

F. A. S. NEWSLETTER

Published by the
FEDERATION OF AMERICAN SCIENTISTS
1805 H Street, N. W., Washington 6, D. C.
David R. Inglis, Chairman

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No. 59-6

August 10, 1959

FAS OPPOSES ATOM DATA EXCHANGE

Dr. William C. Davidon, Chairman of the Chicago Chapter of the Federation, testified on behalf of the FAS (7/2) before a Subcommittee of the Joint Congressional Atomic Energy Committee against the pacts to exchange information on the use of nuclear weapons with seven of our allies. These agreements were made in the Spring and early Summer with Britain, France, Canada, West Germany, The Netherlands, Turkey and Greece. Under the Atomic Energy Act as amended last year, sixty days' grace period is allowed, during which the Congress by joint resolution, could void these agreements. Ultimately the Joint Committee on Atomic Energy recommended that no action be taken and as a result, the agreements automatically went into effect at the end of July and the beginning of August.

Nuclear Weapons Reliance

In his testimony, Dr. Davidon said that the effect of the agreements would be to "increase the reliance on nuclear weapons by certain NATO member states, and this in turn will increase the pressures for other countries to adopt similar measures, and for each to seek independent possession as well."

The agreement with England involves sharing nuclear secrets and materials to make atomic bombs. France is to receive one-half ton of enriched uranium to fuel a land-based model of an atomic submarine power plant. France is not to receive any atomic secrets because, according to the wording of the Act, we can share atomic secrets only with countries that have themselves developed the ability to produce atomic bombs. This has increased French resentment at being treated as a stepchild of the nuclear family.

The other five allies will receive information on the effects of atomic weapons so that they can train troops in the use of these bombs. They will also receive information on the size and weight of nuclear warheads so that they can design missiles and other delivery systems to accommodate them. The actual atomic warheads will remain under United States control.

Pressure on USSR

In testimony before the Subcommittee, Dr. Davidon said that "countries which we aid with nuclear weapons systems will be under considerable pressures to reduce their emphasis on conventional forces. Then, when they are relying more heavily upon a nuclear weapons system, their motivation for acquiring nuclear warheads under their own control will be intensified. Their motivation for independent manufacture is further increased by the provisions of the amendment to the Atomic Energy Act of July 3, 1958, which permit transfer of nuclear weapons and components to countries which have made substantial progress in nuclear weapon development. It is as though you trained your son to drive a car, promised him that once he practiced with his own jalopy, you would help buy a new car, and then to wonder whether or not he will start looking for ways to acquire a jalopy." Furthermore, he stated that the pacts would increase pressure on Russia to permit satellite countries to develop their own atomic weapons, and he pointed out that some of them are well started on this venture.

Mr. William Myer, Congressman from Vermont, quoted Dr. Davidon's testimony in the Cong. Record (July 9) concerning the probability of causing a nuclear conflict by the wide dissemination of nuclear weapons and information. The testimony he mentioned pointed out the "danger of accidental catalytic wars, or the spread of a local conflict" that would "bring about world disaster". Both The Nation and The New Republic editorially praised Dr. Davidon's testimony in recent issues.

The FAS position, given in a press release on June 29th, expresses concern that the dependence of our NATO allies

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NEW PASSPORT BILLS PROPOSED

For several years prior to last summer, the State Dept., operating under its own regulations, denied passports to communists and others whose activities could "be prejudicial to the orderly conduct of foreign affairs." In the Kent-Briehl decision (June 1958), the Supreme Court ruled (5-4) that no law exists which authorized the denial of passports to such individuals by departmental regulations. The President has requested specific authorization from Congress for the passport denial regulations, but a bill has not passed.

Congress is again holding committee hearings on "passport" or "right to travel" bills ranging from those which restrict, to those which affirm the right to travel. In the Senate there are three different "restrictive" bills sponsored respectively, by Senators Eastland, Wiley and Mundt; then the "Humphrey" bill sponsored by Humphrey, Anderson, Chavez, Hennings, Morse, Neuberger and Symington, and the bill sponsored by Senator Fulbright.

Present Proposals

Sen. Eastland's bill (S. 1303), before the Judiciary Committee, would prohibit the issuance of passports to communists and to those whose travel abroad would be "contrary to the national welfare, safety or security, or otherwise prejudicial to the interests of the United States." Sen. Wiley's bill (S. 2315), before the Foreign Relations Committee, would "provide for denial of passports to supporters of the international Communist movement"; it sets up a procedure for passport denial and "review thereof" which allows for the consideration and withholding of evidence from the record made available to the applicant.

Sen. Mundt's bill (S. 2095), before the Govt. Operations Committee, is a comprehensive bill which gives legislative authority to present procedures (i.e. denial to communists, etc.) and establishes appeal machinery much of which is now used without statutory basis. The bill would also re-organize the administration of the Passport Office.

Sen. Humphrey's et al. bill (S. 806), before the Foreign Relations Committee, is cited as a "Right To Travel Abroad Act" and would restrict passports only in time of war or to certain criminals. In regard to present restricted areas, travel would be permitted at one's own risk.

Sen. Fulbright's bill (S. 2287), before the Foreign Relations Committee, would permit passport denial when there are reasonable grounds to believe national security would be endangered by transmission of secrets, conspiracy to bring about hostilities or to overthrow the government by force. In review procedures this act would allow the accused to examine all documentary evidence and to cross-examine all witnesses including confidential informants.

The Administration (Robert D. Murphy, Deputy Under Secretary of State, in testifying before the Senate Foreign Relations Committee) is asking for legislation to authorize the Sec. of State to deny passports to "hard-core communist supporters" and to use confidential information. The Administration has indicated support of the Wiley bill.

On July 20, the Passport Committee of the FAS sent a long letter to Sen. Fulbright (Chmn., Foreign Relations Committee) indicating its position in regard to three of the bills up for hearings. The letter indicates our Committee's disapproval of the Wiley bill and approval of the Humphrey bill. In general, it would approve Sen. Fulbright's bill with the reservation as detailed in the letter disapproving of sec. 203 (b) (1) which provides for denial of a passport if there are reasonable grounds to believe the applicant may transmit classified secrets. The Passport Committee sees this clause "mainly as a seldom-used provision which, however, acts as a distant but ever-present vague threat to those who have secret or Q clearance." It suggests that some young scientists might refrain from doing classified work "if they feel that their future right to travel might be questioned."

GENEVA: 9th MONTH—DELIVERY SOON?

Headlines from Geneva last month were studded with "concessions" and "compromises" but few "agreements". The conference is still bogged down in many discussions and details, details which sometimes sound picayune but which could, of course, be of critical importance depending on interpretations and implementation. Three important developments deserve particular attention.

Satellites As Monitors

Agreement has been reached by scientific representatives of the three nations on a report concerning the use of satellites for detecting high altitude explosions. This closes a gap left in the control system proposed last summer. The detailed report is being evaluated now by the individual governments and, assuming acceptance, instrumented satellites will become a part of the test-ban monitoring system.

Staff Pattern

For some time there has been see-saw bargaining about the staffing pattern for control stations. The Russians have insisted that personnel be exclusively or predominantly selected from nationals of the country in which the monitoring station is located. The West started from the position that none of the staff at a monitoring station should be citizens of the country in which it was located. The Soviet Union started from the position that all should be citizens of the country concerned with perhaps one or two foreign observers allowed, presumably in a non-official capacity. The West shifted to a 10-10-10 plan that would allow 1/3 of the personnel to be citizens of the country concerned, 1/3 being citizens of the "other side" and the remaining 1/3 citizens of countries not in the "nuclear club". This was rejected by the Soviet Union but a counter-proposal was made, etc. etc. Next the West offered to allow the staff at control posts in the Soviet Union to be 2/3 Communist-appointed personnel. At last report even this decided concession had not been accepted. Soviet Delegate Tsarapkin objects to any staffing from countries not in the "nuclear club".

Veto

The Soviet Union has from the start of negotiations argued for veto powers for the three nuclear powers in many areas. In some areas this insistence on a veto has been withdrawn when a treaty article satisfied the Soviet delegate that a veto would not be necessary. Still the Soviet delegation continues to insist on veto power over budget matters. If permitted, this would seem to open the way for effective throttling of the monitoring system by the appropriate use of purse strings. Another veto the Russians would like to be able to exercise is a veto on any on-the-spot inspection they consider to be uncalled for. Again there seems to be some hope that this road-block can be overcome by a Soviet-proposed agreement on some reasonable maximum number of on-the-site inspections per year. The U.S. has not yet replied to this proposal.

Labor Party Plan

While Sir Michael Wright waged nuclear peace in Geneva, the Loyal Opposition at home proceeded to hammer out a policy on nuclear weapons. Britain's Labor Party, which has made the question of nuclear weapons a major plank in its platform, waded through some 140 resolutions on the matter at its annual conference last month. The proposal emerging as declared party policy, to be actively pursued if the Party comes to power in the next elections, is that Britain take the lead in forming a "non-nuclear club". The British would dismantle or destroy their nuclear weapons if all the other nations, excepting the U.S. and the USSR, would pledge themselves not to test, manufacture or possess nuclear weapons. This would leave the U.S. and USSR as the sole members of the "nuclear club", and would foreclose the otherwise almost inevitable expansion of this rather exclusive society. It should be noted that this Labor Party stand is a compromise. The radical elements in the Party have urged that Britain unilaterally reject nuclear weapons.

RECENT INTERNAL SECURITY DECISIONS

The last day of its 1958-59 term (June 29), the Supreme Court ruled in the Greene case that there was no authorization by either the President or Congress for the procedures used in the industrial security program under which workers may be denied security clearance without the right to confront accusers or see a detailed statement of charges. The opinion in the case left the government free to reestablish these procedures by either Executive Order or Congressional Action. Rep. Walters (D, Pa.) has introduced a bill for

DEPARTMENT OF SCIENCE & TECHNOLOGY

The formation of a federal Department of Science and Technology appeared to gain impetus from a recent action by a Subcommittee of the Senate Committee on Government Operations. The Subcommittee (Reorganization and Internal Organization) called for a commission to study the problems connected with the establishment of such a department. The study commission bill (S. 1851) resulted from recommendations offered at the April meetings of the Subcommittee although suggestions for such a commission had been advanced even earlier. During its hearings, the Subcommittee had received testimony both for and against the creation of a new federal department. Witnesses favoring its establishment had argued that such a move was necessary to increase the flow of career scientists into governmental scientific agencies. Speakers opposed to the department of science bill (S. 676) had countered that science could not be isolated into one organization. Witnesses on both sides had favored further study of the problem.

Recent steps through which science has been strengthened and put to use in the Federal government include (a) the re-instatement of the Office of Science Adviser in the Department of State and the re-establishment of the overseas Science Officer Program of this Department, (b) the creation by executive order of a Federal Council for Science and Technology with the responsibility for promoting coordinated policy planning among the various federal agencies engaged in scientific and technological work.

Democrats Form Science Panel

Not much attention has been given in the press to the formation several months ago of an Advisory Committee on Science and Technology to work with the Democratic Advisory Council (St. Louis Post-Dispatch, 4/22). Chairman of the 17-member science group is Dr. Ernest C. Pollard, Yale biophysicist, and a past vice-chairman of the FAS. The group is composed of representatives of many scientific disciplines, and includes eight FAS members and a member of the FAS advisory panel.

In announcing formation of the new group, Democratic National Chairman Paul M. Butler said: "We want Democratic policies to be as sound as possible from the scientific and technological points of view." Dr. Pollard noted that the science panel does not intend to "prepare or issue statements for purely political purposes. The Democratic Advisory Council and the members of our committee recognize that scientific and technological facts should not be the property of any political party." FAS members on the Pollard committee participate as individuals, not as representatives of the FAS.

reestablishment. There is the possibility that the government may recognize the Supreme Court's dicta and devise a security system which provides at least the procedural safeguards which are part of the present system for federal employees in "sensitive" areas.

In the Vitarelli case the Supreme Court ruled on June 1 that even when firing a non-civil-servant federal employee, the government must employ its own standards of fair play. The government originally fired Vitarelli under the security program; after this was invalidated by the Cole decision, it fired him without stating a cause. This was ruled contrary to Departmental regulations, and he has now been reinstated.

FAS Testifies

In 1956 the Supreme Court ruled that the extension of the security program to all Federal employees was without congressional authorization. This decision in the Cole case provoked a spate of bills to provide such authorization. One of these was almost passed by the last Congress. Currently hearings have been held in the House on bills which would again extend this program to all Federal employees (H.R. 1161, 1870, and 1989).

Prof. George Snow of the Univ. of Maryland testified on behalf of FAS against these bills on May 13. He presented an FAS council statement which said, in part: "The most important aspect of our security is that positive security which is measured by achievement and which rests upon the creativeness, dedication, morale, and political vigor of our citizens. Any personnel security program makes encroachments on the traditional civil liberties of the individual, and can be justified only by the necessity of protecting the national security of the U.S. . . . It is therefore precisely in the interest of our true security that any security program should be confined to that much smaller number of positions for which it is directly needed".

FALLOUT DATA INCREASING

Two sets of hearings on fallout in May and June produced a massive outpouring of facts and interpretations. As usual the AEC spokesmen presented a relatively rosy view; there was little time for dissenting opinions to be heard. The hearings were held by Congressman Holifield's Radiation Subcommittee of the Joint Atomic Energy Committee.

A report by the AEC's General Advisory Committee was released at the hearings. The general tenor was that "everything is peachy", but a number of statements in the report were immediately criticized. The Committee has said that the strontium-90 ingested as the result of fallout for nuclear tests is less hazardous than the radium naturally present in drinking water in certain places in the US. Yet it was later revealed that no complete study of the effects of radioactive drinking water, found in wells in Illinois and some other places in the Midwest, has been published. The Committee's comparison is with an unknown quantity. A similarly misleading statement in the Committee's report is that "... human beings have lived for many generations in parts of the world which have . . . more than 100 times the average amount of radiation from fallout in the US." What is not stated is the absence of careful studies of the effects of background radiation. Also characteristic is the word "average", which ignores the large fluctuations of fallout from place to place and from time to time.

At a panel session during the first hearings, AEC Commissioner Libby suggested that fallout hazards would be greatly reduced by underground or high-altitude tests. But Dr. Walter Selove of the FAS, a member of the panel, pointed out that even for tests a few hundred miles above the surface of the earth, about half of the radioactive particles will be caught in the earth's gravitational field and will eventually find their way into the atmosphere.

More Data Needed

There is unanimous agreement by all concerned with radiation matters that more experimental information on the effect of radiation — both external and internal — on human populations is urgently needed. One of the major uncertainties is whether there is a threshold for radiation damage. The experiments to date have not been conclusive.

An interesting fact was revealed in an AEC report released during the Holifield hearings. The report noted that "... 50% is about the average fission to total yield ratio for all US/UK thermonuclear tests." This casts some doubt on the talk of "clean" bombs, in which fission yield would be a negligible fraction of the total yield. The report estimated the total fission yield of all US and British tests to date to be about 66 megatons TNT equivalent, while the fission yield of Russian tests is estimated to be about 26 megatons.

Nuclear War Effects Probed

The second set of radiation hearings probed the hazards of a nuclear war. The Holifield subcommittee was told (NYT, 6/24), that heat from high-yield weapons, and the resulting fire storms could be a greater hazard than radioactivity. Also revealed was a new estimate of the fallout hazards after nuclear attack. The revised estimates, by the Naval Radiological Laboratory, show that the radiation level in the first two weeks after an attack is 2.7 times as great as had been previously assumed, but that the level would decline more rapidly.

Control of Industrial Radioactive Waste

The growing importance of disposal of industrial radioactive wastes became apparent in recent weeks. A committee of the National Academy of Sciences—National Research Council recommended procedures for disposal of radioactive waste produced by nuclear-powered ships and submarines (NYT, 7/14). The report estimated that 300 nuclear-powered ships might be in operation by 1975, and that these might release about a million curies of radioactivity per year, mostly from the compounds that remove radioactive impurities from the primary coolant of the ship reactors. Specific restrictions on disposal of various categories of radioactive waste were proposed. The group also recommended that a systematic monitoring system be established.

Contamination of the Animas river in Colorado and New Mexico from wastes discharged by the uranium milling operations of the Vanadium Corporation of America will be halted soon. Arthur S. Flemming, HEW Secretary, announced on July 14 that the company had agreed to take measures to reduce the radium it discharges into the river to the lowest value achievable by known methods. This is the first Federal enforcement action to control radioactive contamination of interstate waterways. A Public Health Service survey in 1958-59, showed that radioactive content of the

river was 40 to 160 percent above maximum permissible levels. The survey also revealed that toxic chemicals discharged by the plant had killed most of the fish and other aquatic life in the river. The Vanadium Corporation agreed to recover these poisons before they reach the river.

Action in St. Louis

The Greater St. Louis Citizens Committee for Nuclear Information is only in its second year of operation, but has already attracted nation-wide attention. The Committee has started a 10-year drive to collect 50,000 baby teeth for Str-90 content (it now has close to 10,000), pointing out that such a study will provide continuing data on the amount of Str-90 actually assimilated by children during the years in which the teeth are formed. In most bones, tissue is constantly replaced, but not in teeth. The St. Louis group does not take a public stand on issues, but attempts to provide information to the public through a speakers' bureau, seminars, and the publication *Nuclear Information*, 4484 West Pine Blvd., St. Louis 8, Mo. (\$2.00 for 10 issues).

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on nuclear weapons will "provide an incentive for the development of their own nuclear weapons." It points out that the pact with West Germany cannot be terminated without West Germany's consent, and that this hampers our ability to negotiate for Central European disarmament. Congressman Johnson (D, Colo.) inserted the FAS release into the *Cong. Record* on July 9.

The State Department position is that the agreements will not increase membership in the Nuclear Club, since, with the exception of Britain, no information will be provided on the manufacture of atomic weapons; as for complicating the chances for disarmament, the State Department believes that the West can best negotiate from a position of strength.

Boston Branch Activity

Dr. Charles C. Coryell and Prof. Louis Osborne acting on behalf of the FAS Boston Branch, sent a letter to every member of Congress stating their opposition to the agreements. They included an article by Howard Simons, entitled "World-Wide Capabilities for the Control of Nuclear Weapons", which appeared in *Daedalus*, Summer 1959 issue, the *Journal of the American Academy of Arts and Sciences*. (Single copies free from *Daedalus* Editorial Office, Jefferson Lab 357, Harvard Univ., Cambridge 38, Mass.)

NEWS BRIEFS

The Senate confirmed President Eisenhower's nomination of Frederick H. Mueller to be Sec. of Commerce on August 6. Mueller, who has been Under Secretary, takes the Cabinet post for which the Senate on June 18, rejected Lewis L. Strauss, former AEC Chairman by a 49-46 vote.

George B. Kistiakowsky replaced James R. Killian on May 28 as special assistant to the President for science and technology. Killian will return to MIT, where he was named chairman of the corporation last December.

John H. Williams was nominated on June 16 by President Eisenhower to be a member of the AEC, to succeed Willard F. Libby, who resigned recently. Williams, now director of the AEC's research division, has been in his present post since 1958. He came into Government service from the University of Minnesota where he was a professor of physics for 12 years. From 1943 to 1958 Williams also served part time as technical consultant at the Los Alamos, N. M., atomic energy laboratory.

The "American Men of Science, a Biographical Directory, Vol. 1, Physical Sciences, 1955" is under revision. Among information requested is membership in associations. These would be scientific or technical of course, and the FAS is appropriate and is used in the earlier edition. The address is Jacques Cattell, Editor, Arizona State University, 820 College Ave., Tempe, Arizona. An editorial in *Science* for July 24, covers other information on the Directory.

The FAS is a national organization of scientists and engineers concerned with the impact of science on national and world affairs. The Newsletter is prepared in Washington by FAS members. The staff for this issue included, Editors: J. Edgcomb, F. Stern and Irving Shapiro, of the Washington Office Staff; Writers: R. G. Glasser, E. Kravitz, D. A. Melnick, F. K. Millar, G. Picus, N. Seeman, D. Steinberg, F. Stern; Production: I. Shapiro.

SCIENCE AND EDUCATION

Despite considerable activity on Capitol Hill, no bill providing substantial federal aid to education has yet become law during this session of Congress. On July 7, President Eisenhower vetoed a Senate and House compromise bill which included \$300 million for college housing and \$62.5 million for academic facilities. In his veto message, the President renewed his call for enactment of "the college housing program proposed in the Budget message", \$200 million for college housing loans. There were indications that there would be a legislative attempt to override the Presidential veto. On July 14, bills were introduced in the Senate (S. 2378) and House (H.R. 8181, 8190) which are regarded as satisfactory by the Administration (Amer. Council Bull., Vol. 26, 27).

The Murray-Metcalf bill (S. 2, HR 22), which would provide, in the House version, \$25 per pupil per year for a four year program costing about \$4 billion, has yet to be passed by either House, and faces the likelihood of a veto. The Murray-Metcalf bill provides that allotment of funds for teachers salaries or for construction shall be at the option of the states. Arthur S. Flemming, HEW Secretary, criticized the bill, and proposed that federal funds be used for half the cost of school construction in needy school districts; the other half to be paid by the state (W. Post, 6/5).

Suggested improvements in the entire American educational system were presented in a report released on May 23 by President Eisenhower's Science Advisory Committee headed by Dr. James R. Killian. Among other recommendations the report calls for the doubling of the Nation's financial expenditure for education; the establishment of a proper balance of curricula with greater emphasis on mathematics and science; the provision of more attention, guidance, and financial aid to talented students; an adult education program in science; greater emphasis on bringing women into science; and improvement of science teaching by increasing teachers salaries, decreasing their administrative tasks, and providing programs to help keep teachers aware of scientific advances (W. Post, 5/24, NEA Bull., Vol VI No 14). In a statement accompanying the report, President Eisenhower stressed the importance of raising the standing of teachers in their communities so that the teaching profession may attract top-flight people.

On July 21, the United States and Soviet Academies of Science announced a two year agreement for exchange visits by research scientists of each country for periods up to one year. Under the agreement about 20 scientists of each country will lecture, conduct seminars and study research work for periods of one month, about 18 scientists will spend a month observing research in 14 specified fields, and an additional 6 scientists from each country will make visits lasting a year for research or study in 6 specified fields (7/22, W. Post). This program will supplement programs sponsored by individual institutions such as that between Harvard and Leningrad Universities.

Loyalty Oath Repeal Killed

The Senate on July 23 voted to send back to committee a bill to amend the student loyalty oath provision of the Na-

SCIENTISTS DECRY SECRECY

The consensus of 17 Nobel prize-winning scientists whose thoughts on the subject of secrecy were solicited by Senator Thomas C. Hennings (D, Mo.), Chairman of the Senate Constitutional Rights Subcommittee, was that restrictions on the flow of scientific information were usually harmful and senseless in the fields of basic research. In development activities having direct military applications it was considered advantageous to maintain secrecy. One dissenter among the seventeen felt that security restrictions had only negligible effects on scientific progress.

These thoughts were expressed in replies of scientists to a letter from Senator Hennings who conducted a series of hearings during the summer to determine whether security restrictions may be interfering with scientific research and development in the U.S. This series of hearings is one phase of the Constitutional Rights Subcommittee's continuing study of secrecy and freedom of information in government.

Brattain Comments

Often-quoted in news reports were the remarks of W. H. Brattain, one of the 1956 prize-winners for the invention of the transistor, who said, "Scientific discoveries are generally made when the background knowledge has reached a level such that the new advance is just waiting for someone to see the light. Many times such breakthroughs are made by different people contemporaneously working independently of each other. If we wish our Nation to keep abreast, the best procedure is to do our utmost to give all our scientific personnel unrestricted access to all the fundamental scientific results. I know of no means of doing this while restricting such information to a given nation."

Glenn T. Seaborg, of the University of California pointed out that "... it is the nation in which science is already flourishing that stands to gain greatly. The probability that a new idea or development in methods can be exploited in generating new ideas and developments is proportional to the number of receptive ears which hear about it and to the adequacy of facilities for doing something about it."

The lone dissenter from these ideas was William P. Murphy, who felt that the effects of restrictions had been exaggerated and that, "Much of the complaint has come from a few physicists who are perhaps influenced by a more radical group who are more vocal in their objections because of their basic beliefs."

tional Defense Education Act. This move, in effect, killed any hope of changing the provision at this session of Congress (NYT, 7/24). The controversial provision required that a teacher or student who applies for a loan or grant under the bill sign an oath of loyalty and an affidavit disclaiming membership or belief in subversive organizations. The American Civil Liberties Union, the American Council on Education and many colleges and universities spoke out strongly against the provision as discrimination against applicants desiring aid, and as an invasion of personal rights guaranteed under the First Amendment (ACLU Bulletin 1997, Am. Co. Ed Bull., Vol VIII No. 16).

FAS NEWSLETTER

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