

F. A. S. NEWSLETTER

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----- to provide information and to stimulate discussion. Not to be attributed as official FAS policy unless specifically so indicated.

FAS BRIEFS LEGISLATORS ON CD IMPLICATIONS

Last month, at the request of several Congressmen, the FAS Washington office undertook a series of five "briefing breakfasts" on the technical considerations and the implications for national security planning of varying sizes of civil defense programs, including a discussion of the Administration's current \$700,000,000 "fallout only" proposal.

Guests at the five breakfasts were Senators, Congressmen, Congressional staff members, and a few selected members of the press. In all, a total of 67 Congressional offices were represented, primarily from offices which will have substantial impact on the Administration's program during the authorization or appropriations hearings.

Acting in the role of "briefing officers" on behalf of FAS were Dr. Walter Selove, of the University of Pennsylvania physics department, Dr. Donald G. Brennan, a mathematician from MIT's Lincoln Laboratory who will soon become president of The Hudson Institute, and Dr. Marvin Kalkstein, a nuclear chemist from Cambridge AF Research Center.

Sessions Follow ACDA Briefings Format

Readers will recall that during the summer of 1961 FAS conducted similar briefing sessions in urging passage by Congress of the bill establishing the Arms Control and Disarmament Agency. On the basis of the unsolicited favorable comments received following the FAS effort for ACDA, the Council in January 1962 directed the Washington office to arrange the breakfasts in response to requests from Congressmen that FAS do so on the civil defense issue. A special solicitation for funds was conducted among FAS members and the response was adequate to cover the costs of the briefing sessions.

Background

In order to appreciate the impact of these sessions it should be recalled that over the past six months the Berlin-generated furor over civil defense had quieted down considerably. Administration spokesmen had apparently moderated their zeal for the program, the FAS December 4, 1961 statement—which was widely acclaimed in the Executive Branch, on the Hill, and among the informed public—had contributed its

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FAS COUNCIL STATEMENT

The following statement was issued on April 25, 1962:

"With the resumption of atmospheric nuclear testing by the United States, the voluntary moratorium on testing is now definitely over. We regret that it was not possible, during the long negotiations which at times appeared so close to success, to arrive at an agreement on an inspected test-ban.

"We wish to point out with all possible force that resumption of testing need not, and should not be permitted to distract our attention, and the attention of the other participants in the current 18-nation disarmament talks in Geneva, from the overriding problem of our time—that of achieving substantial disarmament under appropriate international control. We urge our government and the Soviet government to exhibit all possible restraint in keeping future tests to a minimum and to intensify their efforts to develop mutually acceptable disarmament procedures.

"As a result of the Zorin-McCloy agreements of last September, and of the new proposals which have been introduced in Geneva, we and the Soviet Union are now closer than ever before to fruitful exchange of views and negotiations on disarmament. It would be a major tragedy if the emotions aroused on all sides by the resumption of atmospheric tests would in any serious way disrupt these negotiations."

TESTS AND TEST BAN

On April 26, the U.S. opened its long-heralded series of atmospheric tests, thus ending months of diplomatic and "peace group" efforts to forestall the series. The Soviet Union is expected soon to fulfill its warning that it would match the U.S. round of tests. Nevertheless, formal negotiations on a test ban agreement are continuing at Geneva, as part of the slow-moving debate on Soviet and U.S. proposals for general disarmament.

Pacific Tests

Some 25-30 tests will be included in the series, "Operation Dominic," held over several months at Pacific test grounds, most at Britain's Christmas Island and some at U.S.-owned Johnston Island. Most will be fusion devices of varying ranges up to "low megaton"; the Administration has emphasized that the planned yield would be much less than half that of the Soviet series last fall, and would produce far less fallout. The Pentagon had sought additional "proof tests" of weapons, but only a few of these are planned, for missile warheads and naval underwater weapons. Most tests reportedly are to further weapons design, especially to improve yield to weight ratios of warheads. (NY Times, 4/28.)

The AEC is issuing brief announcements as each test is held; press reports in some cases have eked out more details. Through May 11, nine tests were announced, most air drops and most in the "intermediate" range (20,000 to one million tons TNT equivalent). The nine included a "highly successful" proof test of a Polaris missile and a practice firing of an anti-submarine rocket, "Asroc". (W. Post 5/8, 5/11.)

The AEC also announced plans to make three hydrogen explosions which seek military and scientific breakthroughs on the effects of the explosions and radiation at high altitudes. These tests will be held at Johnston Island in June or July. Two explosions will be nearly of megaton force, at 30 miles and roughly 500 miles altitude; the third, "of full megaton range," will be at 200 miles. A principal objective is to test the theory that bomb radiation would disrupt the ionosphere and temporarily black out high-frequency radio communications: "If an enemy could achieve that effect, he would severely disorganize the American warning system and impair the guidance of defensive missiles. . . ." (NY Times, 5/6, Sect. 4.) Scientific interest, and some controversy, centers on the two explosions at higher altitude (see

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F.A.S. COUNCIL MEETS IN WASHINGTON

As has been the custom for many years, the FAS Council timed its Spring session in Washington, D. C. to coincide with the meeting of the American Physical Society. The April 23 Council meeting was exceptional in that it drew a larger-than-usual number of observers. Thirty-four persons who were not members of the Council were present for all or part of the session and many of these observers contributed substantively to the proceedings. Those members of FAS who have never attended a Council Meeting would find the experience most rewarding, for it is here that FAS policy is established and the future course of the Federation is planned. The following account is a condensation of the 5 hour session.

New Officers, Executive Committee and Council

The governing body of FAS for the year 1962-63 consists of:
Chairman: Freeman J. Dyson, Institute for Advanced Study, Princeton, N.J.

Vice-Chairman: Bernard T. Feld, M.I.T., Cambridge, Mass.
Secretary: Robert S. Rochlin, General Electric Co., Schenectady, N.Y.

Treasurer: Jack Orloff, National Institutes of Health, Bethesda, Md.

The **Executive Committee**, in addition to those named above includes, John S. Toll (retiring Chairman), Univ. of Maryland, College Park

Gary Felsenfeld, (Editor, Newsletter), Nat. Inst. Of Health, Bethesda, Md.

L. C. Dunn, Columbia University, New York

W. A. Higinbotham, Brookhaven National Laboratory, Upton, N. Y.

Council Delegates-at-Large, were listed in the April Newsletter (which see).

Added to this list was the name of Frank S. Ham who was elected to fill a vacancy.

Report on Visit to NASA

On April 23, F. J. Dyson, W. A. Higinbotham, R. S. Rochlin, H. Shapley, and J. S. Toll visited on behalf of FAS, three top officials of the National Aeronautics and Space Agency, H. L. Dryden, A. Hyatt, and Homer Newell. The main purpose of the 40 minute meeting was to obtain suggestions from the NASA officials as to how FAS could be useful in supporting U.S. activities in outer space. It was apparent from the meeting that there is a widespread need for greater understanding of the importance of basic research in this area and that more Federal funds are needed to support university research programs. In addition, attention was called to the current controversies between NASA, the Department of State, and the Department of Defense regarding secrecy of space projects. The controversies are highlighted by the proposals in Congress to restrict the release of research results from NASA space programs (see H. Con. Res. 461).

The FAS Council voiced its concern about unnecessary secrecy in space programs by adopting the following Resolution:

"In order to obtain maximum benefits to mankind from space research, the FAS urges that secrecy restrictions in this field be strictly limited to data of primarily military application. The Federation therefore opposes current proposals to restrict the distribution of space data by the National Aeronautics and Space Administration."

Disarmament

Several aspects of FAS activity in the disarmament area were reported at some length. John Phelps submitted an 11-page Report from the Temporary FAS Arms Control and Disarmament Committee. The report contained an analysis of the role that FAS should play in this area and set down a variety of proposals as to how FAS could act effectively in hastening a reduction in the arms race. It was recommended, for example, that FAS place less emphasis upon public statements and apply itself to more concrete action such as helping the U.S. Arms Control and Disarmament Agency with its recruiting problems. FAS should try more systematically to influence key government officials, it should plan ways to energize local chapters into activities related to disarmament, and it should make careful, objective studies of important issues in the arms control and disarmament area. In regard to this latter proposal, it was pointed out that the FAS Fort Monmouth report represented such an objective study and that it proved to be a very useful document in the Fort Monmouth investigation.

Concrete action by FAS has been taken in the form of a letter to President Kennedy urging that the USACDA budget be

raised to \$100 million per year as soon as possible. In looking into the future, it was pointed out that if Russia accepts any of the U.S. disarmament proposals made on April 18 in Geneva, the FAS should be prepared to combat strong Senate opposition to confirming such agreements.

L. Wolfenstein of the Pittsburgh Chapter suggested that there should be more adequate coordination of disarmament study efforts throughout the FAS. The Council established a continuing committee for that purpose. Communications to the Committee should be addressed to:

Dr. John Phelps, Chairman

FAS Committee on Arms Control and Disarmament

9817 Montauk Ave.

Bethesda 14, Maryland

In order to encourage formulation of more extensive FAS policies on disarmament, R. S. Rochlin submitted seven drafts of "FAS Policies Related to Disarmament." The first of these was unanimously approved by the Council as FAS policy. It reads as follows:

"The Federation of American Scientists strongly supports the United States Government in its efforts to achieve rapid progress toward general and complete disarmament in a peaceful world. We welcome the joint statement of basic principles for disarmament agreed upon September 20, 1961, by the United States and Soviet governments, and the disarmament proposals recently made at Geneva by the United States, by the Soviet Union, and by other nations as important steps toward this goal. We believe that large balanced reductions in the military forces of the two major nuclear powers have become vital to the long-range security of both nations. It is therefore to the advantage of each nation to make the concessions required to achieve mutually advantageous disarmament agreements. The risks involved in disarmament can be minimized by carrying it out in stages, by instituting verification procedures appropriate to each stage, by disarming one geographical zone at a time, and in other ways. As President Kennedy stated last September, 'The risks inherent in disarmament pale in comparison to the risks inherent in an unlimited arms race.' As long as governments allow military considerations alone to dominate disarmament negotiations, they will achieve neither disarmament nor security."

Strategic Nuclear Policy

D. G. Brennan submitted a "Draft FAS Statement on Strategic Nuclear Policy" which, after modification by the Council, was approved as FAS policy and read as follows:

"The Federation of American Scientists is opposed to the threat or use of strategic nuclear forces in an all-out attack on an opponent except in response to initiation of such an attack by the opponent. While such a "no first strike" policy has not been clearly excluded by the United States, it has not been clearly accepted. We urge that it should be accepted, and that United States forces and military planning be made consistent with this policy."

Action on the Test Ban

At the time of the Council meeting, it was clear that the testing of nuclear weapons would be resumed by the United States within a matter of a few days. It was the consensus of the Council that any public statement reiterating FAS opposition to testing would not be heard and that it would be more effective for the FAS to prepare a statement to be issued at the time of the actual test resumption by the U.S. Such a statement would call attention to the need for progress toward disarmament. (A public statement was released. See elsewhere in this issue).

Leo Szilard Addresses Council

Leo Szilard told the Council about the progress for his movement "Scientists' Committee for a Liveable World" (See "Are We on the Road to War?" Bulletin of the Atomic Scientists, April 1962, pgs. 23-30). He has so far received from 2,000 persons pledges invest 2% of their income in campaign contributions for federal elections solely on the issue of war or peace. He hopes to get 150,000 pledges, representing about \$20,000,000 by 1964. He has formed a council consisting of 29 scientists which includes Chew, Coryell, Glazer, Edsall, Goldberger, Hogness, Feld, Muller, and Schiff. Szilard stated that it costs about \$10,000 to elect a man to the House of Representatives and from \$100,000 to \$250,000 to elect a Senator. Regarding questions about the non-democratic structure of the proposed organization, he quipped "Better Led Than Dead." He asked the FAS to help create a pool of knowledgeable scientists who are willing to devote one or two weeks to activities in Washington. See p. 3.

THE VOICE OF LEO SZILARD

The atomic scientist who pioneered in the world's first sustained nuclear reaction in 1942 is today devoting all his energy toward peace. In a series of speeches which he has given since November, 1961, at nine universities, Professor Leo Szilard has raised his voice urgently on the current status of world affairs in which, he says, "war seems to be inevitable, unless it is possible somehow to alter the pattern of behavior which America and Russia are exhibiting at present." To bring about such an alteration would be conceivably possible in this country through political action of a dedicated minority united in certain political objectives which it believed could lead to peace. It is the proposal for formation of such a politically active group and the setting forth of such objectives which form the basis of Dr. Szilard's crusade.

Professor Szilard envisions a Council for Abolishing War made up of a dozen or so distinguished scientists. This council, together with a panel of political advisors, would formulate long-run objectives not attainable in the immediate future and set up a research organization to pursue such objectives. The council would also define a set of immediate objectives which could be directly pursued through political action, and the council would set up a lobby in pursuit of such goals. These immediate political objectives of the council would be communicated to all seriously interested persons, who "would be regarded as members of the movement, if they are willing actively to support at least one of the several specific objectives proclaimed by the council." Such active participation by members would involve the contribution of two per cent of their income annually for use according to the directions of the lobby, in political contests. Members would also be regarded as being pledged to vote in federal elections "solely on the issue of war and peace," disregarding domestic issues. The operating expenses of the lobby and of the research organization would each year be the responsibility of a segment of the membership. Through such a movement, Dr. Szilard can visualize an organization "which would bring to Washington, from time to time, scholars and scientists who see current events in their historical perspective. These men would speak with the sweet voice of reason, and our lobby could see to it that they be heard by people inside the administration, and also by the key people in Congress."

Beyond the organization of the movement, however, is the critical need for agreement on the political objectives, both long-term and immediate, which must be pursued in order to reduce the danger of war and ultimately to abolish it. Dr. Szilard proposes the following as objectives to help meet this goal:

- 1) America should proclaim that she would resort to strategic bombing of cities or bases only if the United States or its allies are attacked first with bombs.
- 2) If this country were to use atomic bombs against troops in combat, such a use would be restricted to territory that is being defended.
- 3) American atomic weapons and the means for their delivery should remain under American military command rather than being placed under the control of NATO.
- 4) The President should "issue an executive order against fighting meaningless battles in the cold war" and the handling of the East-West Cultural Exchange Program should be improved.
- 5) The problems of disarmament would be more profitably pursued by private groups acting, however, with the blessing of the administration.
- 6) The problem of devising forms of democracy to suit the under-developed areas of the world would be more effectively studied by an influential private organization. Similarly, a private group should tackle the problem of expanding population.

At this time Professor Szilard has received nearly 2000 letters in response to his appeal. The next question for him is whether or not it would be possible to get 20,000 members of the movement pledging 2% of their income, for that is what would be needed for the movement to begin operation. In answer to this initial response, a committee of 29 scientists has been formed, as well as the Council of Fellows, which has been drawn from this group and which will ultimately set up the lobby, provided such a move is indicated by further response.

Dr. Szilard's speech, "Are We on the Road to War," appeared in the April issue of the *Bulletin of the Atomic Scientists*. Reprints may be secured from the *Bulletin of the Atomic Scientists*, 935 E. 60th Street, Chicago 37, Illinois. Single copies, 10 cents; 25 or more, seven cents each.

BRITISH SCIENTISTS CRITICAL OF PLANNED U.S. BOMB TESTS IN SPACE

Another international dispute, a la Project Westford, seems to be developing after the recent U.S. announcement of plans to explode several nuclear bombs out in space over Johnston Island in the Pacific sometime in June and July. As reported in the press (N.Y.T., 5/6) one device is to be triggered just above the ionosphere at an altitude of about 200 miles while another will possibly be exploded about 500 miles up.

Several prominent British scientists have reacted quite critically to the plan and have expressed concern over the possible consequences. Radio Astronomer Martin Ryle (Cambridge University) voiced the fear that the Van Allen belt could be "so badly bent that it may never be quite the same again in my lifetime," and stated that he regretted "the distortion of this belt before much more is known about it" . . . as well as . . . "the fact that it is being done without international consultation."

Critical charges also were made by Prof. Sir Bernard Lovell, Director of the Jodrell Bank Radio Astronomy Observatory, who said he would protest to the International Committee on Space Research (COSPAR). He stated that "All scientists who are searching for a basic understanding of the Solar System will be filled with dismay at the American proposal to perform a nuclear explosion in a region of space which is, at present, the subject of detailed study by astronomers and geophysicists." In a subsequent news article (Sunday Observer) headlined "American Roulette 500 Miles Up," Lovell claimed the belts could be disrupted for up to a decade, that "the proposals to make nuclear explosions in space arise from a small group of military scientists . . . who have persuaded their masters to make a series of huge gambles under the guise of defensive necessity" and that "one must view with dismay a potential interference with these processes before they are investigated by the delicate tools of the true scientist." He further added, however, that if American scientists have data indicating the effects of the blasts would be temporary . . . "they should produce the information before they make this sledge-hammer blow at the radiative environment of the earth."

Dr. Fred Hoyle, Cambridge astronomer, felt that "international scientific consultations should be held on projects having world implications" but further indicated that he felt "the belt will reconstitute itself quickly . . ."

On the other hand, Dr. James A. Van Allen referred to the planned explosions as a "magnificent experiment" that should "bring new knowledge concerning the region surrounding the earth."

The controversy thus seems to take on two aspects; the first, a technical one, involves an assessment of the possible effects of the blasts on the Van Allen belt, and the second, more political in nature, involves the right of one nation to tamper with worldwide natural phenomena without international consultation.

Shortly before this dispute broke open however a major step was taken towards international cooperation in space exploration with the successful launching and orbiting on April 26, 1962 of a joint US-British research satellite. Launched by an American rocket the satellite contained six British experiments designed to gather information on the ionosphere, on solar radiation and on cosmic radiation. It is to be followed this year and next by two more joint efforts, another British-U.S. satellite and also a Canadian-U.S. venture. (N.Y. Times 5/6, Wash. Post 5/7).

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Chairman.....John S. Toll

The FAS Newsletter is prepared in Washington by FAS members. The staff for this issue were: Editor—Gary Felsenfeld; Writers: L. Gellert, F. K. Millar, N. Seeman, E. Shelton.

The FAS, founded in 1946, is a national organization of scientists and engineers concerned with the impact of science on national and world affairs.

REVISED EDITION OF "THE EFFECTS OF NUCLEAR WEAPONS" PUBLISHED

Publication of a revised edition of "The Effects of Nuclear Weapons" was announced today by Dr. Glenn T. Seaborg, Chairman of the U.S. Atomic Energy Commission, and Robert S. McNamara, Secretary of Defense.

Since its issuance in 1957, the book has been recognized as a comprehensive and authoritative source of technical and semi-technical information on nuclear weapons effects.

The updated and enlarged 1962 edition—730 pages compared with 579 in the previous edition—is on sale by the Superintendent of Documents, U.S. Government Printing Office, for \$3 a copy. Published with the book and available for an additional \$1 is a pocket-sized circular slide rule which presents data from the book on the initial effects of air and surface bursts.

Published by the Atomic Energy Commission, the book was prepared by the Defense Atomic Support Agency of the Department of Defense in cooperation with the AEC and other government agencies. Dr. Samuel Glasstone, author of several widely-known books on atomic energy, compiled and edited the text, as he did for the earlier edition.

Chairman Seaborg and Secretary McNamara state in the book's foreword:

"There is a need for widespread public understanding of the best information available on the effects of nuclear weapons. The purpose of this book is to present as accurately as possible, within the limits of national security, a comprehensive summary of this information."

CIVIL DEFENSE

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measure of rationality to the debate, and—perhaps most important—polls by Congressmen of their constituents on the civil defense issue were unable in any instance to secure a majority vote in favor of civil defense. (It should be noted that the Congressional poll questions on CD were in most instances loaded—either for or against—or confusing. Despite that fact, few if any of the polls produced a majority response favorable to a civil defense program.)

The FAS briefings were held just prior to the Congressional Easter recess, when Congress was generally marking time, and prior also to the currently-in-progress authorization and appropriations hearings on the Administration's \$700,000,000 program.

All of the FAS briefers—in responding to questions about their personal views—agreed that a program even of the size proposed by the Administration would not be likely to become a component of the arms race unless multiplied several fold. All, however, expressed concern lest the Government ignore or treat as irrelevant the possible interaction on strategic policy of any CD program. Budget-wise Congressional personnel saw little danger that a program—started on a modest

TESTS AND TEST BAN

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"British Scientists Critical of U.S. Bomb Tests in Space", this issue).

Geneva Talks

At the Geneva Disarmament Conference, the U.S. tests were deplored by neutral States and condemned by the Soviet Union, but discussion of a test ban treaty plodded on, in the three-Power subcommittee and the full 17-State Conference. (France continued to boycott the Conference, and on May 1 held an underground test in the Sahara, confirmed by the French after reports that the U.S. had detected it. The Soviet Union again warned that France must be a party to any test ban treaty. (NY Times, 5/8 & 5/10.)

Since mid-April, debate has concentrated on "suggestions" drafted by the eight neutral States, as an effort to prod the three nuclear Powers to make a new start on a treaty. This memorandum envisaged a detection system, based on national networks and "if necessary, with new posts established by agreement." An international commission of scientists is suggested, to collect all data and report "suspicious events." Several suggestions deal with the obligation of States to cooperate with the commission to clarify such events, including general reference to "verification in loco." Ultimately, the commission would report its "assessment" of the event; other States would determine their action in response. (NY Times, 4/17.)

The U.S. and U.K., while willing to discuss the proposals, were critical of a number of points and especially stressed the necessity of international inspection. The Soviet Union has interpreted the memorandum as allowing inspection only by invitation of the State concerned, and has declared it would accept such a system as a "concession." It also repeated its insistence on a wholly national detection system. The neutrals themselves have refused to interpret the memorandum, arguing that the nuclear Powers should develop the details. (NY Times, 5/4, 5/8.)

Meanwhile, there was some speculation that prospects for a ban agreement might revive after the U.S. and Soviet Union completed another round of tests. It was also reported that the U.S. Administration was reviewing test policy and "hopes, either by agreement or by unilateral action, to bring an end to atmospheric testing by the two sides." The report indicated that the U.S. would plan to continue underground tests pending agreement on international controls in this area. (NY Times, 5/1.)

basis—would become larger without substantial Administration pressure and public support. Few from Congress believed the Administration would get the full \$700,000,000 now under consideration.

Congressional reaction to the FAS effort has been friendly and appreciative.

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