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A Record \$5.1 Billion

NIH Gets a Bountiful Budget and a Welcome Veto

It has been an extraordinarily triumphant political year for the National Institutes of Health.

With the help of its friends on Capitol Hill, NIH has again eluded Administration plans to hold it to a standstill budget, and came out of the 98th Congress with a record-breaking \$5.1 billion appropriation for the present fiscal year—\$580 million above the President's request.

Then, at the urging of the Bethesda leadership, the President blocked those same biomedical Congressional enthusiasts by vetoing a bill (S. 540) that would have inflicted on NIH a fate worse than parsimony—two new institutes, one mainly for arthritis, the other for nursing research. The veto also thwarted moves to command NIH to set up studies of learning disabilities, lupus, and

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so-called orphan diseases, the usual first steps toward adding even more institutes to the present complex of 11.

Describing the proposed arthritis and nursing institutes as "unnecessary, expensive new organizational entities," the veto message urged attention to the forthcoming grand masterplan of ground rules for new institutes that NIH had commissioned last year from the National Academy of Sciences (see page 2).

Centered around arthritis, with skin disorders tacked to the title to pick up that constituency, the proposed National Institute for Arthritis, Musculoskeletal and Skin Diseases was feared for the same reason that NIH has lately shunned all Congressional thrusts for new institutes: They provide a rallying point for outsiders who aim to make NIH spending responsive to their particular medical nightmares.

The other vetoed institute, for research on nursing, was even more horrendous to the Bethesda leadership, for it would have sent NIH into the area of health-services delivery. Outsiders might feel that worse fates could exist for an establishment dedicated to the improvement of health. But throughout its near-half century of existence, NIH has frantically resisted repeated efforts to force or lure it into activities that are primarily focused on the bank-breaking task of patient care. Nursing research—admittedly neglected but never clearly

defined—was seen by the jittery barons of Bethesda as a slippery slope toward getting into the hospital business.

The veto, delivered October 30, was directed at an authorization bill that was weighted with various other heartfelt measures of concern to the NIH leadership. Among them was a measure designed to thwart the hard-core animal-welfare proponents by consigning the subject to NIH's reliable friends at the National Academy of Sciences. The veto also canceled a compromise House-Senate measure that would have given statutory standing to regulations that now permit, but severely restrict, fetal research. Along with that legalistic change, the subject would have been assigned for study by a proposed bioethics commission, which also went down with the veto.

What accounts for NIH's fabulous showing in a difficult budget year? The answer is that biomedical research has become nearly sacrosanct in the minds of the American public and among their legislators on Capitol Hill. The Administration's budget-minders recognize that and deliberately come in with requests for little or

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In Brief

Election Day was kind to all of Capitol Hill's major figures in research-related matters. The biggest change comes from the Senate victory of Rep. Albert Gore Jr. (D-Tenn.), Chairman of the Science and Technology Committee's Investigations and Oversight Subcommittee. Gore made a splash, particularly on genetic-engineering, with the previously obscure Subcommittee. His most likely successor in the chairmanship is Rep. Bill Nelson (D-Fla.).

Last month's barrage of Presidential pocket vetoes knocked out a bill to give the National Bureau of Standards new responsibilities for research on manufacturing. Along with it went a tag-along item to sprinkle "engineering" throughout the basic legislative charter of the National Science Foundation. Both items are sure to return in the 99th Congress.

The rumor mill says off and on that Presidential Science Adviser George A. Keyworth II is fed up with the job and will move on. But inquirers are told that Keyworth is staying on. He recently moved from suburban Virginia to closer-in Georgetown.

Rules Proposed to Block Drive for New NIH Institutes

The report that the Institute of Medicine issued this week on the National Institutes of Health is frankly aimed at establishing impermeable barriers to political and popular influence in the management of NIH. The main aim is to block demands by the so-called disease-of-the-month club for new institutes beyond the 11 that now exist.

The report's chief provisions call for establishing a politically pure 6-member Health Science Board to provide counsel on organizational changes at NIH. To be appointed by the Secretary of Health and Human Services (HHS) "after consultation with the National Academy of Sciences and the National Academy of Public Administration," the proposed Board would presumably be guided by the IoM's conclusion that "there should be a presumption" against setting up new institutes at NIH.

Titled *Responding to Health Needs and Scientific Opportunity: The Organization and Structure of the National Institutes of Health*, the report is a direct reaction to the rising demands that health lobbies have been directing at NIH. Working through sympathetic legislators, these lobbies contend that NIH is more interested in science than in sickness. And they invariably want their own brand-named institute on the Bethesda campus as a rallying point for public attention that can be converted into federal appropriations.

The report, produced by a 15-member committee chaired by James D. Ebert, President of the Carnegie

NIH

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no budget growth, in anticipation of Congress adding on to whatever amount they request.

Thus, the President's budget request for NIH for fiscal 1985, which began October 1, called for a mere \$90-million increase over 1984, a ground-losing sum that no one took seriously. Nonetheless, the usual rituals of handwringing and doomsaying were staged before the House and Senate appropriations subcommittees that have the most say over the final figures. And in the background, two of Washington's most effective lobbying organizations were at work—the Association of American Medical Colleges, which represents all 127 medical schools, and the Coalition for Health Funding, which encompasses over 40 health-related organizations, ranging from the American Academy of Pediatrics to the New York State Committee for the Treatment of High Blood Pressure.

The Coalition customarily sets the figure that its friends in Congress should aim for above the Administration's request for federal health programs. In the research area, Congress's verdict is usually in the neighborhood of the Coalition's recommendation. This year,

NIH Study Panel Members

Members of the Institute of Medicine's NIH Study Committee, in addition to Chairman Ebert, were:

Steven C. Beering, President, Purdue
 Baruj Benacerraf, President, Dana-Farber Cancer Institute
 William Bevan, Vice President, MacArthur Foundation
 Stanley Cohen, Professor, Vanderbilt University School of Medicine
 Maclyn McCarty, Professor Emeritus, Rockefeller University
 Thomas D. Morris, veteran of various senior federal posts
 George E. Pake, Vice President, Xerox
 Don K. Price, Professor, Kennedy School of Government, Harvard
 David S. Saxon, Chairman of Corp., MIT
 Margery W. Shaw, Health Law Institute, Houston
 Howard E. Simmons Jr., Vice President, DuPont
 Samuel O. Thier, Professor, Yale Medical School
 Joseph F. Volker, Professor, U. of Alabama
 Adam Yarmolinsky, attorney, Washington, DC

Institution of Washington, was commissioned 18 months ago under an \$800,000 contract from HHS. The inspiration for the study was the growing strength of the arthritis lobby, which felt that its concerns were increasingly being submerged in an institute whose title had evolved from Arthritis and Metabolic Diseases, in 1972, to Arthritis, Diabetes, and Digestive and Kidney Dis-

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for example, the Coalition said the President's figure for NIH for 1985 should be increased by \$647; Congress responded with \$580 million.

With the newly reelected Administration beating the drums about the need for harsh cuts in federal spending, the key figures in NIH's budgetary fate are its appropriations committee chairmen, all highly supportive in the last session. The lineup continues to look favorable, though it's not certain whether Senator Lowell P. Weicker (R-Conn.) will continue as Chairman of the Labor, Health and Human Services, Education Subcommittee. In any case, Senator Mark Hatfield (R-Oregon) stays on as Chairman of the overall Appropriations Committee, and, as number two on Weicker's Subcommittee, could ascend to the Chairmanship.

In the House, Rep. William Natcher (D-Ky.) will be back as Chairman of the Labor, Health and Human Services, Education Subcommittee.

So will the authorization bill that would add new institutes to NIH. Rep. Henry Waxman (D-Calif.), Chairman of the Energy and Commerce Committee's Health and the Environment Subcommittee, says he will reintroduce the bill for the institutes on the first day of the new Congress.—DSG

... Science Board Would Serve as Political Shield

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eases, in 1981. The lengthening title of the institute reflected NIH's efforts at a semantic buyoff of other lobbies.

The NIH management and allies summoned from medical schools argued back on Capitol Hill that the relevant research is all the same, whatever the sign post on the building. They also contended that the research effort would be balkanized into unrelated fragments by the proposed new institutes—of which at least 23 have been proposed since 1970, according to NIH's reckoning. But the professional arguments were pale in comparison to the tactics employed by the arthritis lobby, which included painfully gnarled arthritis patients among its Congressional witnesses. The thrust of their message was that NIH wasn't doing all that might be done under a separate arthritis institute. The last Congress accepted that argument; but for a veto, the institute would now exist.

The Institute of Medicine study gave no concessions to the besiegers of Bethesda. Thus, in suggesting criteria for establishing new institutes, it essentially set impossible conditions:

- "If a major emphasis of the proposed new entity is in regulation, in the delivery of services, or in other non-research activities, it is not appropriate for incorporation in NIH."

- "It must be demonstrable that the research area of a new institute . . . is not already receiving adequate or appropriate attention."

- "There must be reasonable prospects of sufficient funding for a new institute . . ."

- "A proposed change in the NIH organizational structure should, on balance, improve communication, management, priority setting, and accountability."

Beyond these criteria, which none of the present disease-related lobbies could satisfy, the proposed Health Science Board would be dug in as an additional barrier. In the words of the report, the members "should not be chosen to represent any particular group or constituency. In order to promote the development of consensus and to emphasize the fact that the members are not representatives, the Committee recommends that the Board have only six members."

New Powers for NIH Head

The Institute of Medicine also proposed several other changes for NIH, including:

- Budgetary discretion for the NIH Director, up to 1 percent of the total budget, plus authority to transfer up to 0.5 percent of the budget across institute lines "in response to a public-health emergency." NIH's sluggish response to AIDS was specifically mentioned.

- Conversion of the present Director's Advisory Committee—now appointed by the Secretary of HHS—into an NIH Policy and Planning Council, appointed by the Secretary from a list prepared by the Director. The proposed change reflects privately voiced concerns about the mediocrity of recent appointments.

- Appointment of two Deputy Directors, one for intramural, one for extramural activities, "to advise the Director on the coordination and direction of the research program within the institutes."

- Steps to "facilitate accountability, both to the scientific community and to the larger public," by giving Advisory Council members more information on research activities plus steps to expand NIH's public-information programs.

Closely matching the preferences of the NIH management, the report's main recommendations are likely to arouse resentment in Congress, where many members feel that their involvement with NIH should not be confined to voting big budgets. The vote for a separate arthritis institute—over the protests of NIH Director James B. Wyngaarden and his associates—is evidence of that.

The Institute of Medicine formula for NIH says, in effect, that medical research is entirely the business of experts, and that simple-minded politicians, with their uneducated enthusiasms for cures, ought to stand out of the way. The formula is not likely to win friends on Capitol Hill.

(Copies of *Responding to Health Needs and Scientific Opportunities* are available without charge from the Institute of Medicine, 2101 Constitution Ave., Nw., Washington, DC 20418.)

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Q & A With Science Foundation's New Director

When Erich Bloch went from an IBM Vice Presidency to the Directorship of the National Science Foundation last June (SGR Vol. XIV, No. 11), he responded to our request for an interview by saying he would first like to settle into his new job—for which he's the first occupant drawn from industry. Bloch talked with SGR Editor Greenberg November 8. Following is the text, edited by SGR for brevity and clarity:

SGR. Are there programs or subject areas at NSF that you especially favor for a bigger share of the budget?

Bloch. Some of the newer things, like the biotechnology area, which is starting from scratch, obviously should have a higher growth rate than something which is well-established. In some of the areas that have been neglected—mathematics is certainly one area—you could expect that; also in engineering, which has a very small base. Another is education, where we are also starting from scratch.

SGR. Since industry is heavily investing in biotechnology research, is it appropriate for the Foundation, with its limited resources, to make this a major area of emphasis?

Bloch. We have two obligations. One is basic research, the other is education. In a new area like that, the educational aspect is probably as important as the research aspect. So, we have an obligation to help produce people that can do that kind of work. In the basic-research area, industry is not that prominent. Some of the other federal agencies have a stake in it, and where we stop and where the other one starts is a good question. But I think the Foundation has a role to play, and it's a basic-research kind of a role, and it's a generation of people role.

How Much for Engineering?

SGR. Does engineering merit a bigger share of the NSF budget—some would say 50 percent, compared to the 10 percent it gets now?

Bloch. I don't think you should play a numbers game. I don't know what it should be, but I don't think it should be 50 percent. Science plays a very important part in engineering, and without having the science there, engineering would not flourish the way it has been flourishing; it wouldn't do the things it does. And therefore saying it should be 50-50 with science, I think, really denies the roots of engineering. I would hope there also is [industrial] support coming to the engineering parts of the Foundation that you couldn't expect in some of the sciences, like astronomy, for example. I would hope that through industry participation in the process, by matching funds or by supporting universities, having contracts in universities that supplement

what we're doing, engineering can attract a lot more funding than science can, in general.

One of the big problems that exists today in engineering research is the fact that it has changed its complexion completely from what it was 20, 30 years ago. It's more of a multidisciplinary kind of problem-solving today than it is a disciplinary kind of problem-solving. It's more of a systems problem than before. The tools, equipment and techniques are completely different. If we fund through the Engineering Research Centers [SGR Vol. XIV, No. 18, "NSF Gears Up for Big New Engineering Program"] a capability for academia to work in that environment—and academia is behind in working in that environment—then I think we'll help the industrial problem in two ways. One, you'll get different research out of it. Two, you get participation by industry right from the word go. You get a sharing of resources, and, hopefully, you produced better-qualified people.

Support for Instruments

SGR. What are other areas where there might be changes in emphasis in NSF's budgets and programs?

Bloch. We have seen a number of them already. First of all, a closer look at funding for what I call infrastructure things, like instrumentation. You see more for funding in that area than you saw in the past. General and specific equipment. Specific ones, for instance, are supercomputers. That's an instrumentation or equipment kind of a problem, or an infrastructure problem. I think you will see continued heavy emphasis on that, because it is an area that has been neglected over the years, both by the government and by the universities. Some of the emerging newer technologies, like microbiology or biotechnology, will gain quite a bit of emphasis.

SGR. Is the trend more toward technology than science?

Bloch. No. The equipment area—supercomputers—serves both. In the biotechnology area, I don't call that engineering or technology. I called it science, technology, and engineering, all three rolled together. Here's a new area, a new discipline, and it draws very heavily on science, engineering, and technology. The people for it come from all of these areas. It's not technology. I would say it's a science-driven kind of a technology. How much science there is in engineering is an old question. I say quite a bit. It's an old question, but nobody will say it's zero. Also with the newer kind of engineering and technology problems—just think of materials—I dare you to define the boundary line between science and technology.

This whole area of technology versus science, I think that's an overdone question because of the way the

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... No Bonanza for Mathematics or Social Sciences

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world is moving today. Where one stops and the other one starts is not a very interesting kind of question. Also, the people who are working in technology and engineering today—a lot of them are coming out of the science end, not the engineering end. That's how it should be.

SGR. The Engineering Centers program is aiming for 25 centers, with \$2.5 million to \$5 million each from NSF, plus some matching from industry. That looks like a minor effort, given the size and diversity of American industry.

Bloch. I don't know that it's minor. First of all, I don't know if it's 25 or it's a different number. That's neither here nor there for a while. What I hope is going to happen is that these are demonstration kinds of centers that then get imitated or duplicated in other areas, with different kinds of funding, maybe not on the same grand scale, but certainly in concept. I hope we're starting something that really reaches out and leverages the funds that the Foundation is putting in. I don't call that insignificant.

Secondly, it's a significant increase in the engineering budget. I hope we can continue that over the next few years and add some new centers; and also put some centers in place in multidisciplinary areas that today are not being pulled together in the first place. Again, biotechnology is one of those areas, but there are many others. The response we have gotten from the universities—140 or so proposals—shows a need for that.

A New Way in Engineering

SGR. This looks like a situation where the problem has been clearly identified but the response is small.

Bloch. Watch us in '86 and '87. You've got to walk before you can run. If we had a billion dollars in it this year, I don't think we could spend it. The Engineering Research Centers involve a new way of operating, and you have to find your way through.

SGR. Mathematicians say their field has been seriously undersupported. [Presidential Science Adviser George A.] Keyworth says he agrees with that and so did a report last spring by the National Academy of Sciences [Renewing US Mathematics, produced by a panel chaired by Edward E. David, President, Exxon Research and Engineering].

Bloch. If you had \$100 million to throw at it in one year, I don't know what you would do with it. You have to build it up. It competes against other areas that have been neglected. So, saying that it has been neglected—even if everybody agrees—doesn't mean that you can solve the problem in one year.

SGR. The David report argued that mathematics is the

most fundamental building block of science and technology.

Bloch. Let me say a couple of things about this, because I happened to talk to the advisory committee on it. First of all, the thing I asked them to do was to go take the David report, and I told them you might agree 100 percent with it, but go look at it through your own eyes, and tell me what is the right level of funding that you would think is practical. Also, knowing what goes on in the rest of the Foundation, you know that we don't have infinite resources. So tell me what is the right level that we should put in and in what areas. They came back with an answer which was different from the David report. Their answer was roughly a 60 percent level of what the David report called for. We asked them to break it down on how many people to support and so forth, and they came out with the 60 percent level.

I promised them what we would try to do is take that into consideration, over a period of years. They agreed it couldn't all be done in one year. The David report didn't contemplate that, either. But the advisory committee was a lot more careful, and they really looked at where do we want to be 5 years from now. I promised them I would take [their views] into consideration as we moved through the years, and we would tell them at all times what we're going to do about it, so we'd have a continuous kind of a dialog, and they'd see that we're going to take it seriously.

SGR. Will the 1986 budget reflect this 60-percent recommendation?

Bloch. I hope it will reflect a step in that direction. I haven't got the '86 budget approved yet.

SGR. Does the '86 budget contain any initiatives that you've inspired?

Bloch. First of all, it continues a lot of the initiatives that got started here. I think you will see that primarily, rather than brand new initiatives. But I think you will see different emphasis. Continuity is kind of important to me.

Social Sciences

SGR. What are your thoughts about NSF's role in the social sciences?

Bloch. I think social sciences have a lot to offer, if done right and if you are selective. Again, it's one of those fields that are huge, and you can spend billions of dollars on it—which I'm not going to do. We have to selectively look at the areas and see where in the social science area we can make an impact, number one, and where we can put it on a more scientific footing, number two. We also have to see how we can use the output in a direct or indirect way, just like mathematics in some of the areas of science and engineering. I'm not going to go

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... Urges Peer Pressure Against Pork-Barrel Ploys

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overboard on it. I don't think we can ever fund [the social sciences] the way people think it should be funded, especially the way the proponents think it should be funded. But I think it should be given its fair chance, and has to find some priority level. And I know the priority level is a qualitative one, it's not a quantitative one.

SGR. Have you had any personal acquaintanceship with the social sciences in the course of your work or in some other way?

Bloch. There are certain things. Human factors is gaining a much higher focus today in industry and in engineering and the whole social fabric than it ever did before. I think it leans very heavily on social science. Statistical analysis and so forth, in manufacturing or in the general areas, has a very high focal point today and has done quite a bit. You can argue over whether it has been good or bad, but you can argue that about any science. Economics is something that one should look at and better understand. So, there are many, many generic areas that I think have a bearing on what goes on in science and engineering, and should be looked at that way.

"Quantitative Approach"

SGR. Is the emphasis to be on a more quantitative approach in the social sciences?

Bloch. On a more scientific and quantitative one, yes. That would be my emphasis.

SGR. In preference to what?

Bloch. In preference to some purely social kind of studies. By the way, the term social sciences is probably a very unfortunate term. It gets you into exactly the kinds of semantics we got into right now. And if that could be avoided, you would have an easier or more objective way of discussing it, I think.

SGR. The last session of Congress saw a lot of pork-barrel activities in science, some of it directed at NSF. What defenses do you contemplate against the next round?

Bloch. These things don't come out of nowhere. There's a reason for them. We need to depend on the academic community to regulate itself.

SGR. Is there much to depend on?

Bloch. I think there is such a thing as peer pressure, from the President of one university to another, from a group of Presidents, from a university association. If the people in the system are not convinced that [lobbying for projects] is a road to disaster, then you can't expect that kind of view from anybody else.

SGR. Do you expect universities to ostracize those that use these tactics?

Bloch. I talked about peer pressure, not about ostracizing people. Peer pressure works, in general. I depend on that. I also depend on the fact that people realize that the peer-review system is a good system. The results over the past 30 years have, in great part, been because of the excellence aspect that is imposed on the communities that deal with these problems. You're throwing it overboard when you try to get around it. There's also a realization by Congress that there is an important fundamental principle there, namely, how does one achieve quality control in the output of science and engineering and the funding that goes in them. I also hope that some of the underlying problems that cause people to [lobby] can be solved—that the impetus will be less than what it is today.

Pork-Barrel Pressures

A lot of it comes from a frustration, a feeling that we need new buildings, that they're all crumbling, falling apart. And there's quite a bit of truth in that. It also comes from the fact that a lot of the universities don't think that they got their fair share. Up to now it's primarily a brick and mortar problem, and I hope that can be solved in different kind of way. Maybe with money from NSF, but not necessarily. It could come from somewhere else in the government. I don't have a blueprint. There's a problem sitting out there that needs a solution sooner or later. The solution might be a lot of money in one year, it might be spread over years, it might be a different kind of approach. That needs to be thought through. I know there's some consideration given to it. Under the best of circumstances, I don't think NSF can solve the problem by itself. It's too big a problem.

SGR. Are you actively encouraging peer pressure against lobbying?

Bloch. I've been talking to people wherever I can. Whenever I visit a university, I try to talk about that subject, and also with the higher-education associations.

SGR. We now and then hear from universities that say they're looking for a good lobbyist so that they can get some of that money.

Bloch. You can't outlaw it. I would hope there is some self-restraint on that. There are some universities and university Presidents that are saying they're not going to do that.

SGR. In education, the Foundation has been sitting on at least \$30 million that it was unable to spend last year. And Congress has appropriated about \$80 million for this year. What's the problem with distributing the money?

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... It's Been Hard to Spend Bundle for Education

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Bloch. The question isn't spending money, it's spending it wisely. Don't forget that the Science and Engineering Education Directorate was dismantled and it has to be put together again. In April, we hired an Assistant Director for Education [Bassam Z. Shakhashiri, former Director, Institute for Chemical Education, University of Wisconsin-Madison]. He has to get his feet on the ground. He needs more people to handle the work load. We just wrote a letter to Congress, saying that we're going to spend in '85 what they allocated, plus the carryover [from last year], and I hope we can do that. The point is that it takes some time to gain the momentum that you've lost. You have to have the right people to do it. It's a big work load; you can get swallowed up in proposals. It's take time. I'm as frustrated about it as you are.

SGR. With the new appropriation, you'll have well over \$100 million available for education. Will you be able to spend that this year?

Bloch. We have every intention. We're focusing primarily on K through 12 [kindergarten through 12th grade]—that area rather than the undergraduate or graduate area, but we're going to move into those areas, too, in time. The point really is that you have to single out areas where the Foundation can make an impact. We have to be selective. We also need some continuity, not this on-again-off-again.

SGR. What are some of the K through 12 programs that NSF is working on?

Bloch. First of all, it has to do with the generation of curriculum materials, and then, what is the right delivery method today, in light of the fact that there's new technology. We're depending to a great extent on some of the proposals that are coming in, just as we depend in other areas. But it's a scenario where we probably have to be more active and generate some of our own, or at least pull some of them together, so that they may form a coherent whole.

SGR. People here say you're more of a manager than they've seen before at NSF. As a manager, what do you see that needs changing?

Bloch. I think there are some problems in the planning process and there are some problems of utilizing more of the newer equipment and approaches, like computers for internal use and work stations, to become more effective and efficient. A management information system in place doesn't exist, at least by my definition. These are important things for the management of the Foundation. There are some very tough organization problems in the Foundation, because of the wide spectrum of activities that are going on.

SGR. What are the problems with the planning process?

Bloch. I'm used to a different kind of a planning system. I want to link it at any point in time with some of the programmatic aspects, with the budget aspects, with the long-range plan, and with a short-term kind of a plan, and with a long-term kind of a strategy. It's this interplay of strategy, planning and the actual budget and so forth that has to be very tightly linked and interconnected. And the whole Foundation has to be a party to that, not just the [disciplinary] directorates, but also the administration aspects.

If you're putting in a new budget, you should know very clearly what that budget implies in terms of manpower, in terms of the programs that you can support, the facilities that you need—space, how many typewriters.

SGR. Among the grantees?

Bloch. No, internally, at the Foundation. Secondly, that one-year budget—let's talk about [fiscal] 1985, because it's here—should be looked at in broader terms; namely, what preceded it, and that you know usually, because it's history, but what comes after is also important. I don't want to look just at '85. I would like to look at '86, '87, '88. Now, you can say there are a lot of imponderables there, a lot of unknowns. But that's okay. I'm not saying that everything will turn out exactly that way. But if you don't know where you're going in the "out" years, you can't hardly judge how good a program you have in front of you.

SGR. Your predecessor was frustrated by the White House's delays in filling senior vacancies here [currently for Deputy Director and Assistant Directors for Mathematical and Physical Sciences and for Astronomical, Atmospheric, Earth and Ocean Sciences]. How are you coming along on that?

Bloch. Not as well as I should.

SGR. Do you have a Deputy Director in sight?

Bloch. No, not in sight. There are discussions on this subject. I've looked at all of these openings. I want to fill those openings. I've talked to people in all three areas. Some of the people don't want it; some of the people I don't want. It's a slow process.

SGR. Are any names in the clearance mill, or is it still at the discussion stage?

Bloch. Still in the discussion stage. The first step is to find the individual.

SGR. Why is that so difficult?

Bloch. I'm no expert on it. I know it was a frustration to Ed [Knapp, the previous NSF Director]. He had no intention of keeping these things open, just like I have no intention. They are important positions; they need to be filled. The organization is complex enough and has enough work going around that we should fill them. It's a slow process, slower than what I'm used to in industry, by a long shot.

NSF Inching Toward New International R&D Role

A bigger international role for the National Science Foundation was recommended last May by the National Science Board, NSF's policymaking body. What's happened in response? Not much, one reason being that the NSF directorship changed hands shortly afterwards. But in recent weeks, there's been some stirring on the subject at the request of the new Director, Erich Bloch. But in NSF fashion, motion is glacial.

Last May's recommendation, produced by the Board's Committee on International Science, covered a number of general subjects, but specifically suggested that NSF take the lead in staging a major international research project, "such as one relating to tropical forests or to international aspects of scientific information systems."

To chew this over and examine whether other possibilities merit consideration, the NSF Directorate for Scientific, Technological, and International Affairs engaged the services of the American Association for the Advancement of Science. AAAS responded by assembling a meeting of 15 specialists of one sort or another for a 3-hour meeting on October 22—including 5 from NSF and 2 from the AAAS.

The result was a 9-item list of criteria that included global importance, "programmatic complexity in NSF context," potential for foreign involvement, and "political feasibility." Listed as "possible initiatives" were:

Marine biotechnology, tropical ecosystems, tropospheric chemistry, global scientific information systems networking, global seismology, climatic impacts

on the human environment, potable water, waste management, molecular parasitology, scientific and technical manpower, world forests, world ocean circulation, international global change.

The list, described as incomplete and unofficial, is undergoing further study.

OTA Down on Space Station

The gestating program for a permanently manned space station drew a sour review this week from the Congressional Office of Technology Assessment.

Following a two-year study requested in whole or part by several House and Senate committees, OTA said the program lacked clearcut goals; also that plausible alternatives to a station in space were not being explored. The report states that "the NASA management may have 'bet the company' on the successful outcome of a campaign to obtain approval for one more large, new, high-technology, publicly funded civilian space program. Unfortunately . . . such a program could foreclose . . . the possibility of NASA's undertaking other, more desirable options . . ."

The report conceded the value of a modest program of acquiring "infrastructure" elements for a big manned venture in space, but said the fullscale goal signal should be withheld, pending further study.

(*Civilian Space Stations and the US Future in Space*, GPO Stock No. 052-003-00919-2, 234 pages, \$7.50, Superintendent of Documents, USGPO Washington, DC 20402.)

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