk about it, and that is it." There is a sense that it is not the second great love of their lives, and perhaps the loves--I am not sure the love of Alan can be totally separated from the love of what I am doing, and I think he would say something of the same thing. But when that happens, I think you will rarely find that the children get a sense of how important or how exciting what their parents are doing is. Most of them will say, "I don't want to be a doctor like my father," or my mother or whatever. And from the time he was this big, my son had no doubt what he wanted to do.

Hannaway: He was inspired by hearing about what the two of you did.

Kirschstein: Well, we talked about it all the time.

Hannaway: Yes.

Kirschstein: It became part of daily dinner conversation.

Harden: Frequently they [people] do not realize this until they get away from this climate. Other people do not have this.

Kirschstein: Yes. Many of the children will go toward it later sometimes. I hear friends talking about their son who did not want to go near this, and now that he has finished with this, that, and the other, he is thinking about going to medical school, or something like that, along the way.

Hannaway: Yes, but is there anything else you would like to say about your family history and your career in medicine, I mean, about the things that have happened to you? Do you have a different perspective when you look back on your parents? You told us about the family coming and...

Kirschstein: I have one different perspective, and to me it is too bad that it did not happen. I do not know if I mentioned that my father, although he never said it to me until much later, had told my mother that he had always wanted to go to medical school, and he had not. He had become a chemical engineer and then found no job as a chemical engineer, which I think I did tell you the story of.

Hannaway: Yes.

Kirschstein: She said [to him], "Well, why don't you do it?" She was teaching school. And he said, "Oh no, it wouldn't be right," the more traditional idea. So she said, "Then, in that case, if you are not going to do it--and I would support you completely to do it--let's start a family," and they had one

child. He was not, I believe, as happy an individual as he could have been. I always, as I finally did decide to go to medical school, I wished he had. I think it would have made him a more happy, complete individual. I regret that. I also regret that he, with whom I was very close, did not live long enough to see more than the start of my career. My mother lived long enough to see me become the director of NIGMS and win a couple of awards, and lived long enough to go to my son's medical school graduation. But it would have been nice for my father to see that too.

Hannaway: It would have.

Harden: Would you give me your opinion--again, this is speculation–on how you think your career as a government employee would compare had you had a career in academic medicine in a university. Are there any specific differences that you can think of that we should note?

Kirschstein: Maybe. First of all--I think I mentioned this, but at any rate--I, at least, never had any presumptions or thoughts when I was in medical school that I would do anything but in one way or another practice medicine, and part of it was fortuitous because we came here. Al, I think, did want to do research. I do not think there is any question about it. Whether, if he had, for example, gone to an academic medical center research career, I would have done the same or I would have practiced medicine either through the medical school practice plan or private practice or whatever, I do not know. I do not think there is any question that I was not a really

outstanding investigative researcher. I did good research on some subjects. I knew what was good research [and] recognized it. It was fortuitous that I could do research that interacted so beautifully--and maybe it was not so fortuitous; maybe I realized it--with my service responsibilities in terms of vaccines. That always gave me something to fall back on. The service responsibilities in vaccines allowed me to get administrative experience, and that then allowed me to know somehow in my own mind that probably I did have a bit of a flair--I do not know how much, but a bit of a flair--for administrative things.

Hannaway: I could say great talent.

Kirschstein: I do not know. Whether that would have happened in academic medicine, I do not know, because we here at NIH and in the government as a whole have been more open, not exactly wide open, but more open, particularly starting in the early 1970s, to women in more administrative and rising up to positions of leadership. I probably was in the right place at the right time when I became the director of NIGMS. I probably could have stayed at the FDA and risen in that administration as well. It would have been not quite so satisfying because there are lots of things there that are difficult. I would never be willing to take a political position such as [Dr.] Jane Henney has taken. I think it is wonderful that she has, and we talked about it. I think she knew what she was getting into and has plans for when she has finished. So lots of things came around in the right places at

the right time, which is the way life is.

Harden: Which is the way life is, yes.

Hannaway: But you were also willing to see the opportunities.

Kirschstein: Yes, and I did when I said to John Sherman, "Think about it."

Harden: All right. I think we are just about out of our questions. But is there any other aspect of your life or career, or is there anything else that you want to say that we have not talked about? You have done a beautiful job. That is just it.

Kirschstein: It is going to be interesting to see what happens to NIH and to me over the next five years or so, or maybe a lot more. It is hard to tell what is going to happen.

Harden: Thank you very much.

Kirschstein: Thank you. I have enjoyed every minute of it.