stimulation is terminated, the nerve on the opposite side of the body resumes its normal function *but the nerve which has been stimulated* now shows no activity. After 12 to 72 hour this suppression due to prolonged stimulation disappears. The fundamental changes which are induced by prolonged stimulation, presumably at the level of the spinal cord, are now being investigated.

Conclusions

The radio frequency induction technique is now an important tool in physiological experiments and in the treatment of certain diseases. It has come to play an important role in the treatment of heart block in human patients, where medication has been ineffective. In the case of bladder stimulation, work with animals has shown that the voiding of urine can be induced by electrical stimulation. The successful use of this technique on human patients has yet to be consistently achieved, but there is reason to be optimistic.

Long-term electrophrenic stimulation appears to be feasible in laboratory animals. Applicability of the technique to certain classes of human patients awaits evaluation by clinicians.

In conclusion, we believe that the radio frequency induction technique, because of its flexibility, is useful for stimulating tissues of various kinds, particularly in animal experimentation.

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News and Comment

Congress and Science: Tensions Appear To Be Minimal as Annual Review Begins on Budget Requests

Two years ago, hazardous-duty pay might have been in order for government science administrators who were summoned to Capitol Hill. But congressional discontent about the costs of science has continued to subside from the high point that was reached with the gutting of the National Science Foundation budget for fiscal 1964. And when the administrators make their annual appearances during the next few months, it seems that they can expect a generally friendly reception.

There is, of course, no guarantee that affability will reign when the House Appropriations Committee holds its traditionally closed-door hearings on the proposed NSF budget, which is for $530 million, compared with the current $424 million. But the new budget seems to be responsive to the long-standing committee contention that NSF has been ignoring second-rank institutions while helping the rich get richer. NSF has countered with studies aimed at showing that there is reason and equity in its granting decisions, but now, in the proposed budget for fiscal 1966, starting next July, it is seeking funds that could be used to expand assistance to the second rank. For example, the new budget provides for 4145 NSF traineeships, compared with an estimated 2785 in the current year. At the same time, the number of NSF fellowships is reduced from 4940 to 4665. The significance of these allocations is that the traineeships are awarded directly by the institutions, thereby providing them with a lure for high-ranking students. On the other hand, the bulk of the fellowships are awarded directly by NSF, and the recipient is free to apply to the institution that he prefers—which is likely to be a top-ranking one. NSF is also seeking a good deal of additional money for its Science Development Program (*Science*, 10 April 1964), which is designed to provide development grants for institutions that appear to have everything but money for making the leap to higher quality. The first grants are yet to be made from the $28 million that is available for the program in the current fiscal year, but NSF apparently has big plans for this effort and is seeking another $40 million for the coming fiscal year.

In addition, the foundation has requested funds for a sizable expansion in the number of new research grants. This is an area that has been relatively static for 3 years. In fiscal 1963 the total was 2709; the following year it rose to 2892; and in the current year the number was 2900. Next year, however, NSF is seeking funds that would

permit a jump to 4300, a total which would make it considerably easier to reconcile the demands for quality and the demands for spreading the money around the country.

While NSF has regularly had to convince the House Appropriations Committee that it needed all it sought, the National Institutes of Health has traditionally had a contrary problem: it has been badgered by Representative John Fogarty (D–R.I.), chairman of its appropriations subcommittee, for not seeking more. This year, in view of the modest increase requested by NIH, a good deal of badgering is likely to be in order. The overall request for NIH is $1.146 billion, compared with $1.065 billion in the current year. But since Fogarty attacked last year's budget as inadequate, it is hard to see why he would be pleased with an amount that does not go very much beyond absorbing increased costs. An analysis, by institute, of grants, fellowships, and traineeships (Table 1) shows that only relatively modest growth will take place under the budget.

Whether more money would lead to more useful research is a difficult question, but, as in the past, Fogarty will offer the NIH administrators an opportunity to show how their original requests were pared down as the NIH budget moved through the executive hierarchy. Up till 1963, Fogarty, and his counterpart in the Senate, Lister Hill (D–Ala.), successfully employed this testimony to restore ample amounts of funds, but the process of piling money on top of the administration request came to an end at about the time Congress started to recoil in the face of the rapidly rising costs of federal support for science. It is now in a much more relaxed mood, apparently having become accustomed to the government's role as patron of research. But whether Congress will be willing to go along with an attempt to resume the practice of exceeding the White House's budget for medical research is not at all certain. Its attitude may quite possibly be affected by the release within a few weeks of a major study of NIH, sponsored by the White House Office of Science and Technology (*Science*, 15 November 1963). The study, headed by Dean E. Wooldridge, is reported to be based on a comprehensive study of NIH programs and administration, and it is said to contain recommendations for significant changes in NIH operations. In any case, it is a safe assumption that NIH will get at least everything requested for it in the budget.

Table 1. Numbers of grants, fellowships, and traineeships sponsored by NIH in fiscal 1965 and 1966.

Granting institute	Grants		Fellowships		Traineeships	
	1965	1966	1965	1966	1965	1966
General Medical Sciences	1849	2027	1837	2071	690	682
Child Health and Human Development	1010	1261	136	193*	102	116
Cancer	1507	1511	185	237†	86	87
Mental Health	1494	1549	943	886	1777	1979
Heart	2061	2054	486	484	257	247
Dental Research	355	380	124	134	90	101
Arthritis and Metabolic Diseases	3100	3180	405	477	313	317
Allergy and Infectious Diseases	1291	1360	232	254	176	181
Neurological Diseases and Blindness	1602	1605	151	155	243	240

* 115 career awards and career-development grants will be awarded in 1966, compared with 79 in 1965. † 101 career awards and career-development grants will be awarded in 1966, compared with 90 in 1965.

Whether the high-energy physicists can count on the same good fortune remains to be seen, since they are the innocent, though very expensive, bystanders in a dispute between the executive branch and the Joint Committee on Atomic Energy. The Joint Committee has indeed been very generous in providing funds for accelerators, but for several years it has been expressing its annoyance at the administration's reluctance to provide funds for advanced development work in nuclear applications for space. The administration has argued that it is pointless to develop reactors and other devices for space purposes until there is a clear understanding of the purpose to which they will be put. The Joint Committee has countered that it is not always possible to determine the utility of a device before it is built. This dispute would seem to be altogether remote from the question of how much the country should invest in high-energy physics. But the committee, piqued by the administration's seeming fondness for accelerators, has declared that, if nuclear developments aren't shown more favor by executive planners, funds for basic research may be affected.

Apparently, the administration isn't too concerned about high-energy physics being designated a hostage, since the 1966 budget shows an actual decline in funds for "development and support related primarily to space program application"—from $193 million down to $190 million; and funds requested for development of civilian nuclear reactors show only a relatively small increase, from $170 million to $181 million. Meanwhile, the budget request for the AEC's physical research program rose from $214 million to $239, with high-energy physics scheduled for the largest increase, from $87 million this year to $100 million for the coming year. Included in the physical research budget are funds to fulfill the administration's pledge to build up scientific resources in the Midwest—a pledge that was made last year after midwestern congressmen rebelled against the decision to cancel plans to build an accelerator in Wisconsin. The 1966 budget, for example, provides for a new building for solid-state physics at the Argonne National Laboratory and the construction there of the "world's largest bubble chamber." Funds are also requested for design work on increasing eightfold the intensity of the proton accelerator at the Brookhaven National Laboratory and for construction of an electron linear accelerator at M.I.T.

It is probable that the Midwest projects are politically safe, since that region is still sore about what it considers to have been unfair past treatment, and it is respected like a wounded beast. But it is not inconceivable that the committee might snip here and there on the East and West coasts to prove that it will not tolerate the administration's attitudes toward developmental work. Hearings on high-energy physics will be held early in March, and they can be expected to make clear just how the committee is feeling on these matters.

As for the space program, its administrators will again log more hours in congressional witness chairs than any of their counterparts in other federal research and development agencies. This is because the House and Senate committees that write space legislation hold extensive annual hearings, while other committees with R&D jurisdiction

often let several years go by without taking a careful look at agency activities. The lengthy space hearings and the extensive press coverage that they generate contribute to the impression that the scope, pace, and goals of the space program are under meaningful debate, but the program is now so well along the way to the moon, and has developed so great a constituency, that politically there is very little room for debate that can actually affect the course of events. Last week the New York *Times* stated editorially that "there are more urgent needs in American national life than those posed by the arbitrary goal of sending an astronaut to the moon within the next five years. We suspect," the editorial concluded, "most Americans would prefer faster progress toward the Great Society right here on our own planet." Whether or not they would, there is little possibility that Congress will do anything significant to NASA's budgetary plans. The aerospace industry is suffering from underwork, and, if political tremors were produced by efforts to close a few naval shipyards, political earthquakes can be anticipated from efforts to turn down the space effort.

NASA's work with rockets and spacecraft has tended to draw attention away from the fact that the space agency has quietly and quickly developed into a significant source of support for graduate science education. The new budget calls for $46 million for NASA's sustaining university program, including $25 million to provide another 1275 graduate fellowships. This would bring the total of NASA fellows to 3200 by next fall. In addition, NASA provides the nation's universities with $70 and $80 million for various research and educational activities.

Congress has been unresponsive to a proposal by the defunct Elliott Committee for the establishment of a Joint Committee on Research Policy, but just this past Monday, the House Government Operations Committee gave its approval to Elliott's recommendation for creating a Government Operations subcommittee on research and technical programs. The subcommittee, to be headed by Representative Henry S. Reuss (D–Wis.), would have the function of reviewing the management of government-supported research and development programs, and thus would be in a position to carry on where the Elliott Committee left off. Still to be settled are questions of budget, staffing, and the scope of activity for the subcommittee. Reuss, a Harvard Law graduate who was first elected to the House in 1954, is widely respected for his legislative diligence and knowledge of economic affairs. It is quite likely that under his leadership, the subcommittee could evolve into an important focal point in science-government relations. Meanwhile, the House Space Committee's subcommittee on Science, Research, and Development, headed by Representative Emilio Daddario (D–Conn.), is relatively inactive, pending the parent committee's lengthy examination of the space authorization bill. When that is completed the Daddario group plans to resume examinations of various aspects of government support of research and development.

Finally, that bugbear of NIH, the intergovernmental operations subcommittee, headed by Representative L. H. Fountain (D–N.C.), has been occupied with problems of drug safety for some time, and it is unlikely that it will be devoting much attention to NIH until spring, if then.—D. S. GREENBERG

ACDA: LBJ Supports Agency Plea for Bigger Budget, Longer Life; but Old Problems Still Remain

The Arms Control and Disarmament Agency (ACDA) has begun its annual joust with Congress with somewhat sturdier backing than in earlier years. Despite persisting criticism of the agency, President Johnson has indicated which side he stands on by supporting the agency's latest request for a $55 million authorization ceiling for a 4-year period. In addition, Johnson sent a special message to Congress in which he went out of his way to refute critics who "questioned whether there was effective work for such an agency to perform," and he praised it for helping the country stay "vigilant for opportunities for improving the hopes for peace."

The new authorization would not dramatically affect the agency's style or level of operation, but it might go a long way toward ending the insecurity induced by a history of low budgets and congressional opposition. ACDA was established in 1961 and given a budget of $1.831 million for its first year. For fiscal 1963 (the first full year of operation) it had a budget of $6.5 million. This rose to $7.5 million in fiscal 1964 and to $9 million for the current fiscal year. Although the increase was steady, however, it was never as substantial as agency officials had hoped, and they also had to contend with the need for periodic authorization, the act of Congress that is to government agencies more or less what an internal passport is to citizens of the Soviet Union. In 1963 agency officials sought a permanent authorization and were granted instead a 2-year term; in asking for a 4-year term now they have modified their request. The budget request, which calls for $12.3 million of the $55 million to be allocated in fiscal 1966, is also scaled down from an early request of $15 million that was never granted.

It is too early to predict congressional reaction. Agency officials, in the traditional stance of supplicants, are "hopeful." But early signs from the House Foreign Affairs Committee, which held 2 days of hearings on the proposal last week, indicate that the skepticism which has dogged ACDA for so long will continue. (The Senate authorizing committee, Foreign Relations, has scheduled its hearings for late February.)

Much of the criticism was directed toward the agency research program which has absorbed about two-thirds of all ACDA funds so far. For the coming fiscal year the agency would like to spend $8.2 million on studies ranging from mathematical description of various verification systems to evaluation of the potential effects of arms control measures on Latin America, Africa, and the Middle East. In the view of the agency, the contract research program is just beginning to pay dividends by providing solid information useful in supporting, or developing, disarmament proposals. Many congressmen, however, evidently feel that what agency director William C. Foster described as the most urgent mission of his agency—"the prevention of nuclear spread"—is a subject for political negotiation, not academic research. It was also felt that because the agency continues to occupy a position in government far more peripheral than that envisaged by its early supporters, costly research contracts are a waste of money. Thus, the agency has begun to spend a good deal of money investigating the economic impact of disarmament measures, and Foster was asked by Leonard Farbstein, Manhattan Democrat, whether he had had a role in the decision to shut down the Brooklyn Navy Yard. Foster replied that he had not. "Don't you see the inconsistency?" Farbstein asked.

The inconsistencies are troubling not