

# F. A. S. NEWSLETTER

FEDERATION OF AMERICAN SCIENTISTS  
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## MOBILIZATION MOVES

**Mobilization of Scientists.** Proposals for ensuring optimum utilization of scientific manpower resources under limited or full mobilization continued to appear during recent weeks, principally from scientific organizations. Most agree on broad principles -- that there should be registration of scientific and technical people, that there should be one or more national boards, made up largely of scientists, for the purpose of determining national requirements. Beyond this, the plans differ in important details, such as whether or not registration or allocation should be voluntary. They also differ on the type of coordination with the military.

Many of the reports make specific recommendations regarding younger scientists and means to assure maximum utilization of their skills. H. D. Smyth suggests a civilian "Scientific Corps" outside of Selective Service, in which young scientists will serve in lieu of military service -- although they may be assigned to technical military jobs. The corps would be under the direction of a scientific Manpower Board with the necessary power, but guided, Dr. Smyth hopes, by the "curious mixture of cooperation and discipline that characterizes most civilian organizations in this country." The Engineers Joint Council also would assign allocation authority to a "Board" supervising a scientific "Reserve." The American Chemical Society's report calls for voluntary methods for ensuring utilization of scientists under circumstances short of full mobilization and national service.

Reactions from FAS groups are still being considered and the Executive Committee is meeting on Feb. 4 to seek common ground. Some doubt has been raised whether any "Board," however constituted, can be expected to have the omniscience to determine relative importance of programs or manpower placements. The Brookhaven chapter suggests that a Board could make a continuous broad review of requirements and make recommendations on redistribution of manpower to agencies and individuals. It also could work out standards for classification of individuals as scientists and selection of students for training. The Chicago chapter advises against organization of research and development under the military. They would not have draft boards pass on qualifications of young scientists. The Mohawk chapter, in a poll on principles,

tended to oppose control of scientists over draft age by a central agency, supported an "advisory commission" to help them find suitable positions. The Wisconsin chapter reported similar opinions. Still others favored continuance of the uncontrolled competitive system for staffing defense projects.

The next step in science mobilization planning is expected to be a comprehensive report from the National Security Resources Board, which has had a committee (headed by Charles A. Thomas of Monsanto Chemical Company) studying the various proposals which NSRB invited from certain scientific societies. The Thomas report may also contain recommendations for the continued training of technical students. These may supplement or be an alternative to the pending UMST proposals (see page 4).

**Presidential Policy on Manpower Mobilization.** On January 17, President Truman sent to the heads of government agencies a basic policy statement on utilization of manpower. The policy now covers the activities of federal agencies; under full mobilization it presumably would apply to the country at large. In the statement of objectives is the following: "We must rely heavily on science and technology. The most effective use must be made of our supply of individuals having the special skills required to develop and produce the necessary equipment and to use and maintain it in the armed forces. Malutilization of such individuals represents a direct and unnecessary reduction of our defense potential."

Basic principles are enunciated covering the following points: (1) size of the armed services; (2) in general, distribution of critical skills to yield maximum effectiveness; (3) specifically, recruitment of civilians and calling of reserves to be conducted so as to place skilled persons most advantageously; (4) deferments under Selective Service to protect critical skills in essential activities and guarantee sufficient continued training and education; (5) voluntary mobilization methods for the civilian labor force; (6) manpower controls to be used only as necessary to assure success of the mobilization program, and applying to employers, to workers, or to both. The President calls for the understanding and assistance of all groups, including professional societies, in carrying out these functions.

(Other mobilization news on Page 4)

## LATE NEWS - -

**Commission on Security and Freedom.** On January 23, President Truman announced the establishment of a Federal Commission on Internal Security and Individual Rights. The 9-member special commission, headed by Adm. Chester W. Nimitz, will examine existing laws and procedures relating to "treason, espionage, sabotage and other subversive activities." It will seek "the wisest balance that can be struck between security and freedom." The President noted that the commission "will consider the harm that comes from the wrong kind of action as well as the good that comes from the right kind of action." It was given broad authority to hold public hearings and examine federal records, including the most confidential files of the FBI, to provide necessary background for a single comprehensive report to the President.

This action of the President is in line with repeated requests from individuals and organizations who are aware of the creeping menace of excessive security checks. The Washington Post, in particular, has emphasized these dangers and last spring issued a strong call for a commission very similar to the one the President has now set up. FAS, too, contributed with its suggestion nearly two years ago for a Special Commission on Science and National Security. No specific mention of the problems of scientific communication and freedom is made in the President's announcement. These problems should fall within the commission's scope, and it is to be hoped that scientists will bring them strongly to the attention of Adm. Nimitz and his as yet unnamed colleagues.

**Bulletin Takes Stock.** The January issue of the Bulletin of the Atomic Scientists, released on January 23, contains a long editorial by Eugene Rabinowitch reassessing the Bulletin's position as it enters its sixth year. Indicating a basic change in its orientation, the Bulletin editorial says, "the break between the two camps appears all but complete. The question of how to stop the arms race is set aside while the West struggles with the question of how to stop losing this race. International control of atomic energy is now shelved because, in the absence of sufficient 'conventional' land power, America is left with no choice but to rely on her atomic arsenal, first as a deterrent to full-scale war, and second, if this deterrent should fail, as a means of crippling the industrial power of the Soviet Union and gaining time for all-out rearmament at home. Only if and when Atlantic national mobilization succeeds in being strong enough to stop a possible Soviet invasion will America regain the freedom of action to offer effective abolition of atomic weapons."

This statement will stir widespread interest, particularly in scientific circles, and will require careful consideration by the FAS.

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## A-BOMB ETHICS

Christian Conscience and the Bomb. The report, "The Christian conscience and weapons of mass destruction," briefly mentioned in the last Newsletter on the basis of press reports, has become available in full. Submitted to the Federal Council of the Churches of Christ in America by a distinguished commission of Protestant theologians and laymen headed by Bishop Angus Dun, the report proves to be broader in scope and significance than press reports indicated. It represents a public searching of the Christian conscience in the face of the gathering storm.

The Commission, with gentle regret, rejects what it regards as the simple impracticality of absolute pacifism. With sternness it also rejects the notion of preventive war. On what path between these extremes to set its feet it is less decisive. In considering the spectrum of weapons from spear to H-bomb, it can find no point at which to draw an absolute moral line. But it warns that "this recognition that we cannot isolate the atomic bomb or even the projected H-bomb as belonging to an absolutely different moral category must not blind us to the terrible dimensions of the moral problem they present." Believing that "for the United States to abandon its atomic weapons, or to give the impression that they would not be used, would leave the non-communist world with totally inadequate defense," the Commission allows "that it could be justifiable for our government to use them with all possible restraint to prevent the triumph of an aggressor." As to where the terrible decision must rest, "what may or may not be done under God can be known only in relation to the whole, concrete situation by those responsibly involved in it." Nevertheless, "the nation that uses atomic weapons first bears a special burden of responsibility for the almost inevitable development of extensive mass destruction with all its desolation and horror."

The Commission emphasizes that military strength -- which it judges essential -- is only part of the strength which America must find. "Moral and political strength is ultimately a larger factor than military strength." A strong stand against public hysteria, strengthening of democratic principles, constructive help to under-developed nations, support of the UN, recognition and assistance of the aspirations of Asiatic peoples are called for as essential to long-range strength.

"Victory at any price is not worth having," says the report. "If the price is for us to become utterly brutal, victory becomes a moral defeat. Victory is worth having only if it leaves us with enough reserves of decency, justice and mercy to build a better world...."

### Along the Predicted Path

1946 -- Irving Langmuir, in "One World or None," traced the path of an atomic arms race. "The fourth stage," he said, "if it is allowed to proceed that far, will bring intolerable insecurity to most nations, so that the nation which feels that it is best prepared is almost forced to start a war to avoid danger of complete destruction."

1951 -- Edmund A. Walsh, Vice President of the Georgetown University School of Foreign Service, wrote in the Washington Evening Star on the subject, "Is it immoral to strike first if attack is imminent?" "If the Government of the United States," he said, "has sound reason to believe (that is, has moral certitude) that a similar attack is being mounted and ready to be launched against this country from any source, then it would appear that President Truman would be morally justified to take defensive measures proportionate to the danger. That would mean use of the atomic bomb...."

A-Bomb Stockpiles. AEC Chairman Gordon Dean, in recent testimony before the House Appropriations Committee, assured Congress that we are well ahead of Russia in A-bomb production but requested an additional billion dollars to boost production further. Construction of two additional centers for the production of fissionable material is contemplated -- one on the Savannah River in South Carolina and the other in the neighborhood of Paducah, Kentucky. Chairman Dean stated that the new expansion in our A-bomb facilities was motivated more by Russia's indisposition to stop aggression than by the speed or progress of her A-bomb program.

Commenting on the Russian effort, Dean indicated that his information showed it to be "intensive." A more quantitative but less official estimate by the columnists, Joseph and Stewart Alsop,

places the current Soviet stockpile at about 24 bombs and suggests it will be 50 in another year and 100 two years hence. No estimates were given on the U.S. stockpile but it is assumed, by such educated guessers as U.S. News and World Report, to be at least ten times as great as that of the Soviet.

ECONOMIC ASPECTS OF ATOMIC POWER, by Sam H. Schurr, Jacob Marschak, and others. Princeton University Press. 289 pp., \$6.00.

In an earlier, happier period, enthusiasts envisioned propulsion of our automobiles and airplanes, the energizing of our factories and railroads, and the heating of our houses by unlimited nuclear fuel. The present study by the Cowles Commission is a sober attempt to make a specific analysis of the costs of power production in concrete terms. Assuming a 75,000 kw. station operating at 50 per cent capacity, in which a nuclear-fission reactor replaces the conventional fuel-burning furnace, it is pointed out that even with the weightless ubiquitous fuel (no transportation cost) the cost of generation cannot be much less than the 0.4 cents per kwh. now required for a coal-fueled plant with low-cost coal nearby. Nuclear power is therefore competitive only where fuel transportation costs are beyond a certain minimum.

The authors consider the effect on production costs and techniques of industries which require an unusually large amount of power -- aluminum, chlorine, cement, etc. Also affected would be the industry's geographic pattern. In iron or steel, for example, the industry is now clustered near coal supplies. Nuclear power may permit relocation closer to the ore, to sources of scrap or near steel-consuming centers.

The impact of atomic power in areas which are poor in conventional fuels would be much greater. For instance, a country like Brazil, with 45 million population, consumes 2.5 million tons of coal, while Great Britain, with 48 million population, consumes 200 million tons a year. If Brazil were to consume only 50 million tons a year, the cost at \$8 per ton would exceed the total value of Brazil's imports of all commodities. Brazil has extensive resources of thorium. Even were it to import uranium, it could buy the energy equivalent of \$360 million worth of coal for \$1 million (as uranium).

The general conclusion reached is that although the cost of capital may be higher for nuclear installation in backward areas, this might be offset by the fact that there would be no necessity for investment in coal mines, railroads, or in hydroelectric plants. In countries poor in conventional fuel, the foreign exchange advantage might favor atomic power.

A complete summary of the report is presented in an article by Mr. Schurr in the December 1950 Scientific American.

THE H-BOMB. Introduction by Albert Einstein, commentary by George Fielding Eliot. Didier, New York. 175 pp., \$2.50.

Sharply conflicting views on the political implications and military value of the hydrogen bomb are presented in this collection of more than a dozen previously published statements by scientists, congressmen, and writers.

There is general agreement that a single hydrogen bomb would wipe out New York, Washington, or Chicago. In addition, Szilard emphasizes the possible destruction of all human life on earth, by the thermonuclear detonation of 500 tons of deuterium. With a suitable material for the bomb case, neutron absorption could produce an intensely radioactive dust which would settle slowly all over the earth -- a silent curtain of death. In the face of such visions of devastation, Bethe and McMahon urge that every human and superhuman effort be made to prevent the use of the H-bomb. Bacher, in his evaluation, feels doubtful that adding the H-bomb to our present stockpile of perhaps 1000 A-bombs would greatly increase our military effectiveness.

In order to give civilization a chance at survival, Einstein advocates mutual trust, the solemn renunciation of violence by nations, and a supra-national judicial and executive body; similarly, Urey recommends Atlantic Union. According to Hans Morgenthau, the sole hope for peace resides in direct negotiations between the U.S. and the Soviet Union, rather than "illusory disarmament." But Major Eliot's solution is to create overwhelming military power in the hands of the free peoples of the world.

In all, this book is recommended for a non-technical presentation of the theory of the hydrogen bomb, a vivid preview of the horrible destruction such a bomb can cause, and the (conflicting) proposals of some of our best minds on how to avert the impending catastrophe.

## NSF TO WAR?

**NSF -- Slow Progress.** The National Science Board of the new National Science Foundation, confirmed by the Senate in the closing days of the 81st Congress, met in Washington on December 12, and again on January 3. James B. Conant, Harvard President, was elected chairman of the Board; Edwin B. Fred, President of the University of Wisconsin, was designated Vice Chairman. Detlev Bronk, President of Johns Hopkins University, was elected chairman of the Board's executive committee, consisting, in addition to himself, Conant, and Fred, of the following:

Chester I. Barnard, President, Rockefeller Foundation  
 Lee A. DuBridge, President, California Inst. of Technology  
 Paul M. Gross, Dean, Duke University Graduate School  
 Robert F. Loeb, Professor of Medical Services, College of Physicians & Surgeons, Columbia University  
 Joseph C. Morris, Vice President, Tulane University  
 Elvin C. Stakman, Chief, Division of Plant Pathology and Botany, University of Minnesota

So far as is known, the main topic of discussion at both meetings was the Directorship of the Foundation. The President is required by the NSF Act to receive recommendations from the Board before making his nomination to the Senate. The Board is reported to have rejected an Administration suggestion that it recommend former Senator Frank P. Graham of North Carolina. Instead, through Chairman Conant, it recommended Detlev Bronk, and two alternates, to the President. To date, the White House has taken no action, and the Board has no plans for additional meetings pending the Presidential decision.

This new delay in putting NSF into full operation -- it is over eight months since the Act was signed -- at first glance is simply the result of disagreement between the President and the Board over political influence on the Foundation. Board members, and many scientists as well, see a bad precedent in appointing to the Directorship a recently defeated Senator, no matter how strong his qualifications otherwise may be. That the force of this objection is recognized in the White House is suggested by recent rumors that Senator Graham is being considered for appointment instead to the Civil Service Commission.

The delay, however, may be occasioned by more than the political question. Washington is currently torn by conflict over mobilization -- including that of science. It is known that a group within the Board feels that the Foundation, if it is to be assured of appropriations in the period ahead, must make a bid for a strong role in the mobilization program. Authority exists in the Act, in subsidiary language to which FAS objected at committee hearings, to carry the Foundation far in the OSRD direction. If this is to be the course of NSF, its Directorship could compete for talent even with the presidency of a major university -- particularly if the Board were willing to ensure to its nominee a fairly free rein.

On the other hand, if the Foundation is to confine its operating programs to basic research, as originally intended, it can expect only small pickings in the foreseeable future. Its Directorship would then be considerably less attractive, even if not less important in the long run. It is clear that in selecting nominees for the post, and in the calculations of individuals considering accepting it, the immediate future of the Foundation must be a major factor. In these terms, the new pause in NSF progress may be less the result of a skirmish between the President and the Board than an indication of indecision on major policy.

**Voluntary Classification.** Apparently in response to requests regarding the potential danger of making public certain items of technical information -- the examples cited are details of the physical layout of a major railroad and the location of the storage facilities of a world-wide oil company -- the Office of Technical Services of the Department of Commerce has inaugurated an advisory service available to all citizens. The Office will advise whether specific technical data should be disclosed, withheld, or given limited distribution. The program is concerned with unclassified technical information, not "restricted, confidential, or secret" material whose unauthorized disclosure already is forbidden under penalty of law. The announcement of the service notes that most scientific and technical journals are cognizant of the problems involved in proper handling of technical material. The announcement emphasizes that there is no compulsion to follow OTS advice; the program is entirely voluntary.

However, it should be noted that "voluntary classification," in these tense times, may easily further inhibit the free inter-

change of ideas necessary for the healthy growth of science and technology. With each new extension of classification, voluntary or otherwise, the question arises whether the loss does not exceed the gain.

**CBS Loyalty Questionnaire.** Loyalty investigation, heretofore a governmental prerogative, now is being undertaken by the Columbia Broadcasting System. 2500 CBS employees have been asked to fill out a questionnaire indicating whether they are, or ever have been, members of subversive political groups or supporting organizations. Strongest reaction came from the Council of the Authors' League. In a five-point statement signed by its president, Oscar Hammerstein 2nd, the CBS move was described as both "improper" and "impractical." The league declared that the questionnaire was more likely to "condemn the loyal unjustly than to discover the disloyal," that Government safeguards were sufficient to cope with subversive activities.

The New York Times pointed out that the CBS action raises the disquieting specter of one citizen assuming the authority to investigate and pass judgment on the loyalty of another. A CBS executive will have to accept the enormous personal responsibility of reaching a decision which might affect permanently the individual's reputation and earning power. The idea of thousands of citizens being expected to conform to varying interpretations of patriotism by corporation officials is a fearsome prospect, the Times said. The newspaper warned that in becoming panicky and frightened under irresponsible journalistic attacks, CBS is only increasing current hysteria. Far better than to start another witch-hunting campaign, the Times suggested, let CBS go on the air and re-emphasize positively the advantages of democracy thus providing real leadership in broadcasting.

Madame Joliot-Curie, it is reported from Paris, has been dropped from the French National Atomic Energy Commission. Her husband, Frederic Joliot-Curie, was dismissed from the headship of the Commission last April. His place has now been taken by Francis Perrin, a co-worker of both the Joliot-Curies at the College de France in Paris, where M. Joliot-Curie heads the nuclear chemistry laboratory and M. Perrin the experimental physics laboratory. Political rumors have it that the dismissal of Mme. Joliot-Curie because of her Communist leanings and the selection of M. Perrin, a Socialist, over an outspoken anti-communist competitor, Jean Thibaud, head of the Institute for Atomic Physics at Lyon, represent compromise maneuvering on the part of the middle-of-the-road government.

**FAS Election Coming Up.** The FAS By-Laws specify that the Elections Committee shall invite the entire membership to make additional nominations for Chairman and Vice-Chairman, and the members-at-large to make additional nominations for delegates. A nomination for Chairman or Vice-Chairman must be signed by at least 10 members, a nomination for Council delegate by at least 5 members-at-large. Nominations by members must be in the hands of the Elections Committee, c/o B. T. Feld, 39A Lee Street, Cambridge, Mass., not later than March 1.

Nominal members of FAS are reminded of their responsibility to return to paid-up status if they want the Federation to continue as an "action" organization representing scientists of all fields. All varieties of members are urged to encourage their scientific colleagues to join the FAS and their lay colleagues to subscribe to the Newsletter. Use the coupon below.

MEMBERSHIP APPLICATION  or SUBSCRIPTION

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The Universal Military Service and Training bill (S.1) now pending in Congress, while technically consisting of amendments to the Selective Service Act of 1948, actually amounts to a new policy. The bill in its present form calls for drafting almost all 18-year olds who can pass the physical and mental tests prescribed by the Secretary of Defense. They must have four months basic training in the U.S. before being sent overseas; they must serve a total of eight years -- at least 27 months in active service and the rest in the reserves.

The preamble to the UMST bill contains this section: "The Congress further declares that adequate provision for national security requires maximum effort in the fields of scientific research and development, health, and education, and the fullest possible development and utilization of the Nation's technological, scientific, and other critical manpower resources." Also the Congress declares it essential "to provide a continuing flow of personnel recently trained in modern techniques to assure a vital, ready reservoir to fill the military and civilian needs of the Nation including civil defense." These are carried out in two ways: (1) The President may remove from active service after basic training up to 75,000 men -- selected by civilian officials or agencies of the government -- for study or research in medicine, the sciences, engineering, the humanities, and other fields the President may determine to be in the national interest. The period of study or research is not counted as military service. (2) The occupational deferment provision of the present law remains unchanged, and is largely left to presidential discretion. There is provision for an enlarged ROTC program, with each participant obligating himself for 8 years' service in regular or reserve status.

This bill is a compromise between Conant's UMT proposal and the Trytten report, leaning largely towards the former, politically more appealing plan. Thus far there is only token recognition of the need for maintaining an adequate and continuous flow of trained scientific and technical personnel. There is no mention of what is to keep the colleges and universities going during the two- or more year interval before 20-year old veterans start to enroll in numbers as Freshmen. Under the bill, however, the President appears to be given rather broad discretionary powers regarding deferments and the Secretary of Defense has much freedom as regards the types of training. Thus there are still possibilities that some of the philosophy and even details of the suggestions of scientific societies and individuals may be applied in the administration of UMST, should it pass in approximately its present form.

A reserved endorsement of UMST came from the American Council on Education on January 20, a reversal of a long-standing policy. ACE made it clear that it supported UMST as an emergency measure and not as permanent national policy. It called for the following changes in the bill as introduced: (1) deferment of all present college students until they finish; (2) selection of a minimum (rather than a maximum) of 75,000 military trainees for college entry; (3) creation of a civilian advisory commission to help guide the President and UMST administrator in carrying out the law and in deciding how long it should be kept in force.

General Hershey, Director of Selective Service, was reported by the AP to have said that professional and scientific men in the draft-age bracket would be drafted just like "anybody else." He denounced as "ridiculous" the demands by some of the professional groups that technical men be selected "by their own kind" rather than by the regular local draft boards. Gen. Hershey's remarks were reported from Cleveland on Jan. 20, the day after the UMST bill was introduced. One of the groups apparently referred to, the American Chemical Society, reasons as follows: "We are not satisfied to leave (the) selection of technical personnel in the hands of the present local Boards because nontechnical people will find it difficult, sometimes impossible, to distinguish between the importance and amount of training involved in the work of technically trained individuals. For example, persons not trained in chemistry might not make the proper decision concerning the relative importance of a man doing control analyses of TNT and one working on the theory of the burning of gases. To a layman, the much greater importance of the latter from a military standpoint and the higher degree of skill required for it are not obvious."

AEC-Proposed Changes in McMahon Act. Increased exchange of information, notably with Britain and Canada, and liberalization of security procedures, will probably be recommended to Congress by the Atomic Energy Commission within the next month or two. At an AEC press conference early in January, when these plans were first disclosed by Chairman Gordon Dean, they had not yet crystallized into definite proposals. Dean indicated, however, that such changes in the McMahon Act might be requested when such action is to the advantage of the U.S.

Proposed AEC Budget. AEC expenditures of \$818 million for the fiscal year 1951, and \$1277 million for 1952, are estimated in the President's recent budget message. Expenses in 1950 were \$550 million. The major portion of the increase is earmarked for the Commission's expanded weapons program, which includes accelerated procurement of raw materials, construction of new plants for producing fissionable materials, enhanced production in the existing plants, and the investigation and development of new and improved weapons. In addition to the reactors now under construction or shortly to be started at Arco, Idaho (for the generation of power, "breeding" of fissionable fuels, and the testing of materials at very high neutron intensities), further designs of ships and aircraft are contemplated in the 1951-52 budget estimates. The AEC plans to continue basic research in the physical sciences, biology, and medicine, according to the President's message.

AEC Offers Fellowships in Industrial Medicine. The AEC will offer to doctors of medicine four fellowships in industrial medicine, for studies particularly related to the atomic energy industry, during the academic year 1951-52. After one year's training at an approved institution of the fellow's own choosing, he may apply for a second year's "in-plant" training at one of the AEC's installations. Fellowship candidates must be investigated by the FBI and cleared by the AEC for access to restricted data.

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