

# F. A. S. NEWSLETTER

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

## Chemical Agents in War Are Criticized

*The following statement was released over the signatures printed below; later it was endorsed by the Executive Council of the Federation of American Scientists meeting in New York on January 28-29, 1966. The additional remarks by Michael C. Latham and Jean Mayer were originally in the form of a letter to The New York Times, which was not published.*

"We emphatically condemn the use of chemical agents for the destruction of crops, by United States forces in Vietnam as recently reported in the New York Times of Tuesday, Dec. 21, 1965. Even if it can be shown that the chemicals are not toxic to man, such tactics are barbarous because they are indiscriminate; they represent an attack on the entire population of the region where the crops are destroyed, combatants and non-combatants alike. In the crisis of World War II, in which the direct threat to our country was far greater than any arising in Vietnam today, our government firmly resisted any proposals to employ chemical or biological warfare against our enemies. The fact that we are now resorting to such methods shows a shocking deterioration of our moral standards. These attacks are also abhorrent to the general standards of civilized mankind, and their use will earn us hatred throughout Asia and elsewhere.

"Such attacks serve, moreover, as a precedent for the use of similar but even more dangerous chemical agents against our allies and ourselves. Chemical warfare is cheap; small countries can practice it effectively against us and will probably do so if we lead the way. In the long run the use of such weapons by the United States is thus a threat, not an asset, to our national security.

"We urge the President to proclaim publicly that the use of such chemical weapons by our armed forces is forbidden, and to oppose their use by the South Vietnamese or any of our allies."

### Signers:

John Edsall, Professor of Biological Chemistry, Harvard University; Editor in Chief, Journal of Biological Chemistry

Albert Szent-Gyorgi, Director, Institute for Muscle Research, Woods Hole; Nobel Laureate

Hudson Hoagland, Director, Worcester Institute for Experimental Biology; Past President, American Academy of Arts and Sciences (1961-1964)

Keith R. Porter, Chairman, Department of Biology, Harvard University

G. G. Simpson, Professor of Biology, Harvard University  
Mathew Meselson, Professor of Biology, Harvard University

Bernard D. Davis, M.D., Chairman, Dept. of Bacteriology and Immunology, Harvard Medical School

Eugene P. Kennedy, Professor of Biochemistry, Harvard Medical School

## Chemical-Bacteriological Warfare

SUMMARY BY GABRIEL KOLKO,

Associate Professor of History at U. of Pennsylvania

Since 1954 the Institute for Cooperative Research has been engaged in research on the feasibility and application of chemical-bacteriological warfare techniques, under contract with various military services. It has both recommended and rejected proposed developments in certain CB areas, and its work has been both classified and unclassified. Many of the approximately 45 staff members of the I.C.R. have University appointments, and certain of its projects have been undertaken by other University centers, such as the Foreign Policy Research Institute. To quote from an October 6, 1965 statement prepared by members of the I.C.R.:

"The University of Pennsylvania's Institute for Cooperative Research is currently engaged in two chemical and biological research projects supported by the United States Army and the United States Air Force. The research is designed to analyze the performance of chemical and biological weapons systems for defensive purposes. The es-

(Continued on Page 2)

Steven Kuffler, Director, Neurophysiology Laboratory, Dept. of Pharmacology, Harvard Medical School

Victor W. Sidel, M.D., Director, Dept. of Preventive Medicine, Massachusetts General Hospital, Harvard Medical School

George Wald, Professor of Biology, Harvard University  
Stanley Cobb, M.D., Professor of Neurology, Emeritus, Harvard Medical School

Bernard Lown, M.D., Assist. Professor, School of Public Health, Harvard Medical School

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Patrick D. Wall, Professor of Biology, Massachusetts Institute of Technology

Charles D. Coryell, Professor of Chemistry, Massachusetts Institute of Technology

Henry T. Yost, Professor of Biology, Amherst College

Peter H. von Hippel, Dept. of Biochemistry, Dartmouth Medical School

Charles Magraw, M.D., Tufts University Medical School

Warren Gold, M.D., Harvard Medical School

Sanford Gifford, M.D., Harvard Medical School

(Continued on Page 2)

## CHEMICAL-BACTERIOLOGICAL WARFARE

(Continued from Page 1)

sential purpose of the research is to develop data to assist in determining the threat to national security posed by such weapons. As a necessary corollary, the offensive potential of these systems is being studied to evaluate the defensive problem, in the same sense that medical scientists study disease in order to develop protection against it . . . the development of non-lethal chemical and biological systems provided hope of a form of warfare which would be far more humane than conventional warfare. The University does not and never has made any recommendations as to the use of such weapons. While the researchers in this effort are as devoted to peace as any of their fellow citizens, they acknowledge the existence of warfare and feel a moral responsibility to contribute to the reduction of human damage caused by it."

In addition to its work in psycho-chemicals, which it has publicly acknowledged, the Institute has recently studied the application of CB warfare to crops, especially rice, defoliation, CB delivery systems, the legal status of CB warfare, economic consequences of the destruction of food centers, and, in the words of Vice-President Carl C. Chambers, director of the Institute, has ". . . things going on well beyond this . . ." The application of many of these techniques to the South Asian ecology and political situation has been of special concern to the Institute.

Faculty members seeking information on the work of the I.C.R. have been advised to seek security clearances, and presumably such clearance is a prerequisite to employment in the Institute's classified projects. ". . . what I can say is very limited . . . [we] very quickly get into classified matter," Prof. Knute Krieger told Prof. Gabriel Kolko on September 29th. In subsequent discussions with Professor Kolko concerning these matters, Professor Carl Chambers made no effort whatsoever to deny the nature of the Institute's specific projects on crop warfare, even though security forbids affirmative rather than negative statements. Indeed, the burden of the numerous discussions with Institute executives has been the propriety and strategic significance of their work rather than the research itself.

The Institute's executives have privately attempted to argue that CB warfare is not prohibited by international law, or at least has an ambiguous legal status. In defense they have cited one legal study sponsored by the Institute via the Foreign Policy Research Center, W. V. O'Brien's "Biological/Chemical warfare and the International Law of War," *Georgetown Law Journal*, LI, 1-63. The best that may be said for this study is that it provides a modest amount of data to suit the predilections of the sponsors, but much more to justify critics of this form of warfare:

" . . . we appear to have sufficient evidence to state that since the Geneva Protocol there has emerged from the practice of states a rule of customary international law

prohibiting at least the first use of chemical warfare . . . The vast majority of text-writers assert that BC warfare as defined in the Geneva Protocol is contrary to international law."

In fact warfare against non-combatants is explicitly prohibited by international legal codes, including those binding on the United States. The Institute's present research into crop destruction is especially obnoxious from a legal standpoint. The deliberate starvation of civilians is a war crime under all circumstances, and should research undertaken at the Institute be applied, ". . . the person who inspires, encourages, helps, or abets the principal in his criminal action" is accessory before the fact and liable to prosecution (Manfred Lachs, *War Crimes*. London, 1945, 35).

Institute executives, in conversations, have suggested their present CB warfare research is purely defensive in its character, but they have failed to answer objections such as those presented in a detailed memo on this matter on October 1st, 1965. (Copies of a revised version or the original of this memo may be had on request). In this memo it was shown that CB warfare, especially of the types now being developed by the Institute, was a purely first-strike and offensive weapon, and that no major rice-producing nation could pose a credible threat in this field for at least a decade.

The secrecy aspect of the Institute's work poses obvious problems to a scholarly community, which has always maintained freedom of publication and communication as a basic tenet of intellectual freedom. Harvard University and other major universities have adopted a policy of refusing to permit projects under University auspices the results of which are not freely publishable. (An important reprint from *Science* on the question of secrecy is available on request).

## CHEMICAL AGENTS

(Continued from Page 1)

Peter Reich, M.D., Harvard Medical School  
Robert Goldwyn, M.D., Harvard Medical School  
Jack Clark, M.D., Harvard Medical School  
Institutions listed for purposes of identification.

The latest U.S. move to destroy rice crops in South Vietnam by the spraying of chemicals from the air seems a peculiar tactic if the enemy is military, not civilian, personnel and if the object of U.S. policy is to win over and not destroy the local populace.

Certainly there are few surer ways of bringing misery to old people, pregnant and nursing women and particularly children than by destroying the staple food crops of any area. As nutritionists who have seen famine elsewhere, we know that throughout history whenever famine occurs it is the young children who suffer first and who succumb earliest. Bands of armed men are unlikely to starve. This present policy, therefore, is most unlikely to achieve its purpose of weakening the active Vietcong adults without at the same time seriously affecting the health and lives of women and children in the areas where spraying has been conducted.

Michael C. Latham, Harvard School of Public Health  
Jean Mayer, Harvard School of Public Health

### FAS NEWSLETTER

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Chairman.....Dr. W. A. Higinbotham  
The FAS Newsletter is prepared in Washington.  
Editor: Judith Eckerson.

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

Sources of information (given at the end of articles in parentheses) are for further reference. Items reprinted directly from other publications are designated as such in an introductory paragraph.

### NOTICE RE ELECTIONS

Because of printing and other unavoidable delays, it has not been possible this year to canvass the membership for nominations by petition and at the same time to mail the ballots and to tabulate the responses in time for the April 24-25 meetings of the Council in Washington. The Nominating Committee, under the chairmanship of Dan I. Bolef of St. Louis, has, however, prepared a full slate of nominees as provided in the by-laws, after thoroughly canvassing informally for nominations. Suggestions were also made at the January meetings in New York.

**SENATE RESOLUTION 179**

Whereas the spread of nuclear weapons constitutes a grave threat to the security and peace of all nations, and

Whereas the knowledge and ability to design and manufacture nuclear weapons is becoming more universally known, and

Whereas the danger of nuclear war becomes greater as additional nations achieve independent nuclear weapon capability, and

Whereas it is the policy of the United States, as stated by President Johnson, "to seek agreements that will limit the perilous spread of nuclear weapons, and make it possible for all countries to refrain without fear from entering the nuclear arms race": Therefore be it

*Resolved*, That the Senate commends the President's serious and urgent efforts to negotiate international agreements limiting the spread of nuclear weapons and supports the principle of additional efforts by the President which are appropriate and necessary in the interest of peace for the solution of nuclear proliferation problems.

January 29, 1966

**F.A.S. RESOLUTION ON  
NON-PROLIFERATION OF NUCLEAR  
WEAPONS**

The Federation of American Scientists supports with enthusiasm the Senate Resolution on the Non-proliferation of Nuclear and Thermonuclear Weapons, introduced on January 18, by Senator John O. Pastore of Rhode Island, and cosponsored by fifty other Senators. We commend and endorse this initiative of the Senate in pressing for speedy agreement in the Eighteen Nations Disarmament Conference of the United Nations, which reconvenes today in Geneva, on a treaty aimed at preventing the further spread of nuclear weapons and weapons technology. We look forward to the rapid endorsement of this resolution by an overwhelming majority of the United States Senate.

We urge President Johnson to continue to give highest priority among American foreign policy objectives to the rapid achievement of such an agreement.

However, we are impelled to emphasize that the achievement of a non-proliferation treaty is just a step—albeit an important step—toward our ultimate goal, the elimination under effective international control of nuclear and other weapons of mass destruction. Toward this end, we call attention to the necessity of achieving a series of collateral measures, of which the non-proliferation agreement is the logical first step, such as those measures spelled out in the report of the Panel on Arms Control and Disarmament to the National Citizens Committee on International Cooperation convened by the President in response to the United Nations International Cooperation Year.

We call upon our government to adopt a program of this kind and to implement it through all available channels.

We further urge our government to take positive initiatives to involve the People's Republic of China in current and future international discussions and arrangements on arms control and disarmament.

**EXPLANATORY STATEMENT**

We have vigorously supported the early efforts of our government to set up an international atomic energy institution along the lines of the Acheson-Lilienthal-Baruch proposals in the United Nations. We rallied the support of the scientific community for the attempt, unhappily unfruitful, of Ambassador Stassen to achieve controls over nuclear weapons while the number of nuclear powers was still limited to the United States and the Soviet Union. We have been heartened by the successful negotiation by the Kennedy Administration of the limited Nuclear Test Ban Treaty, and we participated with all of our power in the successful campaign for Senate ratification of this hopeful first step. We sponsored and contributed to the passage through the Congress of the bill establishing the Arms Control and Disarmament Agency, and we have rallied in support of its continued growth and influence.

But ever since the achievement of the Test Ban Treaty, further progress on arms control and disarmament has been

stalled. This has been partly as a result of our country's growing military involvement in the Vietnam conflict, but also due to a fundamental disagreement with the Soviet Union over the implications of the proposed multilateral nuclear force (MLF) with respect to the further proliferation of nuclear weapons. We fervently hope that initiatives toward achieving a negotiated peace in Vietnam will bear fruit. And we are greatly encouraged that the recent decision, taken with the acquiescence of the West German government, not to press for the MLF will open the door to final agreement on a non-proliferation treaty.

For, truly, we now stand at a point of no return. India and Pakistan, Israel and the United Arab Republic, Sweden, Switzerland, West Germany, among over a dozen technologically competent nations, are capable of launching independent nuclear weapons development programs which could bring them, in a matter of a few years, to the point of testing and manufacturing their own nuclear weapons. Unless binding international arrangements to foreclose this possibility are achieved, we fear that such countries will not much longer be able to resist the internal political pressures for the acquisition of nuclear weapons. This problem must be approached with a sense of urgency and dedication as the ENDC reconvenes in Geneva.

But the long-range inhibition of further nuclear proliferation will require more than just the non-proliferation treaty. Substantial additional measures of arms control and arms limitation are both necessary and achievable. The time is ripe for extension of the Test Ban Treaty to include testing underground; recent progress in seismological detection techniques should make it possible to reconcile the formerly divergent views of the United States and the Soviet Union on the number of on-site inspections required to provide adequate verification of compliance with such a treaty. The successful operation of the system of controls over peaceful uses of atomic energy, instituted by the International Atomic Energy Agency (IAEA) over all programs under the control of this agency, makes it possible to envisage an agreement for the application of these controls to national, bilateral and regional atomic energy programs not now under the jurisdiction of the IAEA; the decision of our country to require these controls in all of our bilateral agreements should be made universal through an appropriate treaty. The ability of the United Nations to intervene for the peaceful settlement of conflicts must be strengthened and accorded universal acceptance. Limitations are required on the accumulation and deployment of nuclear weapons and their delivery systems by the nuclear powers. Restraint in the deployment of antiballistic missile systems by the U.S. and U.S.S.R., while seeking a ceiling on intercontinental missiles, is needed to forestall an acceleration of the nuclear arms race. Nuclear free zones must be established to prevent the spread of nuclear weapons to regions of the world still blessedly free of them, and to remove these weapons from those areas where they represent a destabilizing influence.

But essential as the limited arms control measures are, we must not lose sight of our ultimate goal of comprehensive disarmament under effective international control. Our country and the Soviet Union are on record as advocating the negotiation of a treaty for General and Complete Disarmament. Distant as this goal may seem, it must be ever kept in sight. A splendid opportunity for advancement will be afforded by the convening in 1967 of a General Disarmament Conference, sponsored by the United Nations. It is vital that all nations, and most especially the People's Republic of China, be represented in these deliberations. Whatever our present differences and disagreements with China, it is unthinkable that this government, representing the world's most populous nation, should continue to remain outside of the system of international security now being so painfully built up in the United Nations and other international organs. We firmly believe that the cause of international peace and order will be advanced by the adoption by our government of a positive attitude aimed at the inclusion of the government of mainland China in international discussions at all levels and at the eventual normalization of our relations.

**OF INTEREST . . .**

**ALTHOUGH DESALTING** sea water is still not economically competitive with other means of obtaining water, James T. Ramey of the Atomic Energy Commission has suggested that nuclear-powered desalinization plants be constructed and used on a seasonal basis. Although plan and construction of nuclear powered desalting plants are ten and fifteen-year projects, conventional water facilities take no less time to develop, and the desalting plants using nuclear power could also produce electricity. New Jersey and New York groups have been meeting with AEC personnel to determine the feasibility and usefulness of such projects. (*N.Y. Times*, 18 November 1965)

**DESPITE THE EXPECTED INCREASE** in arable land in Egypt when the Aswan High Dam project is finished, the amount of land per capita in Egypt is declining due to the 3% annual increase in population. Nasser endorsed birth control in 1962, but no government sponsored family planning was begun until the fall of 1965. The government has now requested and received promise of aid from the U.S. in the form of trained personnel, research, equipment for rural health centers, and loans for training programs. The U.S. has emphasized that it cannot supply contraceptives or make loans for factories to produce them, but the Egyptian government "supreme family planning council" is determined to make progress within the four or five years. (*N.Y. Times*, 29 January 1966)

**THE NATIONAL AERONAUTICS** and Space Administration has cancelled its proposed Advanced Orbiting Solar Observatory because of a cut in the NASA budget. Reportedly the White House has been directing it to hold down non-military spending. Project Apollo is expected to receive the support previously planned on. (*N.Y. Times*, 16 December 1965)

**ATTENTION FROM MANY** western countries is being paid to the Rance River Tidal project at Saint-Malo in France, where French engineers have attempted to solve the problem of harnessing the power of the tides for electric energy. Underwater generators in an 820-yard-wide estuary at the mouth of the Rance River will produce electricity sufficient for a city of 250,000 people. Engineers from other countries are investigating the project for possible application in other tidal basins: in France, the Bay of Saint-Michel; in the Soviet Union, the harbor of Kislogoubskaia in the White Sea; in Canada, the Bay of Fundy; and on the U.S. Canadian border, in Passamoquoddy Bay. (*N.Y. Times*, 13 December 1965)

**IN A RARE ACTION**, the American Civil Liberties Union has pledged legal aid for an army officer sentenced by court-martial to two years at hard labor for participating in an anti-war demonstration. The ACLU has not taken any action in a military case in eight years. Second Lieut. Henry H. Howe, Jr. was convicted of publicly using contemptuous language against the President and conduct unbecoming an officer. The legal director of the ACLU called this "wholly unwarranted" and "a clear abuse of discretion." (*N.Y. Times*, 17 January 1966)

**ACCORDING TO REPORTS** from the United States Geological Survey, tomorrow's source of oil is high grade shale. The supply is estimated at 18,000 times the annual oil consumption in the world. The Survey's office said that 190 billion barrels of oil could be extracted by present methods, and 325 trillion barrels await improved technology. The richest shale deposits are in the Green River area of Colorado, Utah, and Wyoming. Enormous deposits are found in central Asia and Africa. The largest oil shale plant now in operation is in Manchuria. (*N.Y. Times*, 8 February 1966)

**IN HIS BUDGET MESSAGE**, President Johnson proposed legislation establishing a Redwoods National Park. The question remains whether the park will include a substantial number of the oldest trees in California. Last year lumbering companies cut down 15,000 acres of primeval redwood forest, including many trees 2,000 or more years old. One proposed site of 38,000 acres includes only 6,000 acres of redwoods, most of the trees in the area being of other types. Lumber interests hope to establish the park where there are fewer of the best trees. (*N.Y. Times*, 27 January 1966)

**WORLD HEALTH ORGANIZATION** officials have approved a program by which they hope to eradicate smallpox from the world. They project a 10-year campaign in which they will administer 1.78 billion vaccinations. \$2.4 million has been appropriated for next year. Since the disease is present only in man, and transmitted from person to person, they hope to eliminate it entirely. Problem areas are Afghanistan, India, Burma, Indonesia, Pakistan, Nepal, Brazil, Peru and Colombia. (*N.Y. Times*, 25 January 1966)

**THE CONTROVERSY CONTINUES** over whether the flood control project constructed by the Army Corps of Engineers is or is not responsible for the parched condition of the Everglades National Park. Engineers, biologists, lawyers, and park-lovers cannot agree on the causes of the four-year drought. Meanwhile, the canals and levees remain and spring of the fifth year is coming. (*N.Y. Times*, 25 January 1966)

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