F. A. S. *NEWSLETTER*

Volume 15, No. 3

March 1962

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

NUCLEAR TESTING: AN FAS EXECUTIVE COMMITTEE STATEMENT

The Federation of American Scientists appreciates President Kennedy's thoughtful and factual explanation of the U.S. decision to resume in April the testing of nuclear weapons in the atmosphere. The President has clearly expressed his reluctance to resume testing and his intention to limit this series to a minimum.

The Council of the Federation, in a statement released last January 31, opposed the resumption of atmospheric testing on the basis of publicly available information but stressed that, if the decision to test had to be made, the President should give "an explanation of both the technical and political reasons for such a decision to the citizens of this country and to the nations of the world."

The President, in his major address of March 2, correctly emphasizes that security is to be found ultimately only in mutual disarmament with effective inspection and controls. The FAS shares the President's sense of urgency in efforts to end the arms race. The Federation strongly supports the President's willingness to consider any reasonable measure that protects the legitimate security interests of both sides while moving towards a system of international order.

We share the President's hope that the disarmament negotiations beginning this month in Geneva may lead to an agreement which could make unnecessary future nuclear weapons tests and would be a first step toward security through disarmament.

COMMUNICATIONS SATELLITES: LEGISLATIVE CONTROVERSY

A major controversy has developed in Congress this past month concerning official policy in regard to the ownership and operation of satellite based international communications systems. Three different proposals have been placed before Congress and are now receiving legislative scrutiny in hearings before the Senate Aeronautical and Space Sciences Committee. Senator Kerr (D., Oklahoma), Chairman of the committee, is sponsoring a bill calling for a privately owned, profit making corporation with ownership restricted to companies in the communications industry. A second proposal, introduced by Senator Kefauver and co-sponsored by a group of liberal Democrats, provides for government ownership and operation via a Communication Satellite Authority, financed initially through the issuance of bonds. The third proposal, a bill sponsored by the administration, calls for private ownership but with a broad base of public and corporate co-ownership; i.e., the establishment of a corporation financed through the sale of stock to communication companies and other industries and also to the general public. Provisions are included, however, to prevent domination by any one company and also to provide for considerable governmental supervisory control over its operations.

The Administration's bill, introduced with a special message from the President, was originally felt to be an effective compromise between the extremes of private and governmental ownership and would therefore proceed through Congress without much of a storm. This apparently is not to be the case. The bill has received little or no real backing from administration officials. In addition the hearings have strangely departed from usual procedures: instead of sponsors coming before the committee to explain the bill, the first witnesses have been mainly from industry and have taken sharp issue with it.

The first major point of controversy appears to be the problem of ownership and corporate structure. The bill will allow public investment in an authorization of 1,000,000 shares of Class A Stock priced at $1,000 per share. This stock would pay individuals and have voting rights. Limitations

(Continued on page 4)

DISARMAMENT

As the March 14 Geneva Conference on disarmament draws near, its task of considering disarmament has been almost eclipsed by diplomatic moves concerning a test ban and a new "summit" meeting.

During February, Premier Khrushchev campaigned to have the eighteen heads of Government meet at Geneva to give "a powerful and correct start" to the negotiation of a general disarmament treaty. (text of letter to Kennedy, NY Times 2/13)

The five Western States and a majority of the "neutrals" declined, and the U.S. and U.K. urged Soviet acceptance of their earlier proposal that Foreign Ministers of the three, and presumably of other States, attend the opening meetings.

In his reply to Khrushchev, President Kennedy declared that substantial progress in the disarmament talks would produce a favorable situation for a "summit" meeting.

Prime Minister Macmillan's reply, and other reports, indicated that Britain was more inclined to consider such a meeting. (NY Times, 2/15, 2/24, 2/27) French differences with its two allies on disarmament were underlined by DeGaulle's answer, which suggested an entirely new course: the four nuclear powers alone should discuss measures for destroying all nuclear weapons and controlling means of delivery. Khrushchev politely rejected this; France then announced it would not participate in the eighteen-State talks. (NY Times, 2/20, 3/6)

On March 4, Khrushchev agreed that the Geneva Conference should open on the Foreign Ministers' level, and that Gromyko would meet with Secretary of State Rusk and Britain's Earl of Home for pre-Conference exchanges. This

(Continued on page 2)

SOME STRONG REACTIONS AGAINST THE SHELTER PROGRAM

The Federal Civil Defense Program as epitomized by the Shelter Program was severely criticized by three separate groups during the month of February. In a pamphlet entitled "A National Shelter Program: Its Feasibility and its Cost," a group of eight specialists from Columbia University, Hofstra College and Amherst College contended that a national shelter program was almost useless. They discussed such things as tax cost of shelters, water and air supply, radiation and genetic effects and industrial potential in a post-attack era. The pamphlet contained a report by Professor Paschkiss, Director of Columbia's Laboratory of Mass and Heat Flow, that discussed thermal conditions in shelters. Prof. Paschkiss noted that fire storms lasting from several hours to several weeks would render shelters useless because of lack of air. Other contributors were: Salvadori and Drew (Columbia), on air and water supply; Ullmann (Hofstra), on the cost of a national program; Yost (Amherst), on radiation effects; Dobzhansky (Columbia), on genetic effects; and Melman (Columbia), on industrial disorganization. NYT 2/19.

A second adverse note came from the Union of American Hebrew Congregations whose executive committee sponsored a symposium entitled "Morality and Fallout Shelters." Speaking at the meeting were Rabbi Eisendrath, Pres. of the Union, Rep. A. J. Multer, Brooklyn Democrat; Philip Wylie, Civil Defense Consultant under Truman and Eisenhower; and R. D. Morgan, Dir. of Test and Evaluation of the Civil Defense Program in the Southeast U. S. Mr. Morgan expressed the opinion that our times gave us no choice as to whether or not to have a shelter program but the choice was only when and how. Rep. Multer emphasized that disarmament was the best civil defense. Rabbi Eisendrath voiced the opinion that shelters would be obsolete in the face of the

(Continued on page 4)

BIRTH CONTROL: RECENT APPROACHES

In previous issues of the Newsletter, trends of population growth and availability of natural resources in relation to this growth have been reviewed. With an increasing number of nations interested in population control, it is appropriate to provide FAS members with a background related to methods for preventing conception.

The search for simpler and more effective methods for birth control stems from the expense, complexity, and unreliability of present approaches; and from the reasonable hope that conception, which depends on such a long chain of events, might well be interrupted at one of the many steps leading to it. Conception occurs only if the following events proceed normally: (1) spermatogenesis, (2) normal ovarian function leading to release of an ovum, (3) fertilization of ovum by sperm, and (4) implantation of the fertilized ovum into a properly prepared uterine site.

Spermatogenesis. The normal production of sperm by the testis is a complex process which is under hormonal control, being stimulated by secretion of gonadotrophins by the pituitary gland. The administration of estrogens or androgens to the male inhibits the release of pituitary gonadotrophins and thus prevents sperm production by the testis. This approach is not satisfactory because of the great hormonal disturbances caused by the administered agents. Sperm production is associated with a number of cell divisions by the parent testicular cells, and one of these steps—meiotic division—can be inhibited by certain drugs (nitrofurans) in dosages which appear to have no deleterious action other tissue cells. This method is receiving experimental scrutiny. Sperm are still not "mature" when they leave their site of production, and are not capable of fertilizing ova until after a 10 day trip through the long coils of the epididymis. This is another locus for a possible future attack on the viability of sperm cells.

(2) *Fertilization.* There are still many steps interposed between the departure of the mature sperm from the male and fertilization of the ovum. From its site of deposition the sperm must be transported into the uterus, and then throughout the length of this organ into the upper end of the narrow Fallopian tube where the meeting of sperm and ovum is believed to occur generally. This transport is thought to be facilitated by contraction of uterine and tubal musculature, and attempts have been made in experimental animals to interfere with this function. There are also steps involved in the production of sperm motility. The seminal fluid in which the sperm is transported from the male is highly viscous, and it is only after deposition in the female reproductive tract that this fluid becomes less viscous and there is an associated development of active sperm motility. Other changes must also occur in the sperm at this time since they do not acquire the capacity to fertilize the ovum until about 4-6 hours after their arrival. Finally there is the problem of penetration into the ovum, which generally is partially covered with a connective tissue substance. It has been claimed that penetration by the sperm can occur only after the connective tissue substance is destroyed by the action of the enzyme hyaluronidase, and that this step can be blocked by oral administration of hyaluronidase inhibitors. However this result has not been confirmed.

(3) *Ovarian function.* The ovary is the locus of a set of cyclic changes which lead to the maturation and release of an ovum each month and an associated alteration in the uterus for possible reception of a fertilized ovum. The cycle begins with the release of gonadotrophin from the pituitary, which stimulates an ovarian follicle with its ova to "mature." This maturation results not only in the release of an ovum but also in the elaboration by the follicle of two hormones, first estrogen and then progesterone, which cause the proliferative and vascular changes in the inner lining (the endometrium) of the uterus which are needed for the implantation of a fertilized ovum. Estrogen and progesterone have other actions, including the inhibition of gonadotrophin secretion by the pituitary. This is a partial basis for the feedback mechanism that makes for the cyclic nature of the ovarian changes. Pituitary gonadotrophin starts the cycle, gonadotrophin secretion is then stopped by the resulting ovarian hormones, and it begins again to initiate another cycle only after the ovarian hormone source (the mature follicle or corpus luteum) spontaneously degenerates. It is possible to interrupt this cycle, either by inhibiting gonadotrophin secretion or by interfering with the effect of gonadotrophin on the ovary. This forms the basis for a method of contraception that has progressed to the point of successful clinical trial, and is discussed further at the end of this article.

(4) *The Uterine Site.* As indicated above, both estrogen and progesterone are needed for the elaboration of a uterine endometrium that is suitable for the implantation and development of a fertilized ovum. The administration of a product of progesterone metabolism (pregnanediol), which is structurally related to progesterone, inhibits the normal response of the endometrium to progesterone. By such an approach it is possible to prevent successful implantation of the embryo into the uterine site. There have also been experiments designed to cause failure of embryonic development during the first week or two, but an obvious danger in the method is the production of fatal anomaly. In fact, perhaps the whole approach at the level of implantation of the ovum is less likely to be accepted, since it provides a fresh opportunity for debate on moral grounds.

Ovulation Control with Enovid. It has been well known that development of the ovarian follicle with subsequent discharge of a mature ovum (ovulation) can be prevented by the administration of estrogen, progesterone or an androgen like testosterone. (All three are thought to act by inhibiting pituitary secretion of gonadotrophin). However there are clinical objections to each of these agents. Estrogens cause undesirable skin and breast changes, as well as long menstrual periods. Androgens have masculinizing effects. Progesterone must be administered in high dosage to be effective and also causes menstrual cycle disturbances. However the screening of a large number of related synthetic steroids has led to the discovery of a few compounds that are very

(Continued on page 4)

DISARMAMENT

(Continued from page 1)

letter to Kennedy made it clear, however, that the Soviet Union would continue to press for a summit meeting. (NY Times, 3/7)

Test Ban

President Kennedy's March 2 speech announcing U.S. plans to resume atmospheric testing at the end of April also outlined U.S. policy towards a test ban: "We shall, in association with the United Kingdom, present once again our proposals for a separate comprehensive treaty—with appropriate arrangements for detection and verification—to halt permanently the testing of all nuclear weapons. . . . New modifications will also be offered in the light of new experience."

The U.S. would pursue negotiations on this at Geneva (presumably in private three-power talks). If an agreement was reached before the end of April, Kennedy declared, the U.S. tests would be cancelled and he would favor a "summit" meeting to sign the treaty. Otherwise, the U.S. would continue to seek "some new avenue of agreement" but would go ahead with its tests.

Khrushchev's March 4 letter described this proposal as "atomic blackmail," again rejected the control system as an effort to set up an espionage network in the Soviet Union, and warned that if the U.S. or its allies tested, the Soviet Union would test "new types of its nuclear weapons."

Kennedy's mention of "modifications" obviously referred to the Administration's concern that a test ban agreement give some assurances against secret preparations for testing, as well as to possible changes in the earlier U.S.-U.K. proposals for a control and inspection system. Experts of the two Governments have been working on proposals to be offered at Geneva; conflicting press reports that greater or lesser controls might be necessary indicated that there have been disagreements within the U.S. Government and with the British.

On March 5, Macmillan told Parliament that "remarkable advances in scientific instruments" might ease the verification problem. (A later report said this referred especially to possibilities of distinguishing earthquakes by the depths at which they occur. W.Post 3/10) In general, the British and some American officials have argued that the number of control posts and inspections is an area for possible compromises with the Soviet position. (NY Times 3/4, 3/6)

According to other reports, U.S. experts declared that no immediate "advances" were in sight and stressed that the recent U.S. underground tests had confirmed the difficulties of detection. (NY Times 3/5, W.Post 3/8, 3/9) In a March 4 television interview, Disarmament Agency head William Foster denied reports that controls could be loosened and declared that new methods of inspection might be needed.

BOOK REVIEW

THE LEGACY OF HIROSHIMA. By Edward Teller with Allen Brown. Doubleday. 315 pp. $4.95.

•

By Michael Amrine. Mr. Amrine is a Washington science writer, the author of books and numerous articles on the political and social implications of atomic energy. He has been with the F.A.S. from its beginnings.

•

It is surprising to note that none of the scientific leaders of the atomic enterprise has given us a full-scale book of reminiscence, nor a full-scale ideological book, to urge upon us a particular view of science or the world. As many have observed and the existence of the Federation itself is evidence, the physicists have not been silent, but their meditations and conclusions or outcries have not yet given us a real book.

(Let us give an early clue: this reviewer does not believe that Edward Teller has really produced a book, either.)

Arthur Holly Compton, perhaps, came closest to a real book with his "Atomic Quest." It was something of a personal history, and also had a good deal of informal examination of ethical questions involved in atomic bombing. Leo Szilard has perhaps said most to the most people, but has a way of blending science fiction, political fantasy, and Szilardian logic in such a way that many, like this reviewer, are truly at a loss. What are his main messages? This reviewer has never been sure about dolphins or Szilards; when are they at work and when at play? Oppenheimer is no doubt the most frequently quoted, for many beautifully expressed thoughts about "a sense of sin." But Oppenheimer remains detached. He became the most observed and recorded man since Doctor Johnson, but of his own observations we know surprisingly little. He writes with an 18th Century quill, slowly, gracefully, and with reticence.

Meanwhile, the memoirs of General Groves will be along any day, Admiral Strauss is writing his, and now our legacy of literature includes a second book from Teller. (His first, somewhat similar in covering many things, was **Our Nuclear Future**, written with Albert Latter.)

For provocation and specific advice on science, education, arms and arms control, and a number of other topics which have attracted the courious and roving eye of Dr. Teller, one can turn to this unusual book. But it is not a completely organized communication, not one to put on the shelf with the many others now being read, ranging from Herman Kahn and Seymour Melman to the more individualistic, such as those of Thomas E. Murray or Erich Fromm.

Leaving for the moment how he says it, perhaps it would be fairest to the F.A.S. reader and to the authors, to quote passages. Here are some selected because they seem to express Dr. Teller's main points:

"We have been frightened by the display of our own power at Hiroshima, and we have lost all sense of proportion . . . we think of an all-out war as a cataclysm that will wipe out mankind . . . we think of an abolition of nuclear weapons as a means to restore stability and to avoid a future war. These two patterns of ideas are driving us toward a tragedy which, when it comes, will be of our own making."

"We cannot be strong unless we are fully prepared to exploit the biggest modern power . . . nuclear weapons can be used with moderation on all scales of serious conflict. Nuclear weapons do not mean the end of the world, but they do mean the end of non-nuclear power."

"In a dangerous situation, we have chosen the most dangerous of courses. We have chosen not to face our danger."

"We now know that our self-imposed moratorium on nuclear experiments during the Geneva negotiations was idiotic and dangerous, that we allowed our hopes to arrest our weapons development at the 1958 level while Russian progress was accelerating, that the Soviet Union never did stop nuclear tests but was conducting experiments all along."

And here are some lines selected as interesting for various reasons:

". . . I did not circulate Szilard's petition. Today I regret that I did not."

". . . I am convinced that the tragic surprise bombing was not necessary. We could have exploded the bomb at a very high altitude over Tokyo in the evening."

To make this reviewer's personal bias clear, it should be stated that we are pleased to see the vital interests of our country rest in hands which differ from Teller's as to what is the best judgment and the true wisdom about these issues of war and peace, and the survival of men on earth. To many there is something comic about Teller starting his book with the statements about America having lost a sense of proportion. In this country, however, we should always be willing to listen to dissent. And it is reported that the President recently listened to Dr. Teller expound his past and present dissents. Teller surely should be heard.

The right to speak and the duty to listen may not always coincide in Teller's world, and his book indicates he has had constant trouble getting people to listen to him. He sets forth, apparently seriously, that AEC Chairman Gordon Dean at one point was more impressed with Teller's untidiness of dress than with his ideas. Teller was not satisfied with General Doolittle's reactions while listeining—but later it appeared that Doolittle got the message. He was not satisfied with Fermi's manner, either. In fact, there are no heroes in this book, although there is a staggering use of the first personal pronoun. Teller is not crystal clear on any of the topical or historical incidents he relates, for he does not tell them with a beginning, a middle and an end. However, it appears that he had great differences not only with Oppenheimer but with Oppenheimer's successor at Los Alamos, and later on with numerous others to whom he would expound his technical, military, and political beliefs. We judge that he got along well with Admiral Strauss, but he says practically nothing of that relationship, and his main comment on Strauss' departure from public life is a humorless remark that thus we lost a great advocate of the metric system.

The above references indicate there is some discussion of the controversy over the H-bomb, and there is, but that is not a large part of a book which discusses reactor safety, basic physics, fuel and population, etc., has a few references to Teller's childhood, gives some vignettes of life at Los Alamos, reviews "the fallout scare," and dwells on military strategy and tactics perhaps longer than on any other subject.

The book has only a few lines to describe the day when Szilard and Teller and Wigner called upon Einstein to write the famous letter, and it has no line at all to describe the day in the Oppenheimer hearings when Teller testified against his former director. From the book we learn that in the beginning Oppenheimer personally intervened to help Teller get his clearance, vouching for Teller when the early primitive security rulings held Teller out of the project because of his relatives abroad. We get other glimpses, usually not very fully recounted, of Oppenheimer and Teller together, and together but disagreeing.

The failure to comment on his startling comments to the investigating board, those explaining that he, Teller, would feel safer if Oppenheimer's clearance were revoked, is the more curious in connection with another fact he does not mention. In 1962 he is still expounding thoughts and words of that very day. Some of his thoughts in this book are taken word for word and line for line from his testimony in that secret hearing which became public only when the case blew wide open. The repetition of his statements of 1954 surely indicates that in some respects he still thinks this was the best of Teller. But is there any word for the admirers or the critics of Dr. Teller who feel his testimony was the most eloquent against Oppenheimer? On this most particular point, as to whether he still feels the world is safer with Oppenheimer uncleared, Dr. Teller has no word for the record or for history.

But silence does speak. And where Dr. Teller and that day are concerned, silence will be heard.

FAS NEWSLETTER

Published monthly except during July and August by the Federation of American Scientists, 1700 K Street, Northwest, Washington 6, D. C. Subscription price: $2.00 per year.

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, E. Leonard, 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.

COMMUNICATIONS SATELLITES
(Continued from page 1)

specify that no investor could own more than 15 per cent of the total authorized stock nor 25 per cent of the total outstanding stock. An individual stockholder could vote for only two of the nine to thirteen members proposed for the board of directors. A Class B stock would also be authorized, purchasable only by companies specified as communication carriers. It would neither pay dividends nor carry any voting rights but could permit the companies to include their investment in the rate base used to determine charges on their services, thus assuring a return on their investment.

The communication companies do not want direct public ownership. They consider the communication satellite system simply as an extension of their present technology and want ownership restricted specifically to the communication industry. Surprisingly, this view was seemingly endorsed by Newton M. Minow, chairman of the FCC, who agreed that restricted ownership would result in "the most efficient and economic use of satellite technology." (N.Y.T. 3/4/62)

A second area of conflict arises in the problem of government supervision. A global system must involve economic and political negotiations with foreign countries and the bill provides for State Department supervision and for Presidential policy review of the operations of the corporation. In addition, the FCC would establish the rates charged.

Industry feels that such controls are "unnecessary and undesirable" and would "deprive the management of rights which are needed to manage the enterprise effectively."

A third conflicting issue involves ground station ownership. The administration feels that the ground stations are technically integral to the system and also that ownership by the Corporation is necessary to prevent any one company from acquiring a controlling position in using the system.

The members of the Communications industry, in particular A.T.&T., feel that they can provide better service if they own and operate the ground stations. This point is rather crucial, since most of the financial return would be realized at the message handling points.

There seems to be strong behind-the-scenes lobbying pressure against the administration sponsored bill and unless someone actively starts to "run with the ball" there does not appear to be much likelihood of its successful passage. (N.Y.T. 2/8/62, 3/4/62) (Science 2/23/62.)

BIRTH CONTROL
(Continued from page 2)

effective in inhibiting ovulation. The preparation undergoing extensive field trial is called Enovid, and is a mixture of an anti-ovulatory progesterone-like steroid and a small amount of estrogen. The drug is administered by mouth, in 5-10 mg dosage, from the fifth day of menstrual bleeding through the 24th day of the menstrual cycle. The drug is then discontinued, menstrual bleeding follows, and the next cycle of drug is begun on the fifth day of bleeding. The drug inhibits ovulation, but due to its progestational effect and the added estrogen the proliferative and secretory responses of the uterine endometrium develop as they would in a normal cycle; endometrial sloughing and bleeding follow discontinuation of the drug just as they would in a normal cycle when the ovarian source of progesterone (the corpus luteum) spontaneously degenerates.

Clinical trials with this preparation are being carried out in Puerto Rico, Haiti, the U. S. and England. The efficacy of the drug is high. A gross statistic, for example, in the West Indies studies is that a pretreatment conception rate of about 60 pregnancies per 100 woman-years was followed by an average rate of 1.7 during therapy. (This was based on an experience of 2,000 woman years, i.e. the number of women studied multiplied by the number of years each one was on therapy). There are many other factors to be considered in evaluating the acceptability of a contraceptive agent, such as availability and cost, side effects, short or long-term toxicity etc. Enovid causes side effects in many subjects, notably headache, abdominal aching, nauseau or dizziness. Some of these symptoms are pregnancy-like and frequently disappear after the first cycle of treatment, but have been annoying enough in some series to cause about 20% of subjects to leave the study. As to serious toxicity, there is none evident after a relatively short 2-3 years of study. No changes have been seen in ovaries, there is no increase in incidence of abortion or fetal abnormalities post-therapy, nor is there any indication that the drug increases incidence of neoplasia.

In summary, there are a number of possible approaches to interrupting the chain of events leading to conception. Many of these are under current laboratory investigation; and one of them, which may be safe and appears to be highly efficient, is undergoing a series of encouraging clinical trials.

EDWARD LEONARD, M.D.

REACTIONS AGAINST SHELTER PROGRAM
(Continued from page 1)

potential in weapon development. Mr. Wylie said that the American people were "unprepared by the government to face the truth." He said "the truth is that fall-out shelters will not work because if there is a nuclear war, 999 people in 1000 will be totally immobilized by panic if they are not already dead or dying." NYT 2/26.

The third unfavorable statement came from the Peace Research Institute in a report entitled "The Shelter Centered Society." It was based upon conclusions reached at a recent conference sponsored by the Institute, a non-profit Washington-based organization. The participants in the conference concluded that a shelter program would be subject to heavy pressures for continued expansion that would be difficult to limit or reverse, and that an ever-expanding civil defense program would lead to the reduction of individual liberties and the emergence of a garrison state. They felt also that the program would provide a false sense of national security that might hamper disarmament efforts. WPost 2/18.

FAS NEWSLETTER

Federation of American Scientists
1700 K Street, N.W.
Washington 6, D. C.

Vol. 15, No. 3 March 1962

Second Class Postage
Paid at
Washington, D. C.

Return Postage
Guaranteed

EMERY I SIMS
1644 TAYLOR STREET
SAN FRANCISCO 11-
M-2 -CALIF-

FAS COUNCIL MEETING

The FAS Council will meet in Washington, D.C., on Monday evening, April 23, 1962, at 7:00 P.M., at the Sheraton-Park Hotel.

ARMS CONTROL AGENCY APPLICATIONS

Below are the names of the Senators and Congressmen who will pass on the fiscal 1963 appropriations for the Arms Control and Disarmament Agency. Write and urge them **not** to cut the ACDA request.

Democrats	Republicans
House of Representatives	
Rooney (N.Y.) Chairman	Bow (Ohio)
Sikes (Fla.)	Lipscomb (Calif.)
Magnuson (Wash.)	Cederberg (Mich.)
Marshall (Minn.)	
Senate	
McClellan (Ark.) Chairman	Saltonstall (Mass.)
Hayden (Ariz.) ex-officio	Mundt (S.D.)
Ellender (La.)	Smith (Me.)
Magnuson (Wash.)	Dworshak (Idaho)
Holland (Fla.)	Hruska (Neb.)
Pastore (RiI.)	Cotton (N.H.)
Kefauver (Tenn.)	
Bible (Nev.)	
Stennis (Miss.)	
McGee (Wyo.)	

FREEMAN J. DYSON, Princeton, N.J.—Theoretical physicist, Inst. for Advanced Study, since '53; AB, Cambridge, Eng., '45; Res. Fellow, Cambridge, '46-49, Birmingham, '49, '51; Prof. of Physics, Cornell, '51-'53; Consultant—AEC, NASA; FAS member since '53; Delegate-at-Large since '60.

HERBERT J. C. KOUTS, Brookhaven, N.Y.—Experimental Reactor Physics Group Leader, Brookhaven National Laboratory, since '50. Ph.D. (physics), Princeton, '52. Assoc. Physicist, Brookhaven Nat. Lab., '50-'51; asst. group leader, shielding group, '51-'52. FAS: Member, Princeton Branch, '47-'50; member, Brookhaven Chapter since '50; Chairman, Atoms for Peace Committee, since '56.

FOR VICE-CHAIRMAN

BERNARD T. FELD, Cambridge, Mass.—Prof. of Physics, M.I.T.; Manhattan Project, '41-'45, at Columbia, Chicago, and Los Alamos; FAS member since '46; several times member of FAS Council; participant in a number of COSWA (Pugwash) conferences; participant in various activities and studies organized by the American Academy of Arts and Sciences on Arms Limitation.

ROBERT S. ROCHLIN, Schenectady, N.Y.—Nuclear physicist, General Electric Co. since '51. Naval Research Lab., '44-'45; Ph.D. (physics) Cornell, '52; FAS member since '46; Secretary Cornell chapter, '46; Secretary Mohawk Chapter, '54; President, '55; Execom, '54-'56 and '61-'62. Served on FAS Council and on two FAS Committees. Presently Chairman of a Disarmament Seminar in Schenectady.

JOHN T. EDSALL, Cambridge, Mass.—Prof. of Biological Chem., Harvard, since '51; Editor-in-Chief, J. Biol. Chem. since '58; Chrmn., Committee on Public Responsibility of Scientists, Amer. Acad. Arts & Sciences; Attended 6th Pugwash, Moscow, Dec. '60; Member FAS since '52.

FRANK S. HAM, Schenectady, N.Y.—Physicist, General Electric Co., Research Lab. since '55; FAS member since '57; MASE Chapter Delegate to Council, '58-'59; Member Execom '58-'59; President MASE '59-'60; Member MASE Execom '58-'61; Editor, MASE Newsletter, '57 - to date.

H. B. HUNTINGTON, Troy, N.Y.—Princeton U., AB, '32; Ph.D. '41; M.I.T. Radiation Lab., '42-'46; Rensselaer Polytech. Inst. '46; currently Chrmn. Physics Dept.; solid state physics; FAS member and MASE member since '46; frequent member of MASE Execom.

HERMAN KAHN, White Plains, N.Y.—Physicist, Rand Corp. '48-'61; Since '61 Founder - Director of Hudson Institute; Author "On Thermonuclear War"; FAS member since '61.

MARVIN KALKSTEIN, Sudbury, Mass.—Nuclear chemist; Air Force Cambridge Research Laboratories; Member FAS since '51; helped found present Berkeley Chapter (about '54); member, FAS American Academy of Arts and Science Committee on Technical Problems of Arms Limitation; member, FAS - COSWA Committee; participant, American Acad-