Reprinted, with permission from SCIENCE NEWS LETTER, April 16, 1960, weekly summary of current science, issued by Science Service, non-profit institution, Washington, D. C. To keep up with the latest developments in science and technology, you can receive 41 issues for $3.13.

Chemical Warfare Dangers

At the American Chemical Society meeting it was reported that nerve gases would be most lethal in chemical warfare. U. S. scientists have worked on new detection methods.

THE LATEST chemical or biological warfare agents, carried in a single bomber, could kill more people than an H-bomb. At this moment the U.S. population has virtually no means of protecting itself in the initial stages of the attack.

At a meeting of the American Chemical Society in Cleveland, Ohio, Dr. William H. Summerson of the U.S. Army Chemical Corps reported that nerve gases are the most lethal agent that could be used in chemical warfare. These gases kill in minutes by overstimulating the nervous system. Some are so powerful that an aspirin-sized amount of the dried powder can kill 350 animals. There is no detectable odor or color; the victim inhales the gas and dies before anything can be done to save him.

A bomber load of these gases could kill 30% of the people in a 100-square-mile area. The area could be dangerous for as long as 36 hours.

Biological agents (450 pounds) could kill 75% of the people in a 34,000-square-mile area. The residual effects could last up to eight days and once an epidemic was started, it could spread to a much larger area.

Dr. LeRoy D. Fothergill of the U.S. Army Biological Warfare Laboratory, Ft. Detrick, Md., reported that diseases such as typhoid, cholera, anthrax, and rabies could be dispersed by dropping aerosol bombs. The organisms could also be put into water, food and drug supplies, or they could lie dormant in the soil.

Gen. Marshall Stubbs, the Army's Chief Chemical Officer, noted that chemical and biological agents, used together or in combination with nuclear weapons, could wreak untold havoc on an unprepared nation.

Soviet microbiologists, he said, have conducted biological tests in an isolated location over a long period of time. Medical and technical reports indicate that the Russians are well versed in biological warfare.

The officials of DOSAAF, a Soviet program for the military education of civilians, claim that 85% of the population has completed a 10-hour anti-air defense course. The present aim of the organization is to train every citizen in defense against chemical, biological and radiological attack.

The Soviet Union has the physical facilities and the know how to make a successful chemical or biological attack, he stated.

Dr. Alan W. Donaldson of the Public Health Service, Atlanta, Ga., reported that U.S. scientists have been working on new detection methods. The new fluorescein antibody technique is proving fairly successful in identifying many biological agents.

Civilian protective masks have been developed but they are not generally available to the public, said George D. Rich of Washington.

On the other hand, the Russians have gas masks and shelters in many of their public buildings.

Science News Letter, April 16, 1960

Relative Effects of CBR Weapons. Table prepared by the ACS Committee on Civil Defense

Basic Assumption: For the purposes of this table one B-52 bomber (or its equivalent) is considered capable of carrying either one 20-megaton thermonuclear bomb or enough chemical warfare or biological warfare agents to create the comparable results shown in this table.

	Nuclear Agents	*Chemical Agents*	*Biological Agents*
Immediate effective area	More than 36 square miles (A & B rings)	100 square miles	34,000 square miles at the very least and with only 450 lbs. of agent
Human lethality (or morbidity) in immediate area (unprotected)	98% (Lethality—A ring)	30% (not necessarily lethal)	25%-75% (morbidity, not necessarily lethal)
Residual effect	Six months fallout with an additional 1,000 square miles of area	3-36 hours (nearly same area)	Up to 8 days or more (possible epidemic spread to other areas)
Time for immediate effect	Seconds	7½ seconds to 30 min.	A few minutes to 14 days
Real property damage, immediate area	Destroyed (nearly 36 sq. miles)	Undamaged	Undamaged
Variation in effect	Little	Wide—need not kill, only incapacitate	Wide—need not kill, only incapacitate
Time an aggressor is able to safely invade area after attack	3-6 months	Immediate	Immediate
Human protection that could be available	Evacuation (?) Shelters Civilian mask (fallout)	Civilian mask, CD-V-805 Shelters with filters	Civilian mask, CD-V-805 Immunization Shelters with filters
Current defense for U.S. population (physical devices)	Some, but can be greatly improved	Nearly nonexistent	Nearly nonexistent
Cost of protection	Shelters (150-$800/person)	Mask—$2.50-$8.00 Filters in shelters ($15-$20/person)	Mask—$2.50-$8.00 Filters in shelters ($15-$20/person) Immunization (?)
Covert application	Little	Some	Great
Detection and identification	Simple	Complex but fairly effective and rapid	Difficult, complex, slow
Medical countermeasures	Little	Good if immediate	Some, much more needed. High health and sanitation standards help.
Would attack trigger retaliation?	Yes	Yes	Doubtful if covert, slow at most
Capital equipment costs to produce agents	Very expensive	Somewhat expensive	Relatively inexpensive

American Freedom Association Salisbury Office

Report on Activities: August 1959 through July 1960 (Delivered at the 7th Annual Southeastern World Affairs Institute, July 24, 1960)

I. HIGH SCHOOL WORLD PEACE STUDY AND SPEAKING PROGRAM

In late September, 1959, a mailing was sent to approximately 1,200 high schools in North Carolina, describing the H. S. World Peace Study and Speaking Program sponsored by the Extension Division of U.N.C., and the annual chartered bus trip to New York City, the United Nations, and Washington, D. C., sponsored by the American Freedom Association. The topic for 1959-1960 was, "The United Nations in the Space Age."

136 schools enrolled for the Speaking Contest with the Extension Division. 30 of these schools were Negro high schools, or approximately 22% of the registration.

33 high schools registered for the chartered bus trip to New York City, 3 of which were Negro schools. Approximately 30% of the white schools registered for the speaking program participated in the bus trip; and 11% of the colored schools registered for the speaking program participated in the bus trip.

Two tours were offered by the American Freedom Association . . . one in the early Fall and one in April. The response to the Fall tour was so slight that it was not carried out. The reason for having offered a tour in the Fall was because the United Nations is in full session during those months and would be of more interest and greater educational value to the tour participants to visit at that time. However, the obstacles to promoting the speaking contest and chartered bus trip are too great in the early Fall for the school teachers to cope with.

All schools registered for the speaking contest are eligible to participate in the chartered bus trip offered by the American Freedom Association. The winning student and his teacher, or the second place winning student as substitute for the teacher most usually constitute the participants. At times a substitute teacher or a P.T.A. member will accompany the winning student. The cost of the trip, all expenses included, was $102.-50 per school (includes teacher and student). The American Freedom Association provides 4 chaperones. Discussions are held during the trip concerning internal affairs, the need for enforceable world law and how it can be accomplished, and the work of the United Nations.

The itinerary includes a sight-seeing tour of New York City, a visit to International House and discussions with resident foreign students, a Broadway Theatre production, a tour of the United Nations Building, conferences with U. N. personnel, lunch in the Delegates Dining Room; then in Washington: a bird's-eye tour of the City, a tour of the Capitol, conferences with Congressional personalities, individual visits to North Carolina Senators and Representatives, and individual visits to Congressional "open hearings."

At this time there is every reason that this chartered bus trip will continue to be as successful in the future as it has been in the past.

II. WORLD AFFAIRS INSTITUTE

The Sixth Annual Southeastern World Affairs Institute, held at the Blue Ridge Assembly, Black Mountain, N. C., July 24 through 26, had as its theme, "America's Role in Human Destiny." Listed among the speakers were Capt. John H. Morse, Jr., representative to the National Security Planning Board Council from the Atomic Energy Commission; Representative Charles O. Porter (D.-Ore.); William T. Nunley, United Nations Advisor, Bureau of European Affairs, U. S. Department of State: Dr. Arthur Larson, Director of the World Rule of Law Center, Duke University; Dr. Gerhart D. Wiebe, partner, Elmo Roper and Associates; Dr. Jay Orear, Professor of Physics, Cornell University; Col. George Patrick Welch, member of the Board of Directors of Federal Union, Inc.; Dr. Keith F. McKean, professor, school of general studies, N. C. State College; Dr. Roy Jumper, assistant professor of political science, Wake Forest; Dr. Robert A. Rupen, professor of political science, U.N.C., Dr. John W. Shirley, Dean of N. C. State College; Harris Wofford, Washington lawyer; Dr. John Gillin, professor of anthropology, U.N.C.

Eight organizations co-sponsored the Institute including the American Freedom Association, N. C. Council of Churches, American Association for the United Nations, N. C. Farm Bureau Women, N. C. Association of Home Demonstration Clubs, United World Federalists of N. C., N. C. Conference Committee on World Peace, The Methodist Church; and the Western N. C. Conference Committee on World Peace, The Methodist Church.

The Institute attendance increased 100% over the attendance for the Fifth Annual Southeastern World Affairs Institute. Over 300 persons attended all or part of the Institute and signed the registration book.

III A.F.A. BULLETIN

The American Freedom Association **BULLETIN,** a six-page newsletter was published 5 times during the period covered by this report. It contained news items concerned with the need for world law, and reports on activities being carried on by A.F.A.

IV. MEMBERSHIP

There are 232 members of the American Freedom Association, with 260 other persons who are on A.F.A.'s mailing list through personal request. The mailing list totals 492 and includes teachers, librarians, students, newspaper editors and other private citizens.

V. OTHER ACTIVITIES

This office continues to supply individuals, organizations and school groups with literature, speakers and films on request. Prior to United Nations Week, we urge A.F.A. members and friends to take an active part in U.N. Week celebrations in their communities, and stand ready to aid with these activities by supplying literature, speakers and films.

July 20, 1960 —GRACE C. COOPER