

F. A. S. NEWSLETTER

FEDERATION OF AMERICAN SCIENTISTS
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A NATIONAL SCIENCE FOUNDATION IN 1950 ?

A Diagnosis. It is 1950 -- four years post-war -- and legislation to establish a National Science Foundation has yet to be passed. First introduced in 1946, and since then widely endorsed by spokesmen of industry and government, opposed by few, the legislation nevertheless has repeatedly tripped and stumbled before clearing the final hurdle. Three times it has passed the Senate, once the House. In 1948 it went all the way to the White House, only to meet a regretful Presidential veto.

Why do we yet have no NSF? Is there a hidden conspiracy to block it? Did the earlier disagreements among its supporters prevent its passage? Neither of these appears to be the critical factor. The fundamental obstacle lies elsewhere. It is to be recalled that the concept of NSF was born during that short but happy period when we looked backward toward war, when a peaceful world was in view, and reconstruction being planned. NSF was to replace the war-time OSRD as the dynamic center of scientific effort in a bright post-war world. Tailored originally to that role, it was the symbol of science returned to civilian garb.

But times have changed. Suspicion and fear have replaced hope and confidence in national and international affairs. Reconstruction and rehabilitation have become enmeshed in power politics. One third of the federal budget goes for current military expenditures. And the Armed Forces and the Atomic Energy Commission dominate American science. Science for peaceful construction, spear-headed by NSF, was the dream. Science for war and destruction is fast becoming the hard reality.

No consciously formulated decision on this was ever made. As scientists fled from war-time laboratories, government money followed them into their native academic and industrial haunts. The lessons of World War II stuck fast. Military agencies and the AEC knew the importance of science, even fundamental science, to strength in war. Their money flowed freely in the form of grants, contracts, fellowships to universities and other research centers. These arrangements were originally justified as temporary expedients pending establishment of NSF. But the systems of scientific support thus established have acquired stability. In many cases carefully and wisely administered, the agencies sponsoring them have made special efforts, insofar as Congress has permitted, to respect scientific mores and traditions. A not insignificant proportion of their funds has even filtered down to certain areas of basic science.

Only occasional rumblings have indicated that the solidification of a temporary expedient has rested the entire economics of science on a dangerous misconception -- that science can thrive as the hand-maiden of military necessity. Congress could not understand that the AEC fellowship program was only incidentally related to the development of atomic armaments. It demanded FBI investigation of all such fellows. Secret research on university campuses is generating misgivings among those who foresee its corrosive influence on free academic thought. University scientists find themselves and their students entangled in clearance procedures that obstruct their work and violate their fundamental attitudes.

The fact is that we are travelling a dangerous road, the more dangerous because it leads not precipitously but gently downhill. A nation afflicted with misdirected or inadequate sci-

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General FAS meeting in New York on Thursday, February 2, at 8 PM; Room 301, Pupin Hall, Columbia University -- at the time of the Physics meetings

Speaker: Dr. Howard A. Meyerhoff,
Administrative Secretary, AAAS

Subject: A NATIONAL SCIENCE FOUNDATION IN 1950?

Legislative Status. It is almost impossible at this point to estimate the probability or time of passage of NSF legislation. The Senate has completed action on S. 247. The House Interstate and Foreign Commerce Committee favorably reported H.R. 4846 in the last session, but the Rules Committee refused to grant a rule to bring the bill to the floor. Congressman Robert Crosser,

Chairman of the IFCC, filed a petition to discharge the Rules Committee. Under the new rule adopted by the House in 1946, Rep. Crosser now has the right to seek recognition to bring the bill before the House on the second or fourth Monday of the month. Congressman Percy Priest, who is in charge of the legislation, has indicated that the attempt will be made in February.

The situation is complicated, however, by the fact that a number of chairmen of committees which sponsored bills similarly rejected by the Rules Committee will be competing to get their own projects to the floor. The Speaker, through his power of recognition, thus controls the order of precedence. Further complications spring from the revolt of a Rules Committee coalition against a procedure adopted in 1949 which limited their power to block legislation. They are seeking to rescind the power granted to committee chairmen to circumvent the Rules Committee upon 21-day notice and appeal to the whole House. If this maneuver (part of the battle over other and far-reaching legislation) succeeds, chances for NSF will have received a possibly fatal blow.

A serious handicap throughout the history of NSF legislation has been its low score on the Congressional public pressure meter. In the past year opposition pressure, developed

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Correspondence between Scientist and Congressman. Dr. Robert Marshak, professor of physics at the University of Rochester and past-chairman of the FAS, exchanged several letters during November and December on the subject of NSF with Representative Kenneth B. Keating of New York. A portion of the correspondence is reproduced here, both for its intrinsic interest and because it illustrates the kind of exchange of views which should go on continuously between scientists and their legislators.

Following an interview with Representative Keating, Dr. Marshak wrote:

"In accordance with your request, I shall recapitulate some of the arguments which I tried to present to you orally in favor of the passage of a National Science Foundation Bill. The chief argument is that the national welfare, prosperity and security of the U.S. demand the earliest possible establishment of a National Science Foundation. Our national preeminence in the fields of applied research and technology should not blind us to the fact that until very recently America occupied a secondary position as regards basic research. The remarkable American developmental work on the automobile, airplane and radio should not obscure the truth that the fundamental discoveries underlying these developments were made in nineteenth-century Europe. Even the atomic bomb, which is now so vital to our national defense is an outgrowth of basic discoveries made in England, France, Germany, and Italy. In recent years the U.S. has made progress in pure science but an examination of our national research effort in university, industrial and governmental laboratories soon reveals that this effort is terribly unbalanced in the

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ence shows no raging fevers. The effects are those of a deficiency disease, a slow wasting due to depletion of reserves.

Can the process be checked? That depends upon many things, not least among which is the easing of international tension. A smaller, but nevertheless significant, contribution might be made by the establishment, at long last, of a National Science Foundation. Not that the bill now awaiting House action is ideal. Successive revisions have seriously weakened the original concept and reduced NSF to a minor agency budget-wise.

NSF may make grants in support of research, but it may not, itself, operate "any laboratories or pilot plants." Its emphasis is to be on basic research, but it may not "support any research or development activity in the field of atomic energy" without concurrence of the AEC "that such activity will not adversely affect the common defense and security." It is to correlate its activities with those of other government agencies, but its activities must not "supersede, curtail, or limit any of the functions or activities of other Government agencies authorized to engage in scientific research or development." Final authority is placed in the hands of a National Science Board (House version) of 24 eminent persons "in the fields of basic sciences, medical science, engineering, agriculture, education, or public affairs." Part-time personnel, essentially private citizens, rather than full-time administrators will guide the affairs of NSF.

The Foundation is authorized and directed among other things "to initiate and support scientific research in connection with matters relating to the national defense." Accordingly, the Executive Committee of the Foundation "after consultation with the Secretary of Defense, shall establish regulations and procedures for the security classification of information or property (having military significance) in connection with scientific research under this act." Furthermore, an individual may not receive payments under a scholarship or fellowship unless he has executed an affidavit that he does not "believe in, and is not a member of, and does not support any organization that believes in or teaches the overthrow of the United States Government by force or violence or by any illegal or unconstitutional methods." Criminal penalties are made applicable with respect to falsification of such affidavits. Finally, international activities of the Foundation must be "consistent with the foreign policy objectives of the United States."

Clearly, the mark of the Cold War is here. The civilian suit for science, originally tailored for an era of discovery for peaceful living, went back to the shop for recutting. And the Congressional tailors with their eye on the international scene have completely altered the style. What has emerged hangs somewhat strangely for the taste of many scientists.

Yet we must not lose sight of the main issue. Altered though it is, weak though it is, even this Foundation could help to correct the present distortion in the national science effort. It must not be forgotten that even this NSF would be, for the first time in our peace-time history, a Federal agency charged with the responsibility "to develop and encourage the pursuit of a national policy for the promotion of basic research and education in the sciences," and "to evaluate scientific research programs undertaken by individuals and by public and private research groups, including scientific research programs of agencies of the Federal government." This would be a long step forward in government relationships with science and, if properly administered, might go far to improve the present unhealthy state of scientific organization and finance. Aggressively interpreted, it would permit the Foundation to act as the focus of opposition to unwise secrecy and clearance procedures now encroaching on basic research in a number of fields. Intelligently handled, it might permit the Foundation, despite its budgetary and other limitations, to assume leadership in developing a balanced program for American science. The controversy over non-secret AEC fellowships probably would never have arisen had the program been under NSF. When the lightning strikes again, as it may at any one of a number of agencies, it will do less damage if NSF is in existence to take over non-sensitive activities.

Finally, we must recognize that legislation only sets limits; it cannot prescribe in full the final character of the agency. That will be determined by experience, and by the wisdom of the personnel who administer it. Disappointing though the present bill is in its omissions, of the social sciences for instance, the language is sufficiently broad to permit intelligent administrators

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NSF -- Legislative Status (Continued from Page 1)

from several small but vociferous groups, probably did much to influence the Rules Committee to side-track the bill. It will continue in an effort to keep the bill from coming to the House floor. Positive pressure by scientists is badly needed. Meetings should be held to reawaken interest, not only in the scientific community but in the community at large. Such meetings are being planned for early February in New York by FAS, and in Cambridge in late January by local groups there. Similar meetings should be arranged wherever there are FAS chapters or members. Where possible, support should be enlisted from civic groups interested in the public welfare -- labor unions, educational organizations. Communications, as many and as strong as possible (a note of insistence and impatience would not be out of order), should be sent to Congressmen Crosser and Priest, Speaker Rayburn, and local representatives. If there is time, it would be useful to wire Speaker Rayburn urging that he use his considerable influence against re-establishment of the virtual veto power of the Rules Committee. Vote on this is expected on Monday, January 23rd, but back-stage maneuvers may alter the picture before then.

Aid for Foreign Students. In collaboration with the Institute of International Education, the FAS Committee on Aid to Foreign Science (at Rochester) is again engaged in a survey to find fellowships, assistantships, and other opportunities in American colleges and universities for foreign students. Also interested in this project are UNESCO, the Office of Educational Exchange of the State Dep't, and the Office of Education of the Federal Security Agency. Under the Fulbright Act it has been possible to arrange for the traveling expenses of some students.

As a result of last year's efforts, 15 students out of 62 applicants received awards. The fields covered included chemistry, physics, botany, and biology, and ten different nations were represented. Because of an earlier start this year, it is hoped that the number of appointments will be increased.

The program is operated by means of screening committees of scientists and other scholars set up in the countries asked to cooperate. Countries were selected by (1) need in rehabilitation of science and (2) possibility of establishing screening committees.

The Ordeal of Dr. Condon. In the January issue of Harper's magazine is an analysis by a Washington news correspondent of the charges published by the House Un-American Activities Committee against Dr. E. U. Condon. In the article, the baseless insinuations, vague innuendoes, and smear tactics of the Committee chairman, J. Parnell Thomas, are clinically dissected. The February number of Harper's will feature an article by Dr. Condon entitled "Science, Secrecy, Security."

to find authority to do much that needs doing.

It is not a pleasant choice that we are offered. The NSF Act of 1950 is weak in many respects, actually dangerous in some. Yet it offers something of value, and holds the potentiality of much more. We must fight to delete the fellowship affidavit clause, but in a manner that will not call forth the hysterical demand for FBI investigation. If the latter should succeed we would be forced into a position of opposition to the entire bill. We must seek to remove the military research and classification provisions or, failing that, to see to it that their operation is kept to an irreducible minimum in the actual working of the Foundation. Beyond these, perhaps on these too, there is little hope of making favorable changes in the legislation at this late date. It is this bill or nothing in the Congress. And if it is not this bill in this Congress, it may be a long time before there is a National Science Foundation.

Americans recently looked at the proposed federal budget for 1951 and saw there some of the cost of the Cold War. But only part of the cost was visible. Written large were the expenditures for our own arms, for military assistance abroad, for economic aid. Unlisted were the things which have gone by the board, the peaceful constructive projects that were to make up much of the now forgotten "post-war world." War, cold or hot, saps the constructive energies of a nation. We are paying in more ways than we now appreciate. Not least, we are paying in a dangerously distorted science. Establishment of a National Science Foundation would, in small measure, correct the disproportion in the investment we are making in war vs. peace.

- - Clifford Grobstein

International Atomic Control. Possible changes in policy considered in detail in the Newsletter for Nov. 30 are still being discussed in FAS chapters and other scientific circles. The FAS Administrative Committee on Dec. 30 agreed on an interim policy as follows:

"For almost four years the international atomic policy of the U.S. has flowed from the principles of one document: the Acheson-Lilienthal plan. The Federation of American Scientists, like most informed Americans, has been a strong supporter of those principles. But times have changed. The years of international tension and controversy have demonstrated that the original principles, however valid, cannot gain acceptance. The inevitable and long-predicted end of the American monopoly in the atomic weapon has made perfectly clear that the very basis of our policy must be reconsidered.

"The time has come to make a fresh start. We must set aside the present proposals, and seek to construct new ones which will contain the assurances we need, but which can in these times have a real chance of world-wide acceptance. We are confident that such measures can be conceived. It will take work. It will require consideration not only of atomic arms, but of the interrelated problem of conventional weapons. It may indeed imply an even wider reconsideration of the means and ends of our foreign policy as a whole. It may require that we balance concessions in the field of atomic energy against concessions on other issues in order to achieve a mutually satisfactory agreement.

"...(This should be done) by calling once again upon a small group of the ablest citizens, both from public and private life, to undertake the job of recommending a new policy for America. To such a group should be made available all the relevant facts both in the field of atomic energy and in the wider area of world affairs. From such a group we can expect new proposals, proposals which will help us gain the goal upon which American security and world peace in fact depend: an end to the perilous race for atomic weapons."

It is to be expected that an FAS consensus will emerge from the February council meeting in New York. The next Newsletter will contain a summary of these discussions.

AEC Fellowships. Scientific opposition to the spirit of the O'Mahoney amendment is expressed in the recasting of the AEC fellowship program jointly announced by the AEC and National Academy of Sciences. During the 1950-51 academic year, a curtailed program will be administered by the National Research Council under the following provisions (for details, see Science: Dec. 16, p. 649): 1. No new pre-doctoral fellowships will be offered. AEC, with the advice of the National Academy, plans further exploration of the desirability of a pre-doctoral fellowship program in fields relating to atomic energy. 2. New post-doctoral fellowships only for advanced training in atomic energy fields in which access to secret data is required or desirable. Award of such fellowships to be only upon FBI investigation and AEC clearance. 3. To fulfill previous commitments, application for renewal of current non-secret predoctoral fellowships and post-doctoral medical fellowships will be accepted, such renewals to be granted only to FBI-investigated and AEC-cleared applicants, as required by the Independent Offices Appropriations Act for the fiscal year 1950 (O'Mahoney amendment).

The Council of the National Academy of Sciences expressed the opinion that "the requirement of FBI investigation and AEC clearance is ill-advised for those fellows who neither work on secret material, nor are directly preparing for work on AEC projects. We are convinced that by this restriction the value of the broad program has been greatly reduced; we have grave doubts whether the continuance of the AEC fellowship program thus restricted is in the national interests." The Academy made clear that it regards its commitment even to the limited program as temporary, holding open the possibility that it may later retire completely from its administration. There is some evidence that the AEC is already sounding out other agencies to replace the Academy.

This collapse of the AEC fellowship program, designed originally to provide a sorely needed reservoir of trained scientific personnel, now more than ever makes necessary the creation of a National Science Foundation. But, as FAS Chairman, Hugh C. Wolfe, pointed out in a letter to the N.Y. Times, January 8th, "The experience of the AEC emphasized the desirability of restricting the scope of the National Science Foundation to non-secret basic science so that there will be no question of handicapping its program with security clearance procedures."

FAS Chapter Notes. Mohawk, in the Troy-Schenectady (N.Y.) area, has been active in the collection of periodicals and their distribution to foreign areas, together with funds for literature, through the facilities of the CARE book program and the U.S. Book Exchange.

Washington held a very successful meeting recently with Samuel P. Hayes, Jr., of the State Department, discussing the Point IV Program. Robert Simha is the new WAS chairman.

Cornell held a 2-session forum last month on "Human Population Pressure and World Resources." Speakers touched on checks to population growth; soil, power, and food resources; plant and animal breeding; synthetic food production, etc.

Bulletin of the Atomic Scientists, the well-known monthly edited by Eugene Rabinowitch, a charter member of FAS, can now be had by paid-up Federation members at the special rate of \$3.50 per year. Each member will be sent a "privilege card" upon receipt of his dues by the national office.

Streamlining the FAS. Under the provisions of the constitution and by-laws as revised at the November Council meeting, the FAS becomes a national society, with provision for chapters and branches in localities where there are enough members and member-interest. All members are members of the FAS, and their names are enrolled at the national office. Each member votes for national officers and councilors.

Under the election procedure for chairman and vice-chairman, the elections committee, appointed by the council, selects at least 3 nominees and sends their names to all members by Feb. 20th. Additional nominations (signed by 10 or more members, having obtained consent of nominee to serve if elected) may be made until March 20th. Ballots are mailed by April 1st, to be returned by Apr. 20th. The candidate receiving the largest number of votes becomes chairman, the one with the second largest becomes vice-chairman.

Nominations of council representatives of unaffiliated members are made by the elections committee and referred for additional nominations by 5 or more such members. One representative is to be elected at large for every fifty members. The above time schedule also applies in this separate election. Chapters name the council representatives for their members, each chapter having one vote for "every fifty members or residual fraction thereof."

The revised constitution calls for an Executive Committee (replacing the present Administrative Committee) composed of the Chairman, Vice-Chairman, past Chairman and 4 others appointed by the council. In all, at least 4 members of this committee must be members of the council. A secretary-treasurer is appointed by the Executive Committee and approved by the council.

Chapters of the FAS may be formed by 25 members, two-thirds of whom must be active scientists. Any local group of members may be designated a Branch of the FAS upon approval by the council. Dues are set at \$5 per year, except that they are \$3 for members whose annual income is below \$2500. Sustaining and patron members pay \$10 and \$25, respectively.

The membership drive progresses slowly and steadily. But more and more members are needed to maintain the effectiveness of the organization. A descriptive leaflet and membership proposal will be sent to anyone on request. Or application may be made on the coupon below.

MEMBERSHIP APPLICATION CONTRIBUTION

Name _____

Mailing Address _____

Highest Degree Received	Institution	Major Field

Present Position _____

Annual Dues for members-at-large:
 Regular Member* \$5 \$3; Supporting \$10; Patron \$25
 (Contributions are not tax-exempt)

Chapters at: Brookhaven, Chicago, Ithaca, Schenectady, Oak Ridge, Los Alamos, Princeton, Rochester, Madison, & Washington.
 Informal branches in other communities.

*Regular members with more than \$2500 annual income pay \$5

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direction of developmental and military research. The tremendous sums of money which are being spent on applied research (of the order of a billion dollars a year) will not reap a rich harvest unless new ideas are forthcoming to nourish and sustain new applications. Basic research is the source of new ideas and an NSF is essential...to meet the increased need for basic research.

"There are other arguments for an NSF. Traditionally, a great deal of pure or basic science has been carried on at institutions of higher learning. However, in recent years, private support of universities has been sharply curtailed and it is necessary to find some other means of support for basic research. In this connection it is my personal hope that industry will, in the years ahead, make a material contribution to the support of basic research but it is clear that the federal government must also make its contribution in the form of NSF. The scientists do not ask for complete federal support of fundamental science and do not wish it. They do feel that the situation is comparable to the state of affairs at the time of the passage of the Homestead Act which subsidized the opening of geographical frontiers. An NSF Bill would be subsidizing the opening of scientific frontiers - the only ones which are left. Another point is that in the future we cannot count, as we have in the past, on basic research performed in other countries and on the importation of outstanding scientists trained abroad. The ravages of World War II have been so great that Europe is bankrupt and is in no position to carry on much of the basic research of the future which requires such complicated and expensive equipment. The United States can no longer be content to borrow its basic knowledge but instead it must make its own fundamental discoveries as befits its high position among the nations of the earth.

"I shall not discuss in detail the provisions of H.R. 4846 except to remark that this bill goes a long way towards setting up an NSF with the responsibilities, the powers and the flexibility it needs for the type of job it must do. H.R. 4846 not only provides for the disbursal of federal funds for the material resources necessary for the pursuit of basic research but it also makes provision for developing the nation's scientific personnel through scholarships and fellowships. H.R. 4846 is a reasonably good bill, although not perfect, and amendments may be offered from the floor of the House. If any amendment is offered requiring FBI clearance for persons supported by the Foundation who are not engaged in secret research (this will be true of most scholars and fellows), I earnestly appeal to you to take an active stand against it. The conditions created by such an amendment would undermine the type of atmosphere in which pure science flourishes and defeat the very purposes for which the Foundation would be set up. By leading a fight on the floor against such an amendment, you will win the undying gratitude of the vast majority of American scientists."

Representative Keating replied in part:

"Thank you very much for your extremely well worded and helpful letter of November 18 regarding the legislation for the creation of a National Science Foundation....There is one point

upon which I would be grateful for further enlightenment. You urge that FBI clearance be not required for scholars and fellows who are not engaged in secret research. Inferentially, I assume you do favor such clearance for those who will engage in secret research. I have heard the argument made that it is not practical to draw this distinction since the two fields so frequently overlap. In order to meet this argument if presented, I would appreciate it if you could elaborate on this specific point, since I feel it would be an important consideration in the minds of the Members, if an amendment such as you indicate should be offered."

A portion of Dr. Marshak's response:

"As regards a possible amendment to H.R. 4846 requiring FBI clearance of all persons receiving support from the National Science Foundation, I should like to make the following observations. In a very theoretical sense, there is no distinction between secret and non-secret research: any new thought on some natural phenomenon may lead potentially to a powerful weapon of war. If our government accepted this viewpoint, the lid of secrecy would be clamped on all scientific research and the greatest secret would soon become the sterility and stagnation of American science. In a practical sense, however, there is a clearcut distinction between secret and non-secret research: secret research covers those aspects of applied and developmental science which bear directly on the ability of our nation to wage war while non-secret research automatically encompasses most branches of basic science. The philosophy underlying this practical distinction, and I believe a wise and correct philosophy, is that the free interchange of scientific information in basic or pure science is the major source of our scientific progress, of our technical leadership and of our ultimate victory in any future war."

Said Representative Keating:

"Your analysis and arguments regarding the inadvisability of FBI clearance being required for scientists concerned wholly with non-secret research will, I feel sure, be particularly useful to me, if the argument is presented, as expected, that it is impossible to separate the two fields of secret and non-secret research. I realize, of course, that many important discoveries and developments have been effected by persons who do not share our political ideologies, but at the same time, feel we can hardly be too careful in assuring ourselves that such persons do not have access to vital, confidential matters affecting our national security."

If every member of FAS would undertake this kind of correspondence with his own representatives, Congress would be in a far better position to evaluate legislation which relates to science, and thus to the welfare of the nation.

"Government Support of Research," the address by Dr. Alan T. Waterman, Chief Scientist of ONR, to the FAS general meeting in New York last month was published in Science for Dec. 30.

FAS Council meets February 4 at 8 PM, Cooper Union Annex, New York, continuing Feb. 5; also April 29-30 in Washington.

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