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Congress Meets Science: The Appropriations Process

Although legislators question the purposes and management of science programs, they play a supportive role.

Michael D. Reagan

The federal government's role as patron of science has been discussed and documented at some length in recent years (*1*). The emphasis in most writings, however, has been upon activities of departments and agencies of the executive branch. The congressional role has been little examined. This article explores one major type of confrontation between Congress and science: the legislature's overseeing of science agency programs as it is accomplished through the appropriations process.

The appropriations process is a crucial point of contact, and not only because that's where the money is. It is also the most frequent, continuing means by which the legislators attempt to exercise control over the coordinate executive branch. Congressional oversight, so-called (the function of ensuring that executive agencies fulfill their statutory mandates effectively and efficiently), is also performed by the substantive committees (the ones on agriculture, commerce, and so forth), by the committees on government operations and by ad hoc special investigations; but the appropriations process is the only vehicle of oversight that operates every year with respect to every agency.

Appropriations work is done primarily by specialized subcommittees, each handling a particular department or functional area. There is no science budget as such, just as there is no single agency engaged in science. To examine the Congress-science relationship in the appropriations arena is therefore to look at particular subcommittees dealing with particular agencies. I shall focus on the National Science Foundation (NSF) and three science-oriented bureaus in nonscience departments: the Geological Survey (GS) in the Department of the Interior, Agricultural Research Service (ARS) in the Department of Agriculture, and the National Bureau of Standards (NBS) in the Department of Commerce. In NSF, science stands "on its own" as it were; in the others, Congress sees science as embedded in the extrascientific missions of the respective departments. Covering both enables us to see whether science per se is differently handled or fares worse or better than science given the "protective coloration" of some other social mission. Each of the three science bureaus examined is the largest research-oriented component of its respective department, and each performs basic as well as applied research. Approximately half of the ARS and NBS research budgets go into basic research, taking fiscal 1967 as an example, and in GS the proportion devoted to basic research is about three-fourths. These budgetary allocations are sufficiently large so that any particular congressional biases regarding basic research would certainly become apparent in the process of making appropriations.

The format of appropriations is designed so that each major component of a department (the generic name for these components is bureau) is considered as a discrete unit. Each receives its own hearing, those covered here generally being allocated from half a day to a full day of discussion. The findings reported here are based on hearings for the period of fiscal years 1962–68.

Geological Survey

During the years covered, the appropriation for the Geological Survey increased from $50 million to $85 million. The work of the Survey was changing rapidly, with diverse new programs being added in the mapping of rare mineral and metal deposits, earthquake studies, water studies, oceanography, and the remote sensing of minerals. The traditional topographic mapping, despite its continuing importance in the agency's overall program, elicited relatively few comments because it was a long-accepted activity. Legislators would simply ask how many states remained to be covered and what uses were made of the maps as they became available. As is typical in appropriations hearings, the agency head briefly described each of his programs and

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the legislators asked for justifications of the increased funds which were sought. In addition to questions designed to give the agency an opportunity to present its financial justifications, congressmen often asked about possible ways of cutting costs (for example, whether the system used for distribution of maps and reports could be simplified), about the efficiency of the bureau's administrative organization, and about the rate of progress on various previously funded programs. One favorite question concerned the extent of interagency duplication in mapping activities. When a new Institute of Water Research was proposed it was held up pending a study of duplication and coordination in federal water research generally. Even among new programs, there was, on the whole, little substantive questioning, little attempt by the congressmen to substitute their judgment for that of the bureaucrats regarding what constituted desirable or needed new programs. Among the exceptions to this general acceptance of agency programs was a postponement of funding for a proposed national atlas and a definitely hostile attitude toward participation in the International Hydrological Decade. One congressman said at the fiscal 1968 hearings, "With the urgent water problems we have in this country, the committee is naturally very dubious about any extension of our water investigation to an international basis until we have made greater progress on the problems affecting our own nation."

In general, it was not the scientific content of programs that the legislators were interested in so much as what might be called management questions. For example, each year there were questions about the status of federal-state cooperative programs, with some concern being expressed as to whether the states were paying their share; about royalty income from mineral leases; and about royalty accounting procedures. Even when they were considering cuts in the budget, the legislators asked the administrators for their views of program priorities.

There were few differences between the House and Senate hearings, the latter being generally much briefer (as is the case with all agencies) because they usually covered only programs that had been cut by the House, rather than the entire work of the agency. There was some tendency among senators from western states to ask constituency-oriented questions regarding minerals development and water work. A senator from Alaska was particularly interested in the earthquake prediction problem; senators from Arizona and Nevada, with the study of water evaporation losses.

In summary, one could say that the appropriations committee members used their questioning to deal with matters of program purpose, program usefulness, and management effectiveness —matters in which they could reasonably assert some competence—and did not to any significant degree interpose amateur judgments regarding the scientific substance of GS programs.

National Bureau of Standards

During the period examined here the National Bureau of Standards appropriation was handled by a subcommittee that dealt with the Departments of State, Justice, and Commerce. With a research appropriation varying between $24 and $32 million, NBS represented but a minute proportion of this subcommittee's appropriation bill. However, it did receive from one-half a day to a full day of hearing time each year in which to present and justify its budget request. The hearings were marked by an almost total absence of substantive discussion of NBS scientific programs. The subcommittee chairman, Representative John J. Rooney (D–N.Y.), continually expressed a general distrust of needs for expansion of activities and on more than one occasion accused Allen V. Astin, director of the Bureau, of having "no limits" regarding what he would seek. Yet Rooney did not attack the substance of programs directly, with one exception. This was a proposed fire technology program in the fiscal 1964 budget. On the basis of objections from private industry which he had received, Rooney attacked this proposed new program as a duplication of private enterprise, and the subcommittee turned it down—in such certain terms that NBS did not even try to appeal it to the Senate committee.

The bulk of questioning concerned construction costs of a group of new buildings that NBS was in process of putting up, and whether the states and industry should pay for a larger share of NBS services. One of the new NBS programs in this period was to provide new sets of weights and measures of standards to the states (a program which is currently being implemented) and the subcommittee expressed the thought that the state contribution to the program should be greater than that planned by the bureau. The development of a Standard Data Reference System was an important program of NBS during the period covered and justifications for the program stressed its value to technological development in private industry. The subcommittee was frequently critical because it felt that NBS was doing work that private industry should pay for. Though it was concerned with who should pay the cost, the subcommittee did not question the utility claimed for the Standard Data Reference System. Rooney was in general skeptical of the value of programs described, without going into them in depth. Typical of his questioning was a desire to know how North Carolina textile mills had been helped by a recently inaugurated textile research program. He was not satisfied when he was told about the dissemination of technical information that had been begun under this program. He apparently wanted more immediate and dramatic results.

Since the House committee made substantial cuts in the budget requests each year, the Senate hearings were largely concerned with the requests for restoration of funds cut. Senator McClellan questioned just what was to be done under the Standard Data Reference Program and sought estimates of the future size and length of time of the project. He seemed to accept without question assertions regarding the utility of the program to the nation's technology. In another instance, McClellan questioned proposed research on building-structure performance characteristics which was intended to make possible lower housing costs. He expressed doubt regarding the value of such research, thinking it unnecessary and probably ineffective, yet he seemed also to be sincerely seeking a convincing explanation.

In neither the House nor the Senate hearings did the legislators appear ready to enter into technical discussion of bureau programs. The kind of work that NBS is engaged in is basic to national science and technology, but often quite indirect in its application. Hence NBS programs, such as the Standard Data Reference System, do not easily lend themselves to legislative understanding or discussion in terms

of end-product purposes. Perhaps this is one reason why this bureau fared less well than the others studied here in terms of its ability to gain a high percentage of its requested appropriation each year.

Despite the Appropriations Committee's willingness to interpose its judgments over those of the agency in regard to the amount of money needed, it did tend to defer to the agency regarding where cuts should be made. That is, it generally allowed NBS to decide where to absorb the cuts. One senator said in the fiscal 1963 hearings, "Of course, you know about the relative importance of these programs, and the Committee cannot know very much about that." In similar vein, Senator McClellan asked Astin to supply a priority list of items that NBS wanted restored from the House cut, so that the Senate could have expert advice on program importance in making its own judgement regarding how much of the cut to restore, if any.

Agricultural Research Service

Nothing illustrates better the significance of congressional positions relative to science programs than the contrast between the National Bureau of Standards and the Agricultural Research Service. ARS has faced appropriation subcommittees whose chairmen and most of whose members have personal and constituency interests in the subject matter with which the agency deals. And even when its research is truly basic and scientifically esoteric, its purposes are nevertheless highly pragmatic and easy for the layman to understand. Under these circumstances, ARS can begin its budgetary testimony each year in a highly favorable environment. Also, the agency has been particularly astute (in the eyes of this observer, at least) in its mode of presentation of its case. Instead of the usual pattern of presentation in which the head of the agency summarizes all the programs, each division chief within ARS describes in some detail the work in progress in his particular jurisdiction. This practice makes for surefooted explanations and surefooted replies to legislative questions. It is standard strategy in appropriations hearings for an agency to try to emphasize its substantive programs and to keep the legislators from getting off onto such questions as the number of automoblies or paper clips used, the number of personnel in high pay grades, or the cost of construction of buildings used by the agency. ARS has been highly successful in pursuing this strategy—perhaps helped by the preexisting interest of the appropriations subcommittee members in the substantive programs of the agency.

The pattern in ARS hearings is that the witnesses first make statements regarding the problems and diseases toward which their research programs are directed and report on progress in finding solutions. Then the legislators ask questions of an information-seeking character demonstrating a semipopular understanding of technical programs and their practical objectives. Discussion proceeds not by research categories but by problem areas: the boll weevil, pear decline, brucellosis, hog cholera, and the eradication of fire ants, for example. The committee members tend to focus their respective inquiries upon research related to the specific problems of their own areas. Thus a representative from Kentucky focuses on tobacco research while the boll weevil engages the attention of the representative from Mississippi. When elm tree disease was discussed, one legislator mentioned the loss of elms on his street in Washington, D.C.; another mentioned a town in his district with the slogan, "City of Beautiful Elms," and cited efforts being made there to control the disease. When a cotton insect laboratory was mentioned, the House committee chairman, Representative Whitten (D–Miss.), expressed pride in having helped to get it funded and asked that the records show the losses due to the boll weevil so as to help justify research expenditures in this connection. In contrast to scientific research in some other areas, it is relatively easy for the legislators to understand the purposes of agricultural research and their questions are largely practical ones about practical problems.

Unlike NBS and GS, ARS has a very immediate, nationwide economic constituency and a nationwide network of research stations. These facts, combined with the subcommittee's ability to understand easily what the research programs are about, result in a more active committee participation in the shaping of agency programs. When ARS, acting in response to executive branch cutbacks, announced in its presentation of the fiscal 1967 budget that it was planning to eliminate a number of small research stations, Representative Whitten strongly protested and demanded that each specific reduction be justified. He spoke of a large volume of mail from constituents protesting the prospective eliminations. The Senate subcommittee instructed the Department of Agriculture that research reductions or eliminations of research stations would require justifications in budget presentation just as much as increases and new facilities. Even when they were serving on appropriations committees, congressmen are not always interested in financial reduction. In fiscal 1967, the House committee restored $5.4 million which, if eliminated, would have meant the reduction or termination of work at 94 research stations. The committee also restored $7.8 million for pest and disease control from cuts that ARS had suggested in eradication programs. The subcommittee commented in its report:

> . . . with U.S. commitments in Vietnam and other parts of the world, it would be a serious mistake to agree to budget reductions which would weaken our highly efficient and extremely productive agricultural industry, which forms the base for domestic prosperity and plays a major role in our foreign policy.

Such comments are not atypical in the handling of agricultural research appropriations. This is one area in which the appropriations subcommittee tends to be "more royal than the king" in its determination to further the work of the administrative agency.

Within this pattern, it is not unusual for the agricultural appropriation subcommittees to specify research programs to which the committees attach greater importance than ARS does itself. For example, in fiscal 1967 the Senate committee added $2.6 million to the research budget beyond what ARS asked, in order to institute research on swamp fever (equine infectious anemia), blue comb disease of turkeys, and swine abscesses, and to accelerate research on the mechanical harvesting of dates and on insect identification. Such unbudgeted increases turkeys, and swine abscesses and to requests made by outside organizations. Although appropriations hearings do not generally include outside witnesses or even written submissions from interest groups, agriculture is an exception. Each year numerous outside communications are received in support of particular research projects. These are reflected in the comments and demands

of the appropriations committee members.

In short, ARS enjoys the unusual privilege in the appropriations process of having extremely strong legislative support and faith in the value of its programs. Congressmen who examine its requests identify with agriculture in a way that the congressmen working with the Geological Survey do not necessarily identify with map-making, or with the Bureau of Standards' engineering programs. On the other hand, ARS pays a price for this support in the form of more detailed intervention and second-guessing by the appropriation subcommittees than is directed toward the other bureaus where the legislators may not feel familiar with or particularly sympathetic toward the work of the agency. This lack of familiarity causes them to be more hesitant about intervening in program priority matters.

With an annual range of $77 to $150 million during the period under review, the budget for agricultural research is but a minute fraction of the total Department of Agriculture budget. Yet research activities receive a disproportionately high share of attention in appropriations hearings and reports. Although half of ARS research is classified as basic rather than applied in the statistics gathered by NSF each year, it is clear that the appropriations subcommittees consider all of it as applied in the sense that is directed toward practical problems, and that they view research as an integral, even an essential, component of the agricultural industry.

National Science Foundation

To see if congressional consideration of "unprotected" science differs from its examination of the mission-oriented research in the NBS, GS, and ARS budgets, one must turn to the appropriations hearings of the National Science Foundation. Perhaps the most important finding about NSF appropriations hearings is that they are not open to the ridicule of research projects that some scientists may expect—or fear. Although I suspect that many scientists have an image of NSF that is shaped entirely by its support of individual faculty research proposals, the fact is that basic research support constitutes only half of the NSF budget. The other half consists of various programs of educational support, scientific information, and so forth. Such matters as overhead payments, teacher-training institutes, curriculum preparation projects, science information programs, fellowships, secondary-school science education, and instructional equipment receive much more questioning than basic research does. These educational programs and questions of science management are obviously much more within the range of legislative competence than are the technicalities of NSF research.

When basic research is discussed in the hearings, the questions are not about the substance of particular research grants, but rather about such matters as the average amount of money per grant, why the number of grants increases each year, interagency coordination in granting research funds, grant-making processes, and the geographic distribution of NSF research grants. The late Representative Albert Thomas (D–Texas), who headed the subcommittee dealing with NSF for 15 years, was perennially disturbed about what he considered the relatively narrow distribution of funds. In the fiscal 1964 hearings, for example, he asked why NSF gave research grants to only 540 colleges and universities when there were 1100 4-year institutions. And in the fiscal 1966 hearings he objected vehemently to what he considered the too narrow geographic distribution of NSF fellowships. Referring to states with low numbers of fellowship holders he said, "There is not that much difference in human nature, gentlemen. If you give these people the same opportunity, they will go places, too." These comments by the legislator closest to NSF are significant, for they represent an image of NSF widely shared by Thomas' colleagues. It is an image which focuses upon research grants and fellowships as aid to education exclusively, without regard to their function as a stimulus to the production of the best new knowledge. In this regard, the concept of NSF held by the legislators is in opposition to that held by scientists, who tend to evaluate NSF entirely in terms of the amount of money it expends for project research without regard for its functions in the improvement of science education and in the development of scientific manpower.

The one exception to the generalization that the appropriations committee does not question particular research grants occurs in the area of social science research support. Social science is more vulnerable to questioning because it is less protected than the natural sciences by technical language unfamiliar to the legislators. The questioning, when it occurs, is likely to be of a scoffing nature; for example, when a representative asks, "Tell us how it will promote the scientific life of our country to study the cultural evolution in peasant communities." (Social science research is likely to cause problems for NSF for a long time to come. In the 1968 Daddario amendments, social science was explicitly added to the list of scientific areas that NSF is mandated to support. Despite this, there is clearly a great deal of ambivalence in the legislative attitude toward social science research. On the whole, what Congress wants is social research of an applied and immediately practicable nature, while the social scientists themselves seek funds principally for the further scientific development of their disciplines in preparation for eventual better utilization. These two sets of expectations will not be easily or soon reconciled.)

Although individual research projects are not questioned, there does tend to be some questioning about the national research centers (such as Kitt Peak National Observatory and the National Center for Atmospheric Research) and the national research programs (such as the Weather Modification Program, the International Biological Program, and Ocean Sediment Setting Coring Program). These queries regard the scientific purposes, the state of construction of facilities, and progress in operation. Through the cuts it recommends, the appropriations committee sometimes does interject its own views regarding the relative importance or desirable rate of progress for these national research centers and programs. Otherwise, it leaves the distribution of research funds to the foundation, even when cutting the total amount appropriated. That is to say, no attempt is made to substitute legislative for foundation judgment on such matters as the amounts allocated respectively to physics, chemistry, and biology.

In areas other than research support, the legislators apparently feel freer to interpose their own judgments. Thus in 1962, the House Appropriations Committee reduced NSF's total request by approximately $20 million, but increased the funds for institutes

Table 1. Appropriations as percentage of estimates.

Fiscal year	Percentage appropriated			
	NSF	GS	NBS *	ARS†
1963	89	98	90	113
1964	60	94	83	118
1965	86	98	90	102
1966	91	98	82	100
1967	91	99	95	112
1968	94	97	82	100
Average	85	97	87	108

* Research appropriation only. Excludes plant and facilities construction. † Research appropriation only. Excludes disease and pest control and most inspection programs.

for secondary school teachers by $5.4 million and directed NSF not to spend less on this than the total of $37 million appropriated. In fiscal 1966, also, the House set a minimum expenditure on secondary teacher institutes, a minimum above NSF's request, and also directed that none of the $50-million cut it made that year should be taken from the science development program (the so-called "centers of excellence" program). Except for such dictates, NSF is free to redistribute its appropriated funds more or less as it sees fit among various program categories. (Like every other executive agency, however, it would not exercise this prerogative very far without informally seeking the concurrence of the appropriations committees.) During the period covered, the most notable substitution of committee judgment for foundation judgment came, of course, on the matter of Project Mohole. Senator Allott used appropriations hearings for his major attacks on this program in 1962 and 1963, and Representative Evins (D–Tenn.) canceled it when he was subcommittee chairman in 1966. I do not think this episode can be fairly viewed as interference with scientific judgment, however, for the legislative action was basically the result of management problems with Mohole, rather than a questioning of its scientific merits. It is true that Evins apparently did not see great scientific value in the program, but it is also safe to say that he would not have brought about its elimination if there had not been prior criticism of its management.

Table 2. Annual increase (or decrease) in appropriation.

Fiscal year	Increase or decrease (%)			
	NSF	GS	NBS	ARS
1963	20	16	14	15
1964	10	10	4	21
1965	22	6	10	12
1966	14	5	−6	18
1967	0	12	3	5
1968	3	7	2	2
Average	11	9	5	12

The treatment of NSF in appropriations hearings, then, does not appear to differ in most respects from that accorded scientific bureaus which are contained in extrascientific departments. Congressional attention focuses more on questions of management and program aims than it does on scientific substance. There is, however, a difference in the congressional conception of the meaning of research.

By and large, the legislators regard research not as the search for new knowledge but as practical problem-solving—and the bureau chiefs encourage this view in their presentations. No distinction is made between basic and applied research in appropriations discussions. Rather, the legislators see research as useful or not useful. To them, all meaningful research is applied research, and departmental missions provide the orienting extrascientific focus for discussion.

Since they view research as a matter of problem-solving, congressmen face the mission-oriented bureaus with a generally favorable attitude—an attitude approaching a mystical faith—in the case of agricultural research. Only when it is performed by the NSF does research appear to be an esoteric activity. In that context, basic research does stand somewhat naked. Although it is not often able to cite commercial applications of the research it sponsors, NSF makes an attempt to convey some sense of the excitement of science and of the fundamental significance of the work it supports. The results of these efforts are not always all that the agency might wish. For example, when a physicist finished describing an experiment to test relativity theory, a congressman asked, "What difference does it make as regards life on earth. . . .?" The appropriations subcommittee chairman, who is fond of referring to himself and his colleagues as "practical men on this side of the table," asked, "What is the payoff, what is the result?" No matter how often NSF officials make the point that undirected basic research underlies all applied efforts, their most effective arguments remain those which justify research by its contributions to graduate education and the development of scientific manpower.

Appropriations Results

The results of the appropriations process reveal that basic research as represented by the NSF budget fares about as well as the combinations of basic and applied research budgets of the other bureaus. There are two ways of measuring the relative success of an agency in the appropriations process (*2*). One is to determine the gap between the agency's estimate (its budget request) and the actual appropriation. Table 1 expresses this gap in the form of the appropriation as a percentage of the estimate. In this contest the Agricultural Research Service is clearly the winner. The final appropriation in each year was at least equal to the amount requested, and in most years, it was greater. One might see this situation as a reflection of the continued strength of agricultural representation in the Congress—certainly in the agricultural appropriations committees. The percentage of success of the other agencies is more normal. Note that NSF's average would look better if fiscal 1964 were omitted. A low percentage in that year reflects an unsuccessful, though brave, attempt on the part of NSF to increase its budget from $322.5 to $589 million in a single year. Congress, which tends to act incrementally, rarely approves jumps of that magnitude. This was not just wishful thinking on the part of the foundation, however, for an exception to the incremental rule had occurred between 1961 and 1962 when the NSF appropriation jumped by 50 percent. But, as pointed out, that is rare. At any rate, it is clear that the foundation did reasonably well by this measure.

How close the final appropriation is to the original request, however, is largely a measure of an agency's ability to gauge congressional sentiment that year. The percentage increase of each agency's funds over the previous year is presented in Table 2. On this score NSF looks even better. It is outdone only by ARS, and that was because Congress gave ARS more than it requested each year. The average figures conceal cycles of congressional generosity and economy which are clearly evident in the annual data. The most recent fiscal years have not been particularly generous ones throughout the federal government, thanks to the Vietnam war. While it would be difficult to assign reasons, it appears that basic research as represented by the National Science Foundation is easier

to justify legislatively than the presumably more technologically applied work of the National Bureau of Standards. Or there may be other explanations: the adequacy of agency presentations, the mood of different subcommittee chairmen, or the fact that NBS lacks as definable a constituency as that which the universities comprise for NSF. Whatever the reasons, it is clear that academic scientists would be unjustified in feeling that "their" agency was in any way singled out for unfavorable treatment in the appropriations process. Over the total period of fiscal years 1962–68, NSF's appropriation increased 88 percent, Geological Survey's by 72 percent, NBS by 29 percent, and ARS by 97 percent. Many other federal bureaus and agencies would be happy to show a percentage increase in the same period of time equal to that of NSF.

This paper has made a limited examination of congressional appropriations process regarding scientific programs with a sizable component of basic research. Within its limits, however, it does permit some tentative conclusions about the Congress-science relationship—conclusions that are more auspicious for science than scientists might have expected. These may perhaps best be expressed negatively. First, appropriations committees do not, by and large, interject themselves into the substance of scientific research. They take this as a fact and concern themselves with the purposes and management of programs. Second, the legislators do not distinguish between basic and applied research and therefore cannot be said to single out basic research when looking for areas in which to make appropriations cuts. The classification of research into basic and applied may be a distinction close to the hearts of scientists—at least the basic scientists—but it is not salient to the legislators. They look at programs and their purposes as useful or not useful in terms of social objectives and make their judgments accordingly. Third, we find that one cannot generalize that research bureaus protected by extrascientific missions are any better or worse off in the appropriations struggle than is the National Science Foundation which stands on its own as an independent agency. On the basis of my studies, I think it not too great an overstatement to suggest that Congress appreciates science and its accomplishments for legislative purposes somewhat better than many scientists seem to appreciate Congress.

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NEWS AND COMMENT

Britain: Scientists Form New Group To Promote Social Responsibility

London. An impressive segment of Britain's scientific community has organized for a try at what has heretofore been an elusive objective of scientists on both sides of the Atlantic—a mass, sustained role in public affairs.

Adopting the title of the British Society for Social Responsibility in Science (BSSRS), the new organization is related in name and concept to previously established SSRS's in several countries, including the United States. Generally, these organizations have been strong on proclaiming principle and indignation, but otherwise have little to show for their work. Since the British are especially strong on proclaiming principle and indignation, they start as equals. But the new organization has also managed a particularly favorable combination of people, timing, and tradition, and as a result may be due for something better than its foreign counterparts. Among its approximately 200 supporters are ten Nobel laureates, which, of course, is so characteristic of any "conscience" movement in science that it may be that a Rent-a-Laureate service is at work. But these Nobel winners are among various researchers and administrators who figure large in the tightly knit affairs of British science, including Max Perutz, chairman of the Molecular Biology Laboratory at Cambridge; Michael Swann, vice chancellor of the University of Edinburgh; C. H. Waddington, an Edinburgh geneticist who is well known on the international science policy circuit; and Maurice H. F. Wilkins and Francis H. C. D. Crick, of double-helix fame. Also important is the fact that the Society, which grew directly out of the campaign here against chemical and biological weapons, derives a good deal of inspiration from the increasingly popular feeling that science too easily lends itself to harmful purposes. Among scientists, this used to be seen as a heresy peculiar to scientific illiterates, but now the evidence has accumulated to the point where even some of the elder eminences of science are uneasy about what can be traced back to their profession. In this respect, the British Society is fostered by the same sentiments that evoked the March research "teach-ins" at various American universities. But the similarities do not go far. While American scientists have shown little interest in theoretical formulations concerning relations between science and society, they have often organized and stepped outside their professional boundaries to take part in public affairs. They have done this, however, in fits and starts, and usually in response to what they perceived to be a crisis, as in the postwar fight over the control of atomic energy, or in the creation, in 1964, of the anti-Goldwater organization of Scientists and Engineers for Johnson-Humphrey. Without fail, these and similar ventures were followed by loss of interest or swift demobilization once the fight was over. The British record reveals occasional forays into public affairs—the CBW (chemical and biological warfare) campaign is currently the most prominent—but these have been few in number as compared with the postwar performance of American scientists. On the other hand, in contrast to their American colleagues, the British possess a solid foundation of