he might easily be dropped from consideration for those same reasons before his appointment. Singer also expressed satisfaction that judgments of "suitability" will be made at the agency level—presumably by peers—and that candidates will be told of information that reflects on their loyalty or, once appointed, on their suitability as well. Still, everything depends on how the procedures are administered. Singer is concerned over how "suitability" will come to be defined in practice, and over what sort of rights a candidate will actually have to challenge the evidence against him.

More vociferous concern has been expressed by supporters of Stephan L. Chorover, an associate professor of psychology at M.I.T., one of the scientists who had previously been blacklisted. Chorover had been asked to serve on the Neuropsychology Research Review Committee at NIMH in 1967 but was blocked by the HEW security office for reasons that have never been revealed, but which Chorover believes involve his left-wing political activities.

Last January, after then Secretary Finch announced that the appointment procedures were being revised, Richard Louttit, the NIMH official who had originally been responsible for nominating Chorover, decided to resubmit his name as a test of whether the new procedures constituted a significant change. Louttit, who has since left NIMH to become chairman of the psychology department at the University of Massachusetts, told *Science* that Chorover's nomination "has remained blocked." Louttit asserts that Stanley Yolles, former director of NIMH, tried to renominate Chorover but was directed by "higher echelon department staff" not to invite Chorover to join the committee. Louttit also claims that Bertram Brown, who succeeded Yolles as head of NIMH, again sought to free Chorover's nomination but the nomination has run up against "endless delay." In Louttit's view, "this has been another instance in which concerted action on the part of the scientific community and the press to right a clear wrong appeared to meet with appropriate action" only to have it discovered later that "meaningful change did not, in fact, occur." Chorover, who is spending the year at Berkeley, believes his case raises questions as "to what extent a gap exists between procedures publicly announced and practices actually followed." However, an HEW spokesman asserts flatly that Chorover's name has never been officially resubmitted by NIMH, and other sources suggest that Chorover's apointment was not actually blocked but merely got caught in the confusion of the "trial period" for the new procedures.

At this point it's hard to say just what Chorover's case proves. Louttit says he knows of at least a dozen other formerly "blacklisted" scientists who have been appointed to NIMH panels under the new procedures, so there doesn't seem to be any wholesale ignoring of the new rules. But Louttit says these were mainly men who had been blacklisted long ago—at the tail end of the McCarthy era or under the Eisenhower or Kennedy administrations. Thus Louttit believes that Chorover's case—which he understands may be put up to HEW Secretary Richardson for a decision— may reveal how the department will handle more controversial cases under the new procedures.

—PHILIP M. BOFFEY

Research Priorities: New Program at NSF Reflects Shift in Values

The government agencies responsible for supporting basic research are trying hard, but the product isn't selling well in the atmosphere that prevails today in Washington.

What is doing relatively well is fundamental science's attractive neighbor, utilitarian research. And, one consequence is a reordering of priorities and the initiation of programs aimed at producing something useful relatively fast. A measure of the reach of this process is that even the National Science Foundation, once the federal establishment's lone bastion of nothing but basic research and related educational activities, has initiated a program aimed at producing practical results. Significantly, it appears to be the fastest growing activity in NSF's large array of programs, having commenced last December with an annual budget of $6 million, and now slated for $13 million in the new fiscal year.

Referred to as IRRPOS, from its title of Interdisciplinary Research Relevant to the Problems of Our Society, its statutory basis is in the 1968 amendments that, among other things, strengthened NSF's authority to support applied research. Possessing the authority, but lacking additional funds, NSF chose to move slowly toward accepting any new demands on its resources. But the Bureau of the Budget, presumably reflecting the preferences of the White House, told NSF to move quickly and thus on short notice—in fact very late in the lengthy budget planning process—IRRPOS came forth last year as a new bundle of NSF support for selected applicants out there interested in pursuing its ends.

Contrary to some fears, these fall far short of putting NSF into the business of backing the development of gadgetry, but IRRPOS is a new departure —actually an extremely imaginative and well administered one—and it merits notice both for its substance and its organizational concepts. Administered in the Office of Interdisciplinary Research, which is headed by Joel A. Snow, a 33-year-old physicist who formerly headed NSF's theoretical physics program, IRRPOS is described in NSF literature as being aimed at promoting "the contribution of fundamental scientific research in resolving major national problems." What that may mean, every man can infer for himself from the score or so of grants that have so far been made. But there appears to be no grounds for doubt that NSF is holding to its statement that "Key factors which determine the decision of eligibility are the potential societal impact of the anticipated research and its dependence on an interdisciplinary approach." And possibly

over the horizon, as indicated to the American Institute of Physics 5 October in a speech by NSF director William D. McElroy, is an interest in promoting not only interdisciplinary research within a single institution but also single projects spread among government, academic, and industrial organizations. Tradition and legal barriers make this a difficult objective, but that is where the NSF director says he is looking.

The largest single IRRPOS grant to date is a big one by NSF standards, $1,496,000; and it is also noteworthy in terms of substance, relations among government agencies, and NSF's own congressional politics. The overall subject is "The Environment and Technology Assessment"; the recipient is the Oak Ridge National Laboratory,

POINT OF VIEW

"The Boston Museum of Science," reprinted below minus obscenities and other extraneous matter, is an article taken from the August 1970 issue of Science for the People, *bimonthly publication of Scientists and Engineers for Social and Political Action (Box 59, Arlington Heights, Massachusetts 02175).*

The Boston Museum of Science typifies institutional misrepresentation of science and a disservice to the community it purports to serve. . . . To see whose interests the Museum actually serves, come with us on an imaginary tour disguised as an Inner City Family of Four.

The first thing you notice is that your weekly pay is now $85.34. The second thing you notice is the commercial on a top-40 radio station urging you to bring the family to the Science Museum because it's air-conditioned. The bus and subway aren't air-conditioned, but they get you all within walking distance of the Museum for $1.80. (Put aside two bucks for the trip back.)

On the outside, the most prominent feature of the Museum are [sic] its parking lots filled with suburbanites' cars. Must cost plenty to park here. It's free? How about that. You walk into the lobby and see a big picture of air pollution with an explanatory message. Actually, you don't need the picture since you live in the real thing all the time. (In case you did live out in the country, though, you see some of the biggest polluters from the Museum's front steps.)

On the inside, the most prominent feature of the Museum is the box office. At $1.50 and .50 per head you shell out four bucks and gain entrance to the gift shop (sorry kids) and the rest of the Museum (except, of course, the Planetarium which is an additional .50 a head).

See the disproportionate amount of NASA [displays]. A whole room devoted to mock-ups of NASA hardware, exhibits on the development of missiles and rockets. . . . Dig it kids: Buck Rogers boondoggles are Important Stuff. The kids fail to discover any exhibits on:

- ► what NASA costs
- ► the direct support NASA provided to the military/industrial complex (of which several companies are Business Donors of the Museum)
- ► what NASA has done to the economy of Cambridge
- ► the front NASA provided to the CIA in Cambridge

(Incidentally, this year the Museum gave Walter Cronkite a $5,000 science-man-of-the-year award for his educational contribution of making top bread for himself broadcasting the Apollo adventures. This money could have provided 333 free family memberships or free one-time admissions for 2500 children and a like number of adults.)

You pick up some literature, desperate now for a sign that the Museum is something besides a plastic, middle-class institution. An article in one of their members' newsletter begins, "Despite a sagging stockmarket and weeks of conflicting and confusing news about the tax bill. . . . " Whaaat? You pick up a brochure on the Museum's educational courses for your kids—tuition runs as high as $30. . . . A strobe light exhibit contains a plug for the manufacturer—a local defense contractor. Another exhibit shows the benefits of power steering. (For that you paid four bucks?) . . . The Bell System's huge exhibit has zero technical content and merely encourages people to use telephones. . . . The more you see, the more obvious it is that most exhibits are nothing more than hypes for the companies contributing to them.

Worst of all there are no relevant exhibits to turn kids on about the problems—especially urban problems —that technology could solve. For example, the Museum squats over the stinking Charles River but it has no actual exhibits on pollution. A good one might be to run a spigot into the river and let kids tap and analyze the water. There are no exhibits on transportation, housing, rats, Hiroshima, MIRV, or nuclear bombs and their effects.

My favorite exhibit at the Museum says it all: a box with some coins and mirrors in it. The sign says it was donated by a bank. It's called "Space Money." End-of-tour.

The following program is suggested to rehabilitate this and similar institutions into People's Science Museums.

1. Free admission. The difference can be made up by direct government and university subsidy, charging for parking, and upping the rate for business donors, who now enjoy practically free publicity, tax hustles, and other privileges. According to the Museum's 1969 report, people contributed over 40% of the Museum's support through admissions and memberships. Business and industry contributed less than 5%.
2. Unlimited scholarships to Museum courses for poor kids, including free lunches and transportation.
3. Elimination of worthless exhibits not in the public interest and replacement by relevant exhibits and programs such as those mentioned above.
4. Community representation on controlling boards.

New Agencies Created, NOAA and EPA

President Nixon's plans to establish an Environmental Protection Agency (EPA) and a National Oceanic and Atmospheric Agency (NOAA) became effective 2 October.

EPA will be an independent agency made up principally of the Federal Water Quality Administration, now in the Department of the Interior, and the National Air Pollution Control Administration, now in the Department of Health, Education, and Welfare. Establishment of EPA is generally favored by conservation groups as well as by congressional leaders in the field of pollution abatement.

The plan to establish NOAA, however, has drawn fire from conservationists and from Senator Gaylord Nelson (D–Wis.) and several others in Congress. NOAA, to be a part of the Department of Commerce, would be made up of the Environmental Science Services Administration, already in Commerce, the Sea Grant program from the National Science Foundation, the marine fishery and marine mining programs from the Department of the Interior, and several other activities such as the national oceanographic data and instrumentation centers from the Navy.

Nelson said that the establishment of NOAA should await a decision as to which federal agency will administer the proposed coastal zone management program. Nelson has expressed satisfaction, however, at the fact that NOAA will be subject to all standards for environmental protection approved by EPA. Representative John Dingell (D–Mich.) has objected to the removal of marine fishery programs from Interior. Appointment of the heads of NOAA and EPA has not been announced.

—L.J.C.

which in the past has operated almost exclusively under contract to the Atomic Energy Commission; and the locale is the congressional district of Representative Joe L. Evins, the Tennessee Democrat who chairs the House appropriations subcommittee that handles the NSF budget. The subjects to be researched at Oak Ridge include environmental mutagenesis, techniques for measuring mutation rates in man, water treatment by hyperfiltration, case studies for national systems analyses, regional modeling, and an environmental information system.

Another large grant, $647,900, was awarded to Michigan State University, East Lansing, for a project titled "Design and Management of Environmental Systems." Harvard received $589,800 for an "Environmental Systems Program." And Kansas State University was awarded $231,000 for work on "Political and Scientific Effectiveness in Nuclear Materials Control."

A grant of $448,000 was awarded to the University of California, at Davis, under the title of "Land Use and Energy Flow Component of a Model of Society." The Applied Physics Laboratory, administered by Johns Hopkins University, predominantly under contract to the Navy, was awarded $370,000 for research on fire fighting and prevention.

In all instances, the research will involve a variety of disciplines. In the environmental field, the spread is particularly broad, often ranging from the physical sciences to law and economics.

Snow reports that over 2000 inquiries have come in since the program was announced last December and that there have been 250 preliminary proposals and 50 formal proposals. In all awards made so far, he said, there has been a great deal of give and take between the applicants and his office, with proposals usually going back and forth two or three times before a final version is agreed on. Snow's staff currently numbers seven professionals and five secretaries; one measure of IRRPOS' future growth is that the total number is expected to rise to 17 by year's end. The review process for applications calls for approval by the IRRPOS staff, approval by the NSF director, and final approval by the National Science Board. The Board is said to take a lively interest in the program but, with minor exceptions, has so far approved whatever has been sent along.

IRRPOS is NSF's most visible response to the demands that the scientific community orient itself toward contemporary problems, but the response shows up in other ways, too. Thus, even if they do not bear an IRRPOS label or come under that office, programs throughout the foundation are increasingly sensitive to the atmosphere that favors the seemingly useful. It is difficult to pin this down, especially since McElroy has stated his insistence that the new thrust be financed as an "add-on" to NSF's traditional activities, rather than a subtraction from them. But, in view of inflation, the relatively slow growth of the NSF budget, and pressures to pick up projects from the Defense Department, one wonders where the money is coming from. Thus, more and more, the foundation seems to be gravitating toward interesting, apparently worthwhile, but new projects that depart from its traditional role as the bank for basic research. For example, it recently announced an award of $154,630 under which 15 unemployed scientists and engineers will receive training in computer science at Stanford. "Support of this project," an NSF announcement said, "is in accord with the National Science Foundation's efforts to seek innovative ways of providing skilled manpower for the scientific and technological openings that exist in industry and other sectors of the economy. . . . Retraining can both help individuals remain abreast of our rapidly changing technology, and help the economy make best use of these experienced individuals."

It is all part of a process in which the Washington administrators of basic science are getting into step with the political tempo that calls for aiming science toward doing something about problems that are here and now. NASA did it by cutting out two moon-rock collecting expeditions, and not one influential voice is to be heard in support of the scientists who genuinely feel that those rocks are very important. NIH is the acknowledged master of supporting science under the banner of disease fighting, but even its clients are feeling unprecedented pressures to pay more attention to disease.

Just how far this trend will develop is among the many uncertainties in Washington today. But it is worth recalling that, when President Nixon publicly introduced his new science adviser, Edward David, Jr., last month, he started out by describing him as "a very practical man." Kind words for basic research did follow, but the emphasis was on practicality.—D. S. GREENBERG