

F. A. S. NEWSLETTER

Published by the
FEDERATION OF AMERICAN SCIENTISTS
1805 H Street, N.W., Washington 6, D.C.
Charles C. Price, Chairman

No. 56 - 8

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

October 22, 1956

H-BOMB TEST BAN BECOMES MAJOR POLITICAL ISSUE

Adlai Stevenson on October 15 made the question of H-bomb testing a major political issue in the current presidential campaign. In so doing he has provided the maximum opportunity since 1946 to disseminate atomic and nuclear facts of life to the American people. Whatever may be the political potency of the bomb for the Stevenson candidacy, a public debate is in progress on vital issues too long handled in the sterilizing atmosphere of security and official caution.

STEVENSON STAND Mr. Stevenson placed the question of H-bomb testing at the very top of his list of "things to do" if he is elected President. Emphasizing his opposition to unilateral disarmament and his recognition of the international disarmament deadlock, he nonetheless asserted: "We must come forward with proposals which will bear witness to our desire to move toward and not away from disarmament."

In support of his proposal that the US take the lead in halting "further tests of large-size nuclear weapons," Stevenson argued that: (1) H-bomb power is already sufficient to destroy the largest conceivable targets; (2) H-bomb tests are detectable reliably by monitoring systems; (3) the tests are potentially dangerous to human life through dispersal in the upper atmosphere and subsequent fallout of radio-strontium; (4) increasing numbers of nations soon may be conducting tests with increasing frequency. For these reasons, he urged that "a world policy of stopping these tests be established at the very first possible moment." Stevenson made clear that he was not proposing to halt research or in any other way to alter the current atomic and nuclear military program. He asserted that, in event of violation of a test ban agreement by other nations, the US "could be in a position to resume tests... within not more than 8 weeks."

EISENHOWER STAND On Oct. 6, the President defended "the American government's policy with respect to the testing of large-scale nuclear weapons," while regretting that it has "been made an issue in the current political campaign." He noted that the subject is particularly difficult to discuss before a world audience, but is one on which the American people must be united, "free of confusion or partisan differences."

The President asserted that: (1) "Atomic weapons" testing is indispensable to defense, particularly since these weapons represent a counterbalance to preponderant Communist manpower; (2) the US is entirely willing and anxious to restrict nuclear weapons testing within a satisfactory international disarmament agreement; (3) weapons testing policy is the province of the AEC, Joint Chiefs of Staff, and President, and "is manifestly not a subject for detailed public discussion -- for obvious security reasons;" (4) violation of a test-ban agreement, while detectable, would still leave the US at a disadvantage -- since test preparation requires many months; (5) most recent US tests are directed not at greater destructiveness, but at defensive measures and reduction of fallout; (6) he will continue to insist on completely secure supervision against violation as prerequisite to US participation in any disarmament plan.

The President outlined his position prior to Mr. Stevenson's major H-bomb speech. Following that speech, the White House announced that a detailed reply would be prepared in consultation with AEC Chairman Strauss, Defense Secretary Wilson, and Sec. of State Dulles. The new administration statement, expected to be a kind of "white paper" on the entire subject, is scheduled to be issued early in the week of October 22.

FAS POSITION Last June, following extensive debate -- particularly at the Washington Council meeting in April, 1956 -- FAS went on record before the Senate Subcommittee on Disarmament favoring international agreement to ban the testing of nuclear weapons (see p. 3). During the past two weeks, while the subject has been receiving extensive public attention, the Council, Executive Committee and Advisory Panel of FAS have been polled anew on H-bomb testing and the advisability of further public statements on the question during the political campaign. Of 39 respondents, only one was opposed to a ban on testing. The vote was 3 to 1 in favor of further publicity of FAS views before the end of the campaign. The Executive Committee will be guided accordingly and has under consideration further statements to be released at appropriate times.

UN STUDY BEGINS Major technical background for the debate to date has been provided by the two reports last June of the National Academy of Sciences and the British Medical Council, and by reports of the AEC and its officials. Still to be heard from is the Scientific Committee on the Effects of Atomic Radiation, established by the UN General Assembly last fall at the recommendation of the US (and FAS). Committee members from 16 countries gathered at UN headquarters for their first meeting on October 22.

The committee presumably will have before it special reports requested from members of the UN and its specialized agencies on strontium-90 fallout on various land and ocean areas. In view of the current political controversy in the US, and world-wide concern over the testing question, data and recommendations from the UN committee will be awaited particularly eagerly.



AN EVALUATION of RADIO-STRONTIUM FALLOUT HAZARD

[Strontium-90 has received increasing attention in the current debate as the critical fallout factor from thermonuclear weapons testing. It is discussed below by Walter Selove, member of the FAS Radiation Hazards Committee, whose views deserve careful consideration in current discussions. -- Ed.]

The question whether an international agreement to cease tests of 'H-bombs' -- that is, of large nuclear weapons -- is desirable and workable cannot be examined sensibly without a clear understanding of the underlying facts. It is regrettable that most attempts to present these facts to the public involve serious misunderstandings and arguments on side issues. I want to try to clarify here one of the questions involved -- the extent of the radiation hazards from the tests.

STRONTIUM HAZARD One point must be emphasized: the question at issue is not one of genetic effects. Many press reports, and even the editorial column of the usually responsible *N. Y. Times* (Oct. 17), refer to the Nat. Academy of Sciences report, which agrees with the AEC position that genetic effects of tests at about the present level represent only a very small percentage increase over the hereditary effects long present from natural causes. But this is the report of the Genetics Committee, and the genetic effects are not under consideration. The question under consideration is the pathologic effect of bomb-test fallout -- specifically, the hazard from strontium-90, which is assimilated into bones, and which can produce blood changes, and which can, in extreme conditions, cause bone cancer.

How much strontium-90 is released in tests? How much strontium-90 is then absorbed by humans? How much strontium-90 can the human body stand without ill effect? The answers to these 3 questions are not simple, but they are important.

LIBBY DATA The amount released in our tests has been made public by the AEC in articles and speeches by Commissioner W. F. Libby. The strontium-90 produced settles almost uniformly all over the world. The magnitude of this fallout can be given in "millicurie per square mile," but this technical term is not necessary for an understanding of the following. The amount which is absorbed by humans depends upon the amount of calcium in the top-soil, because strontium is chemically similar to calcium and is absorbed with it. The strontium concentration in bones therefore depends on how much calcium is present to dilute the strontium fallout.

CRITIQUE The problem is more complicated than indicated in the abbreviated reports of Dr. Libby's October 12 speech. He is quoted as saying that in 2 or 3 decades of the present type and amount of testing, the amount of strontium in humans might rise to about 3% of the "maximum permissible concentration." A serious question must be recognized at this point. This 3% is an average number, based on the average worldwide concentration of calcium in the topsoil. As the Nat. Academy report states in the section from the Pathology Committee: "It must be remembered that in regions where soil and water are low in calcium, calcium and strontium will be more readily taken up." In an article by Dr. Libby published in June, 1956, giving detailed worldwide measurements, he reports, for example, that the strontium-90 concentration relative to topsoil calcium found in certain areas in Wales was about 50 times greater than the worldwide average, and points out that this could be understood from the fact that the calcium concentration in that area is about 50 times smaller than the worldwide average.

The published report describes other world areas, besides the one sampled in Wales, which were found to have a calcium concentration tens of times smaller than the world average. It is clear that if the time comes when the worldwide average strontium concentration in humans is 3% of the "maximum permissible concentration," then there will be some world areas where the strontium concentration will be at or above this "maximum permissible" level.

IMPONDERABLES There are numerous facets to this problem which we can hardly touch on here. The

question as to how large the low-calcium areas may be; the question as to whether the soil calcium may be generally supplemented by fertilizer in such areas; the question as to how discrimination against strontium uptake by plants and animals makes the consequent human uptake depend on diet -- all these questions need much more detailed investigation before exact statements as to the magnitude of the strontium concentration produced in humans by bomb tests can be made.

But the extent of the strontium-90 hazard depends not only on the strontium concentration but also on how much radioactive strontium the human body can accommodate without harm. The answer is not known with any precision, since there is no previous experience with radio-strontium in humans. The estimates as to the maximum permissible amount have been arrived at mainly by comparison with effects observed in a limited number of humans with radium poisoning, and by comparison of radium and radio-strontium effects in experimental animals.

Dr. Libby's figure for the maximum permissible amount is that suggested by the International Commission on Radiological Protection (ICRP). But it should be recognized that this value is taken as permissible for occupational exposure. The ICRP has recommended that a reduction factor of 10 should be introduced for prolonged exposure of a large population. Dr. Libby has not made use of this reduction factor, nor acknowledged the recommendation, in giving figures evaluating the magnitude of fallout strontium-90 hazard.

CAUTION INDICATED The maximum permissible concentration should perhaps also be lower for children than for adults.

The British Medical Council, in its report on radiation hazards (June, 1956), points out that "it is also well known that rapidly growing tissues, such as those of children, are often particularly radiosensitive." The Council states, after weighing the uncertainties in the meager evidence on which the tolerance level is based, that "it would be unwise to fix the maximum allowable concentration of radioactive strontium in the bones of the general population at more than $\frac{1}{10}$ th of the level agreed upon for occupationally exposed persons." It goes on to conclude that "if the concentration in human bones showed signs of rising greatly beyond $\frac{1}{100}$ th of that corresponding to the maximum permissible occupational level it would indicate the need for immediate consideration of the problem."

One is forced to conclude that, although an estimate of the magnitude of the radiostrontium hazard must as yet be based on very meager evidence, Dr. Libby has been very optimistic in his estimates, and has not weighed very heavily the effect of increased hazard in low-calcium areas nor the possibility that the "maximum permissible concentration" he has used should be revised downwards, perhaps considerably. The British committee on radiation hazards suggests that the concentration at which we should be concerned is not as high as that used by Dr. Libby but 10 to 100 times less. It may well be true that in certain areas of the world the strontium-90 hazard has already passed the danger point, to say nothing of the additional production of this material in further tests.

IAEA Wins Tentative Approval

On Oct. 4, 82 nations took another short but historic step when they tentatively agreed to establish an International Atomic Energy Agency (IAEA) to further the peaceful uses of atomic energy. This action marked the conclusion of the general discussion phase of the UN atoms-for-peace conference, in session at UN headquarters in New York since Sept. 20.

During the past several weeks, delegates of UN member nations and representatives of several non-member nations belonging to UN-affiliated specialized agencies discussed draft statutes for the IAEA. The statutes had been approved in Feb. by a panel of 12 nations, including the leading atomic powers, the major providers of atomic raw materials, and India, Czechoslovakia and Brazil. The UN parley is now deliberating on 68 proposed amendments to the statutes, and is attempting to iron out major points of controversy.

Issues still to be settled concern composition and powers (Continued on Page 6, end of Column 2)

F A S POLICY ON TEST BANS AND DISARMAMENT

On June 8th, Chairman Charles C. Price presented the views of FAS on disarmament and further testing of nuclear weapons and intercontinental ballistic missiles before the Senate Foreign Relations Subcommittee on Disarmament. At that time, press coverage of Price's testimony was minimized by the space-consuming crisis precipitated by the President's attack of ileitis, and therefore the statement was published in full in the July 1956 issue of the FAS Newsletter.

Because of considerable current public interest in this area of primary concern to FAS, it is important that members have available the text of the previously adopted FAS position. Chairman Price's testimony is reprinted in full below, together with excerpts on page 4 from recent public statements by members of the scientific community.

The rapidly increasing destructiveness of modern weapons impels responsible citizens to seek methods by which the armaments race may be halted and an unprecedented world war of annihilation may be averted. To be realistic in a world split by international distrust, steps directed toward guaranteed arms limitations must be so carefully devised that they do not weaken any major power compared to another and thereby invite aggression. We believe that arms limitations would be to the mutual advantage of all nations. However, no completely acceptable plan has as yet been formulated, and the armaments race continues.

As a preliminary step toward complete and universal enforceable disarmament, the FAS proposes that international agreement be sought for the banning of any further nuclear weapons tests. The establishment of such an agreement would bring about advantages to all concerned.

In the first place, a complete ban on all tests should prevent or at least greatly retard the development of nuclear weapons by those countries not now possessing them. Mankind would be spared the nightmare of a many-sided atomic arms race. The danger of a worldwide conflagration resulting from a mistaken judgment or hasty act on the part of a nation armed with nuclear weapons will be minimized if the number of nations possessing such weapons does not increase.

Secondly, international tensions, which are increased by each new series of nuclear tests, would become less strained. Without testing, no country would be able to increase its military advantage resulting from substantial improvements in the efficiency of destruction of nuclear weapons. The major powers already have the weapons of mass destruction which have created the present stalemate, and the ability to destroy a country twice is not much less of a deterrent than the ability to destroy it five times. Although it may be objected that a test ban would interfere with the development of defense, it should be noted that all countries will be equally handicapped in the development of any major new offensive or defensive nuclear weapons which might precipitate World War III.

Thirdly, the worldwide concern with radioactive fallout would be minimized by the knowledge that there would be no further increases in current levels of radioactivity from nuclear weapons testing.

Fourthly, since a nuclear explosion can be detected by long-range monitoring methods, universal adherence to the ban could be determined without resorting to roving international inspectors. A UN monitoring agency with access to specific detection sites or monitoring aircraft over international waters is all that is needed. Agreement on such a test ban will create a precedent, giving hope that further agreement on arms limitation might be reached.

Fifthly, the savings in money, effort and technical manpower could be diverted to other worthwhile projects, such as the development of peaceful uses for nuclear power.

There is a second step toward universal disarmament which we urge our government to explore. This would consist of an international ban on the testing of inter-continental ballistic missiles (ICBM). It has been proposed that a long-range missile ban could be monitored by setting up a network of widely spaced radar

picket stations throughout the world. Monitoring of this type would require that inspectors have access to a few definite locations within national boundaries. This type of access would not reveal military or state secrets. Without further tests, the military missiles could not be developed which might soon take us into the dangers of the new age of "pushbutton warfare," thus multiplying the difficulties in controlling weapons of mass destruction. Provided that competent authorities verify the feasibility of monitoring ICBM's, the achievement of a ban on the testing of such missiles -- involving, as it probably would, a measure of international inspection -- would help pave the way for the realistic and thorough inspection methods required for complete disarmament.

The UN Agency charged with responsibility for monitoring the missile test ban might well be authorized to undertake on an international basis the research and development of long-range rockets and earth satellites for peaceful purposes.

We urge our government to declare publicly its support for a worldwide ban on further tests of nuclear weapons and, if feasible, of long-range missiles as well, and to take the necessary steps to implement such an agreement.

At the same time, it should be clear that, although these test bans would be important and worthwhile accomplishments, they are not disarmament. We believe that they would minimize some of the more terrifying aspects of the arms race and would create a better atmosphere for, and decrease the problems involved in, the development of an all-inclusive disarmament program. We believe that, if we are to replace war and the threat of war by the rule of law in international affairs, we must eventually outlaw all national military establishments and establish a UN police force with power and authority sufficient to constitute a safe and effective deterrent to any would-be aggressor. Such complete and universal disarmament would be far easier to inspect and safer for all than any formula for partial disarmament under a quota system.

Such an agreement to outlaw national military establishments should be made as an amendment to the UN Charter, setting up legislative, executive and judicial functions in the area of arms control. The laws against national armaments and the use or threat of force as a means of resolving international disputes should be enforceable against individuals. The authority of the UN Disarmament Agency, and its police force, must be carefully defined and limited and must include guarantees of the rights of individuals in the form of a "Bill of Rights."

We believe it should be a major purpose of the "task groups" working under Presidential Assistant Harold E. Stassen to spell out this objective publicly and in great detail, since no lesser steps can really free us from the threat of war and the burdens of the arms race. Furthermore, adoption of such a goal will clarify and give direction to the involved negotiations and the many important steps necessary to achieve it.

We believe that clear and unequivocal announcement by the United States that our goal is a revision of the UN Charter making it possible to abolish all national military establishments would be an essential and historic step toward a more peaceful and prosperous world.

SCIENTISTS' VIEWS in the NEWS on BOMBS and BANS

"Tenfold Rise in A-Tests Seen as Safe"

Shortly after a call for "international control of weapons testing" was voiced by AAAS president-elect Laurence H. Snyder, an unidentified staff member of the National Academy of Sciences (NAS) responded that the rate of nuclear test explosions could be increased 10-fold "without causing any serious genetic danger." NAS President Bronk had referred press queries to the staff member (Washington Post, Oct. 15). Further minimization of the fallout threat came from Shields Warren, chairman of the NAS Pathology committee. In a telegram released by AEChairman Strauss, Warren referred to the June NAS report in declaring: "If weapons testing continues at present rate for 30 years, genetic dose will still be insignificant" (Washington Post, Oct. 18).

"H-Bomb 'Snowballing' Seen as Genetics Danger"

H. Bentley Glass, Johns Hopkins U. geneticist and a member of the NAS Genetics committee, cautioned that uncontrolled testing of nuclear weapons could become a genetic threat through competitive snowballing. "The US shoots off bigger bombs; Russia shoots off bigger ones, and England gets into the picture, too." Glass proposed an international agreement on the number of nuclear explosions allowed to each nation, as a needed safeguard for the protection of the human race (Washington Post, Oct. 17).

"Tests Indicate Radiation Peril"

In contrast to fruit flies, recent tests on mice suggest that mammals in general may suffer more injurious genetic damage than has long been presumed. Geneticist L. C. Dunn of Columbia U., speaking at a AAAS ceremony, indicated that heredity carriers in mice are 15 times more sensitive to radiation than comparable cells in *Drosophila*. Thus the possibility was advanced that estimates of radiation effects on humans have been underestimated. Dunn recommended "for the short view, the safest assumption at present is that the best level of controllable radiation is none at all" (Washington Post, Oct. 13).

"Strontium Limits In Peace And War"

Writing in the October '56 issue of the *Bulletin of the Atomic Scientists*, physicist R. E. Lapp discusses the strontium-90 question at length (see also Selove article, this *Newsletter*, p. 2). Concerning the adoption of safe limits of Sr⁹⁰ fallout, Lapp stated, "Since the fallout of strontium is a global problem, the proper place to debate the issue and set limits is the UN."

"12 Scientists Support Ike in his Stand on H-Bombs"

In a statement released as a memorandum to Eisenhower from AEChairman Strauss, 12 scientists advised "we have no prudent course except to continue the development and testing" of atomic weapons until an agreement is reached, "with guarantees which protect the American people and the peoples of the free world." The group stated that radiation from fallout is much less than that from natural sources and X-rays, although no mention of Sr⁹⁰ was reported. When asked about Strauss' memorandum accompanying the document, which stated that the "scientists whose names are appended have notified me that they endorse it," Presidential news Secretary Hagerty replied that the scientists wrote the statement on their own (AP, Oct. 20).

"Notre Dame Expert Backs Ban on Atom Bomb Tests"

Noting that for 11 years scientists have been warning about the danger of atomic fallout, Prof. Milton Burton, director of the Notre Dame radiation laboratory, stated that "the minimum first step of stopping atom bomb tests" could "limit the hazard of radioactively-induced cancers for present generations [and] avoid some unknown and horrible consequences for the people of the future" (AP, Oct. 17).

"Atom Experts Urge Bomb Study"

Sixty-two scientists at Brookhaven Nat. Lab. called for further study of "the hazard to the present generation of Sr⁹⁰." Pointing out that the NAS report on radiation called for "meticulous and continuing attention" to fallout contamination, the group posed the question whether "the amount of Sr⁹⁰ produced by the tests is now or soon will be great enough to constitute such a [health] hazard" (N. Y. Times, Oct. 20).

"10 Scientists Back Test Ban"

"It appears to us that Mr. Stevenson's proposal [for a test ban] might be a useful way to get the negotiations [on the nuclear arms race] out of the deadlock stage by taking a step that would not endanger our security..." So stated 10 physicists of the Calif. Inst. of Technology, speaking in their own behalf. Their statement predicted that "many countries" soon will be able to make H-bombs and added: "The time will soon be upon us when even a 'limited' military action must inevitably drive us into nuclear war" (AP, Oct. 14). It was later announced that 73 scientists at the Argonne Nat. Lab. had put their signatures to the Cal. Tech. declaration (AP, Oct. 21).

"College Head Criticizes Aides' H-bomb Stand"

Cal. Tech. President Lee A. DuBridge followed this endorsement of Stevenson's proposal by regretting "that a partisan stand on the continuation of H-bomb tests has been made by a scientific group." Observing that, from "my own official Government contacts, I have become convinced [that] large-scale tests are an important part of our weapons-research program," DuBridge concluded that the "discontinuance [of such tests] should... not precede enforceable international agreements" (AP, Oct. 15).

"Professors Here Back Bomb Curbs"

Thirty-seven faculty members of the City College of N.Y., including 14 scientists, "warmly endorsed" Stevenson's test ban proposal. They expressed the belief that "there is no need to build bigger bombs than that of the size which has already been tested; that an agreement to stop such testing needs no international inspection system to detect non-compliance;" and they said the US should take the lead in this effort since "in our national interest and in the larger interests of mankind as a whole we dare not fail to supply that leadership" (N. Y. Times, Oct. 19).

"24 Scientists Cite Bomb Test Perils"

Describing the outlook as "alarming," 24 scientists at Washington Univ. in St. Louis urged that studies be undertaken to determine what effect continued H-bomb tests might have on mankind. They called on both parties to state clearly their positions raised by Stevenson's proposal for a test ban, and decried the fact that for the past 14 years decisions on the nation's atomic policy have been made "in a vacuum of public information." Pointing out that "the tests already have burdened the upper atmosphere with radioactive materials which continue to fall on the earth, contaminate our food and become incorporated into human organs," they added: "There are at present insufficient data to permit an absolute conclusion on the danger in continued accumulation of such radioactivity to ourselves and to future generations." They called for "intensive scientific study and public discussion" (AP, Oct. 18).

"Physicists Here Urge Bomb Parleys"

Eleven members of the Physics Dept. of Columbia Univ., including Nobel Laureate Polykarp Kusch, added their support to the test ban proposal. They also urged Eisenhower to relinquish his "last word" position by "joining in the clarification of public thinking on this crucial issue" (N. Y. Times, Oct. 17).

"Adlai Cheered by Praise on H-Bomb Stand"

In response to Stevenson's definitive statement on Oct. 15 proposing a ban on further tests of large nuclear weapons, many spokesmen offered their hearty congratulations and support. Included were Henry D. Smyth, author of the Smyth report on atomic energy, former AEChairman David E. Lillenthal, and sociologist Charles S. Johnson, Fisk Univ. President. Five nuclear physicists at the Argonne Nat. Lab. wired Stevenson that his "efforts to bring the H-bomb question before the American people are appreciated. We as nuclear physicists firmly believe your plan, far from being 'catastrophic nonsense' [a phrase applied to Stevenson's proposal by Mr. Nixon] is workable, wise and in the best interests of the US" (Washington Post, Oct. 17). At a press conference with Sen. Kefauver at the St. Louis airport, Los Alamos physicist David L. Hill said "Mr. Stevenson's proposal is sound" and "I doubt that stopping bomb tests will injure our relative military strength" (Washington Post, Oct. 18).

Reactor Policies Debated

Criticism of the domestic atomic power program of the Eisenhower Administration recently culminated in a full-dress attack by former AEC Commissioner Henry DeWolf Smyth. In an article in the Oct. issue of Foreign Affairs, Smyth charged that the program is lagging -- because of secrecy and policies that bow to the dictates of "economic realism."

ADMINISTRATION VIEW According to AEC Chairman Strauss, the primary objective of our domestic A-power program is to develop and construct nuclear power reactors that can compete with the conventional low-cost fuels now available in this country. "To achieve this goal," said Strauss in a speech on Sept. 27, "we have a flexible partnership between government and industry." He insists that full-scale construction of prototype power plants should be undertaken primarily by industry as it acquires the necessary experience. Assuming a critical shortage of trained scientific personnel, Strauss contends that trained manpower is most effectively utilized in a program concentrated on development of reactor technology, and not on a "crash" program for construction of prototype reactors.

DISSENT Smyth, on the other hand, argues that before the relative merits of the various types of reactors can be evaluated, it is necessary to select 5 or 10 of the most promising types and to carry them through the experimental and prototype stages. He points out that, when the AEC invited private companies to construct full-scale power plants, the companies proceeded slowly because of the risks involved with incomplete technical information. He asserts that such delay cannot be tolerated if we are to meet the responsibilities of our present world leadership, and that "we cannot simultaneously make 'atoms for peace' a major part of our foreign policy and atoms for private industry a controlling part of our domestic policy." Where industry fears to tread, Smyth calls for a fast-moving program of reactor development and construction, such as that proposed in the Gore-Holifield bill defeated in the last Congress (see NL 56-). Otherwise, he warns, our present leadership will vanish in the highly competitive international effort.

FIRE ON LAGOONA BEACH The Lagoona Beach project (NL 56-7) is an example of the difficulties involved in the Administration's program to promote the free enterprise development of nuclear power in the US. The project, in the Detroit-Toledo area, came under fire from labor unions and others as a potential hazard to public safety, and the AEC has granted a public hearing to be held in Washington on Nov. 13. Major policy questions raised by AEC procedure in issuing the conditional construction permit for this private reactor appear to be slated for extensive consideration in the next Congress.

Joint Atomic Energy Committee Chairman Anderson has questioned the legality of the AEC's action. As a result, he will ask Congress to reorganize the Commission into 2 separate groups -- one to carry on research, development, and production activities, and the other to handle licensing and regulatory functions. Rep. Holifield charges the AEC with suppression of the Reactor Safeguard Committee Report which asserts that there is insufficient information available to guarantee the safe operation of the reactor. Agreeing that the private contractor is to be commended for its willingness to risk its capital and prestige, Holifield nevertheless emphasizes that paramount concern must rest on the risk to public health and safety.

POLICY QUESTIONS The Atomic Power Newsletter, a publication of the Amer. Public Power Assoc., lists the following policy questions raised by the Lagoona Beach reactor controversy: "(1) the degree to which AEC proceedings should be a matter of public information; (2) the relationships which should exist between AEC and the State and local governments concerned; (3) the nature of the criteria followed by AEC in issuing permits and the lengths to which AEC should go in issuing 'conditional' and 'provisional' permits; and (4) whether the quite different and sometimes seemingly conflicting functions of promotion and development on the one hand, and licensing and regulation on the other can be successfully administered by a single agency."

TECHNICAL MANPOWER LIMITING

The technical manpower issue continues to hold a prominent place in the national press with the general shortage of scientists and engineers considered the limiting factor in further expanding our scientific and technological programs.

AEC CONCERN Two members of the AEC, Chairman Strauss and Commissioner Libby, have recently discussed the problem. Libby, in a speech at Oak Ridge on Sept. 7, foresaw need in the near future to train 2000 scientists and engineers per year for the nuclear power industry alone. This need is the basis for the AEC's proposed assistance to colleges and universities, with the hope that this rate of production might be reached by about 1961.

Speaking at Cooper Union on Oct. 9, Strauss emphasized that we are concerned with training more technical personnel (in all fields), not because of what Russia is doing but because "we are barely graduating enough trained people each year to provide replacements, with no provisions for the growth of our industrial civilization." Comparative data for graduating classes of engineers per million in population for 1954 were given by Libby: Great Britain - 57; US - 136, and USSR - 280. Strauss went on to discuss explanations for the scientific manpower shortage. Included were: growing needs of our expanding economy and national security, low birth rate during the depression years, and de-emphasis in the late 40's on engineering as a career.

BACKGROUND WEAKNESS Of mounting concern are the steady decline in science and mathematics teaching and curricula in high schools: A recent survey of 15,000 high school students by Purdue Univ. indicates that 45% of the students believe their school background is too poor to permit them to choose science as a career. In addition, college deans of engineering have indicated that poor high school preparation may be considered a primary reason for student failures to complete curricula. Meanwhile, a study conducted under auspices of the Nat. Science Foundation shows that, last year, somewhere between 160,000 and 200,000 high school graduates with the ability to earn college degrees failed to go to college.

Suggested solutions to the manpower shortage dilemma include increased salaries for high school teachers, a general tightening of standards for teachers of science courses, revision of curricula, broader scholarship programs, and a general enlightenment of youth concerning scientific and engineering careers.

The FAS is a national organization of scientists and engineers concerned with the impact of science on national and world affairs. The Newsletter is edited by members of the FAS Washington Chapter. Contributors to this issue were:

EDITORIAL STAFF: C. Grobstein (editor), M. M. Elkind
WRITERS: J. B. Buck, G. F. Chew, M. Ehrlich, V. Lewinson, J. W. Motz, G. Seeman, and W. Selove.

- MEMBERSHIP APPLICATION** -- Dues: Regular - \$5 (with income below \$3000 - \$3); Supporting - \$10; Patron - \$25. New membership and an introductory subscription to Bulletin of the Atomic Scientists - \$8.50 (with income below \$3000 - \$6.50).
- SUBSCRIPTION to INFORMATION BULLETINS** -- \$10 to individuals; \$25 for Societies, etc. (including Newsletter)
- NEWSLETTER SUBSCRIPTION** -- \$2 to non-members (all members receive the Newsletter)

Name _____

Mailing Address _____

Check enclosed Send bill
MAIL TO: FAS, 1805 H Street, N.W., Washington 6, D.C.

State Still Balky on Passports

In a ruling on Sept. 13, the US Court of Appeals reversed a District Court decision in the case of cosmic-ray physicist Bruce Dayton (see NL 56-7) and ordered the State Dept. to reconsider its refusal of a passport to Dayton. The Court held that, as in the Boudin case (NL 56-7), the State Dept. had not specified the regulations upon which the refusal rested. The issue of confidential information was mentioned briefly in the abbreviated opinion, but only as a factor which might arise at a subsequent stage. The Secretary of State was instructed, if he continues to refuse Dayton a passport, to state whether his findings are based on secret information and, if so, to explain why the evidence cannot be revealed.

The case now goes back to the District Court which will consider the findings produced Oct. 4 by the State Dept. The Dept. claims there is reason to believe Dayton is going abroad for the purpose of advancing the Communist movement. The findings are based on Dayton's association with Bernard Peters, a world-renowned cosmic-ray physicist at the Tata Institute in India, with whom Dayton wishes to do research. The State Department suspects Peters of being a "Communist espionage agent," but all evidence in this connection is confidential because, the Dept. maintains, it "relates to the internal security of the US."

FAS ASSAILS PROCEDURES The FAS Passport Committee issued a public statement on Sept. 14, commending the Appeals Court decision and sharply criticizing the State Dept. position. The Dept. was accused of a "flagrant" violation of Dayton's constitutional rights and of a pointless obstruction of international scientific exchange. The Committee emphasized that, though it is more than a year since an Appeals Court decision in the case of Max Shachtman (June 23, '55; NL 55-6) confirmed the constitutional right of the US citizen to travel abroad, "the Passport Office continues to act under procedures which fail to satisfy due process... It is high time for the State Dept. to accept this decision and revise its passport procedures..."

The FAS Committee urged the Government "to issue [Dayton's] passport without further delay." It pointed out that his research in India would be in an entirely non-secret field and that the prevention of his work at the Tata Institute is inconsistent with our policy of aiding "open and unclassified scientific development in many nations."

SECURITY CLEAN-UP

Eight former Ft. Monmouth employees have sued to have their records cleared and to be reinstated with back pay. They allege denial of their constitutional rights because of vague charges, unidentified accusers, unfair hearings, etc. The 8 are those who remain uncleared of the 35 suspended early in 1954

F A S NEWSLETTER

Federation of American Scientists
1805 H Street, N. W.
Washington 6, D. C.

56 - 8

when Sen. McCarthy was investigating the Signal Corps laboratory. Their suit raises somewhat different issues from the Cole case (NL 56-6), which resulted in limitation of security dismissals to sensitive Federal jobs; 6 of the 8 had access to classified information, and the Army is specifically authorized by law to dismiss employees on security grounds.

The Defense Dept. has issued a 200-page report, "Security at Work," the 1st Annual Report of the Industrial Personnel Security Review Program. It contains statistics and 30 case histories, and it emphasizes improved procedures for clearance of industrial workers on Government contracts. A much larger fraction of cases is being settled before hearings or suspension of the worker, thus avoiding much personal injury and embarrassment. The cases are divided about half and half between loyalty and personal questions.

Mrs. Dorothy McCullough Lee, lawyer and former mayor of Portland, Ore., has been appointed to the Subversive Activities Control Board, replacing ex-Senator Harry Cain. * * * * The New Jersey Commissioner of Education, F. M. Raubinger, has ordered new and more thorough hearings for three Newark school teachers. They had been summarily dismissed a year ago after invoking the 5th Amendment before the House Un-American Activities Committee. * * * * New York's Gov. Harri-man has appointed a 5-member board of distinguished citizens to study state laws dealing with security risks.

IAEA WINS TENTATIVE APPROVAL (Cont. from Page 2)
of the agency's Board of Governors, and the type and extent of safeguards against military diversion of the fissionable materials to be donated to its pool. The present draft of statutes provides for a Board of Governors consisting of representatives of 23 nations, with 5 donor nations having permanent seats, but no veto. According to the present provision, the Board is to decide on distribution of fissionable materials and reactors. This is resisted by some nations as failing to give sufficient authority to the membership at large.

Of even greater concern are projected safeguards against diversion of materials to military use. India, Russia, and other critics of the statutes maintain that article XII, which gives the agency power to send inspectors to recipient states as observers but requires no inspection in donor countries, infringes upon the sovereignty of the under-developed nations. Further, India's Homi J. Bhabha regarded the return of fissionable materials, produced by the recipient nations as by-products of their operations, to the IAEA pool, as not being in the interest of these nations.

Despite these difficulties, it is expected that a constitution establishing the IAEA will be adopted in general session on Oct. 23. Vienna has been proposed as the permanent seat for the organization, which may be functioning by next summer.

Sec. 34.66, P. L. & R.
U. S. POSTAGE
PAID
WASHINGTON, D. C.
PERMIT NO. 9124

Postmaster: If addressee has moved and new address is known, please forward and advise of new address on Form 3547. If new address unknown, return to sender. Postage for these services guaranteed.