

F.A.S. PUBLIC INTEREST REPORT

Journal of the Federation of American Scientists (F.A.S.)

Volume 52, Number 5

September/October 1999

MESSAGE FROM THE PRESIDENT

Dear FAS Member:

After thirty years of being your steward, I have decided to step aside and, in August, asked the officials of both FAS and the FAS Fund to begin a search for a new president to replace me. It is not healthy for an organization to be run for more than three decades by a single person. New perspectives and new approaches are always in order. And I feel ready for a change.

I want to take this occasion to thank the FAS members and officials for their constant support and confidence through so many years. I have tried to run the organization in more than the democratic fashion required by its constitution-- indeed, to run it in a consensual fashion. In this, the statistics offer a gratifying measure of success.

Since FAS has taken about ten policy positions a year in the name of more than one hundred officials, and done so for 30 years, there have been approximately 30,000 opportunities for an official to say, "I quit," in response to some decision. But, as a result of careful consultation, only about three officials have done so in thirty years--or 1 per 10,000 opportunities! During this period, I enjoyed smooth working relations with a dozen FAS Chairmen--most

of whom were both urged and pleased to serve for more than one term--and with over 140 different FAS Council and FAS Fund Board members.

Since I am an independent-minded person, and since my colleagues are also, this is no small accomplishment. And the staff, even more independent-minded, have found FAS a congenial home for very long periods doing important work on space policy, secrecy and arms sales, among other topics. Through their activities, FAS has received more attention in the press than organizations ten times our size--a degree of attention that reflects the significance of their work. And a number of staff members have gone on to important work of their own based on professional growth at FAS.

But administering the group, and writing more than half of all the almost 300 newsletters has sometimes been exhausting. At three points, despite the immense pleasures of working at FAS, turning over the presidency to someone else has been a temptation. In 1980, after writing ten newsletters a year for ten years, I felt drained of ideas and was within a day of quitting at the annual Council Meeting. Although the staff began to grow at that point, I was similarly exhausted in 1985 and again



Stone in 1970



Stone in 1999

Statement from Chairmen p3; FAS Success on ABM-START - p4; Breakthrough with Iran - p6; Ottawa Protocols - p8; Polygraph Controversy - p10; NET.NEWS - p12

considered resigning in 1990 on the 25th anniversary of my service. In fact, I approach presiding in November over my thirtieth annual meeting as your president with a real sense of: "I can't believe I ran the whole marathon". After all, the average executive director lasts about five years--not thirty.

The organization being turned over to a new president is much stronger than the one we began rebuilding in 1970. It has one hundred times the annual budget and a substantial reserve and net worth. Its letterhead shows the support of 57 Nobel Prize winners where before there were none. It has a brilliant staff and a track record of proven accomplishment. The search committee will find it easier to come up with a candidate for my replacement than the FAS Executive Committee did in 1969--when I descended from that committee to the FAS presidency because no other suitable candidates could be found!

Most important to me are the significant achievements of FAS and its staff. Indeed, using FAS as a base, I myself managed to become a player, and sometimes to influence for good, a broad and romantic range of issues, chronicled in my life-memoir "*Every Man Should Try: Adventures of a Public Interest Activist*" [PublicAffairs Press, 1999].

These experiences, over thirty years, have persuaded me of the need for a new kind of non-governmental organization whose mission would be to improve relations between the United States and other governments involved in serious diplomatic disputes affecting peace and security. Such a group would not limit itself to matters of arms control, science or scientific exchange. But it would use the kind of techniques I have developed at FAS. I plan

FAS FUND

The Federation of American Scientists Fund, founded in 1971, is the 501 (c)(3) tax-deductible research and education arm of FAS.

Frank von Hippel, Chairman

Jeremy J. Stone, President

BOARD OF TRUSTEES

David Armington
Cely Arndt
Bruce Blair
Marvin L. Goldberger
Mark A.R. Kleiman
Kenneth N. Luongo

Richard Muller
Peter Reuter
William Revelle
Massoud Simnad
Margaret R. Spanel
Herbert F. York

The *FAS Public Interest Report* (USPS 188-100) is published bi-monthly at 307 Mass. Ave., NE, Washington, D.C. 20002. Annual subscription \$25/year. Copyright © 1999 by the Federation of American Scientists.

Periodicals Postage Paid at Washington, D.C.

POSTMASTER: Send address changes to FAS, Public Interest Rep., 307 Massachusetts Avenue, NE, Washington, D.C. 20002.

FAS

Chairman: CARL KAYSSEN

Vice Chairman: ROBERT MCC. ADAMS

President: JEREMY J. STONE

Secretary: PRISCILLA J. McMILLAN

Treasurer: MICHAEL MANN

The Federation of American Scientists (FAS), founded October 31, 1945 as the Federation of Atomic Scientists by Manhattan Project scientists, engages in research and advocacy on science- and society issues, especially global security.

Current war and peace issues range from nuclear war to ethnic conflict and from nuclear disarmament to arms sales; sustainable development issues include disease surveillance, climate modification, poverty, food security and environment. FAS also works on human rights of scientists and on reductions in secrecy.

SPONSORS

- *Sidney Altman (Biology)
- *Bruce Ames (Biochemistry)
- *Philip W. Anderson (Physics)
- *Kenneth J. Arrow (Economics)
- *Julius Axelrod (Biochemistry)
- *David Baltimore (Biochemistry)
- Paul Beeson (Medicine)
- *Baruj Benacerraf (Immunology)
- *Hans A. Bethe (Physics)
- *J. Michael Bishop (Molecular Biology)
- *Konrad Bloch (Chemistry)
- *Nicolaas Bloembergen (Physics)
- *Norman E. Borlaug (Wheat)
- Anne Pitts Carter (Economics)
- *Owen Chamberlain (Physics)
- Abram Chayes (Law)
- Morris Cohen (Engineering)
- *Stanley Cohen (Biochemistry)
- Mildred Cohn (Biochemistry)
- *Leon N. Cooper (Physics)
- *E.J. Corey (Chemistry)
- Paul B. Cornely (Medicine)
- *Johann Deisenhofer (Structural Biology)
- Carl Djerassi (Organic Chemistry)
- Ann Dreyfus (Writer/Producer)
- *Renato Dulbecco (Microbiology)
- John T. Edsall (Biology)
- Paul R. Ehrlich (Biology)
- *Gertrude B. Elion (Medicine)
- George Field (Astrophysics)
- *Val L. Fitch (Physics)
- Jerome D. Frank (Psychology)
- Jerome I. Friedman (Physics)
- *D. Carleton Gajdusek (Medicine)
- John Kenneth Galbraith (Economics)
- *Walter Gilbert (Biochemistry)
- Edward L. Ginzton (Engineering)
- *Donald Glaser (Physics-Biology)
- *Sheldon L. Glashow (Physics)
- Marvin L. Goldberger (Physics)
- *Joseph L. Goldstein (Medicine)
- *Roger C.L. Guillemin (Physiology)
- *Herbert A. Hauptman (Chemistry)
- *Dudley R. Herschbach (Chem. Physics)
- Frank von Hippel (Physics)
- *Roald Hoffmann (Chemistry)
- John P. Holdren (Energy/Arms Control)
- *David H. Hubel (Medicine)
- *Jerome Karle (Physical Chemist)
- Nathan Keyfitz (Demography)
- *H. Gobind Khorana (Biochemistry)
- *Arthur Kornberg (Biochemistry)
- *Edwin G. Krebs (Pharmacology)
- *Willis E. Lamb, Jr. (Physics)
- *Leon Lederman (Physics)
- *William N. Lipscomb (Chemistry)
- Jessica T. Mathews (Public Policy)
- Roy Menninger (Psychiatry)
- Robert Merton (Sociology)
- Matthew S. Meselson (Biochemistry)
- Neal E. Miller (Psychology)
- *Franco Modigliani (Economics)
- Philip Morrison (Physics)
- Stephen S. Morse (Virology)
- *Joseph E. Murray (Medicine)
- *Daniel Nathans (Biochemistry)
- Franklin A. Neva (Medicine)
- *Marshall Nirenberg (Biochemistry)
- *Douglas D. Osheroff (Physics)
- *Arno A. Penzias (Astronomy)
- *Martin L. Perl (Physics)
- Gerard Piel (Sci Publisher)
- Paul Portney (Economics)
- Charles C. Price (Chemistry)
- Mark Ptashne (Molecular Biology)
- George Rathjens (Political Science)
- *Frederick Reines (Physics)
- *Burton Richter (Physics)
- David Riesman, Jr. (Sociology)
- *Richard J. Roberts (Molecular Biology)
- Vernon Ruttan (Agriculture)
- Jeffrey Sachs (Economics)
- *J. Robert Schrieffer (Physics)
- Andrew M. Sessler (Physics)
- *Phillip A. Sharp (Biology)
- Stanley K. Sheinbaum (Economics)
- George A. Silver (Medicine)
- *Herbert A. Simon (Psychology)
- *Richard E. Smalley (Chemistry)
- Neil Smelser (Sociology)
- Alice Kimball Smith (History)
- *Robert M. Solow (Economics)
- *Jack Steinberger (Physics)
- *Henry Taube (Chemistry)
- *James Tobin (Economics)
- Myron E. Wegman (Medicine)
- Robert A. Weinberg (Biology)
- Victor F. Weisskopf (Physics)
- *Torsten N. Wiesel (Medicine)
- Robert R. Wilson (Physics)
- Alfred Yankauer (Medicine)
- Herbert F. York (Physics)

*Nobel Laureate

NATIONAL COUNCIL MEMBERS (elected)

- Ruth S. Adams (Sci. Editing)
- Eric H. Arnett (Arms Control)
- Harold A. Feiveson (Physics)
- Steve Fetter (Physics)
- Jean F. Herskovits (African Studies)
- Michael T. Klare (Arms Control)
- Priscilla J. McMillan (History)
- David Z. Robinson (Physics)
- Arthur H. Rosenfeld (Energy)
- Andrew M. Sessler (Physics)
- Robert M. Solow (Economics)
- Gregory van der Vink (Geoscience)
- Burns H. Weston (International Law)
- Sydney G. Winter, Jr. (Economics)



FAS Headquarters

Federation of American Scientists
307 Massachusetts Avenue, N.E.
Washington, D.C. 20002
202/546-3300

to create and lead such an organization as a vehicle for my continued work in the peace and security field after leaving the FAS presidency. The organization will be called *Catalytic Diplomacy*.

Besides generating the occasional catalytic

act--such as organizing visits or exchanges between key Americans and their counterparts from countries in tension with the United States--*Catalytic Diplomacy* would provide independent counsel to officials in a number of places, much as do the for-profit international consulting firms. But the advice of *Catalytic Diplomacy* would be funded not by foreign governments but by foundations with the goal of peace and security between the United States and other nation states. Its counsel would be dispassionate, empathetic, and devoid of commercial ambition. I find the prospect of generating such an organization, even in miniature, very exciting. And if I can show the feasibility of such a group, it might, in time, with others joining me, grow to fill a new kind of role. Of course, where *Catalytic Diplomacy* can usefully collaborate with FAS, it will.

I do believe that FAS is, as Presidential

Science Adviser Jerome B. Wiesner once put it, "The conscience of the scientific community." I have tried, over these 30 years, to be the conscience of that conscience and to give voice to its dictates. Often that has meant rejecting the occasional quiet ultimatum, making difficult choices, and trying to resolve problems rather than letting them fester.

I ask all FAS members and officials to redouble their efforts to help FAS through the difficult transition associated with the inevitable change from a long-time steward to new opportunities under new leadership.

Sincerely,
Jeremy J. Stone

FAS WORKING ON TAIWAN CRISIS

In the last week of October, before the FAS Annual Meeting of November 12-13, I will spend a week in Taiwan seeing high-level officials on the growing crisis over Taiwan's identity. A month later, at the end of November, I will spend a week in Beijing on the same issue. Besides drawing renewed attention to the "Northeast Strategy" for reunification of China (See FAS PIR of January/February 1997 or Chapter 28 of *Every Man Should Try*) as a solution to current difficulties, I will be collecting ideas and making other more immediate suggestions. I am receiving full cooperation from high officials in both Taipei and Beijing. - JJS

STATEMENT OF THE CHAIRMAN OF THE FAS COUNCIL AND FUND BOARD

[This letter was sent in response to a letter to the FAS Council and Fund Board on August 7, 1999.]

In 1995 FAS presented Jeremy Stone, its chief executive officer, with its Public Service Award on his 25th year of service, calling him the "head and heart of FAS for its second quarter century." Now, approaching 30 years in his post, he announces his intention to retire and embody his continuing efforts for peace and security in a new way. We receive his announcement with deep appreciation for his long and

extraordinarily effective service.

In 1970, Jeremy took over the management of an organization that was losing its vitality and revived it. He increased its membership to record levels, recruited a distinguished list of sponsors, and recruited and retained an excellent staff. For these three decades, he has provided the energy to drive the organization and the critical leadership to steer it. He shaped and harmonized the ideas of its officers and active membership, often on ideas he himself had

generated. His long tenure made him the dean of public interest organizations in our field. Through creative methods of fund-raising, he went well beyond maintaining the organization; he is leaving it with substantial assets that provide the capability to initiate and support important projects that cannot be immediately funded.

Beyond expanding and administering the organization, Jeremy has made significant contributions to peace and security in arms control treaty-making on ABM and nuclear weapons reductions, in improving relations between the United States and Russia and China, in human rights and in international scientific exchange.

We welcome his intention to continue to work under the rubric of *Catalytic Diplomacy*, and expect that he will find useful collaborations with

FAS and other like-minded organizations in pursuing common goals.

Carl Kaysen Frank von Hippel
FAS Chairman FAS Fund Chairman

NOTE: A Strategic Review Committee, chaired by Arthur Rosenfeld, has been convoked to examine FAS' priorities in the coming decades; its other members are Steve Fetter and Michael Mann. Members are invited to e-mail suggestions, including suggestions for possible attributes and even names for candidates to succeed Jeremy, to:

Arthur Rosenfeld arthur.rosenfeld@hq.doe.gov
Steve Fetter sfetter@wam.umd.edu
Michael Mann mdm@rsko.com

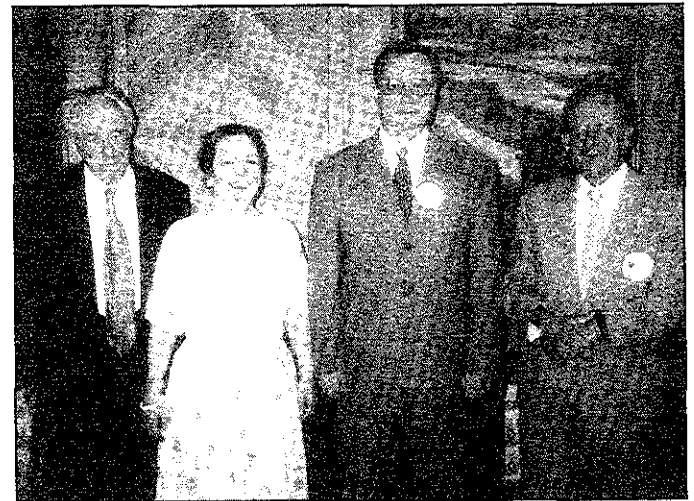
FAS SUCCESS ON ABM-START TREATIES; RUSSIAN PREMIER FIRED

Jeremy J. Stone

Now it can be told but only because the Prime Minister was fired. On July 15, I briefed Russian Prime Minister Sergei Stepashin for more than an hour on my "defuse" strategy for dealing with the U.S.-Russian arms talks. He accepted my advice and presented the FAS-approved plan in high-level talks in Washington the following week with Vice President Al Gore and President Clinton. Unfortunately, he was dismissed by President Yeltsin three weeks later on August 9 and the current Russian strategy is unclear.

The mission began when President Yeltsin advised President Clinton in a summit talk in Helsinki that the two of them should resolve, together, the running dispute over START II and START III and the ABM Treaty. President Yeltsin urged that experts be gotten out of the way by the end of July so that an agreement could be hammered out. It seemed sensible to see whether the discussions I held in Moscow in February on the defuse approach could be advanced before the Prime Minister arrived in Washington on the 27th of July.

Under this approach, described in the March/April 1999 newsletter, the Russians would accept proposed changes in the ABM Treaty by the



Academician Moiseev, Mrs. Stone, Stepashin, Stone

U.S., but only on the condition that START III levels of deployed strategic offensive weapons were reduced to 1,000 (rather than previously discussed levels of 2,000-2,500). One thousand was a level to which Russian forces were expected to descend anyway by the year 2007 when START II limits of 3,500 were to be achieved. In that newsletter, the idea, balancing ABM and START considerations, was put forward as my own, but, by July, the Executive Committee had approved it in recognition of the unfortunate aspects

of the likely alternative outcome.

At the heart of the notion was the rough calculation that, with only 1,000 offensive strategic warheads, the U.S. would have to revise the strategic guidance given by the White House to the strategic force commanders. In this revision, it was believed that disarming attack options might well disappear for lack of warheads. These options, anachronistic in the extreme, were dangerous to both sides because they precipitated higher-than-necessary alert levels on the Russian side while maintaining higher than necessary alert levels on our side.

Put briefly, the U.S. is maintaining four Trident submarines on 15-minute alert in peace time to be able to attack Russian strategic forces before they can disperse in a crisis--an option America would never use. And this kind of posture keeps the Russian forces on edge--something dangerous to us. It was reasoned that enough disarmament, such as reductions to 1,000 deployed strategic warheads, would produce offensive weapon parity and leave both sides with secure retaliatory forces. In such a context, anti-ballistic missile systems would not seem a threatening backup to a possible offensive strike but would appear prudential only.

To illustrate this, I designed a button that read "Truncate the Sword...and the Shield becomes Harmless" with a picture of a shield (called ABM) and a broken sword (labeled 1,000). Some related calculations on the invulnerability of mobile missiles were worked up by Council Member Steve Fetter.

The trip started disastrously. On Friday, July 9, Aeroflot was delayed for eight hours at Dulles airport. Flying on the same plane was the Deputy Chief of Staff of the Russian Government, General Alexander Piskunov, with whom Ambassador Paul C. Warnke and I had met at lunch the week before. But, unfortunately, he spoke no English and was traveling alone. My wife, B.J.'s Russian, was not up to

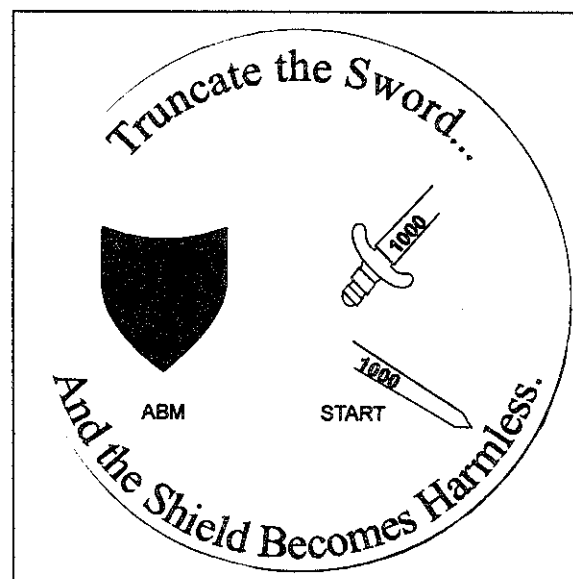
translating arms control and so little could be accomplished. On Monday, I was too dizzy to stand, probably the result of food poisoning. And arrangements I had made to secure appointments through the good offices of the Institute for U.S. and Canada Studies seemed to be collapsing due to the impending absence of its Director, Sergei Rogov.

However, on Friday, the last day of the trip, I managed, with the Institute's good offices and help, to meet for 45 minutes with the National Security Council of the Russian Federation, for 90 minutes with the Deputy Foreign Minister, Georgi Mamedov--who does the serious negotiating with our own Deputy Secretary of State, Strobe Talbott--and for 70 minutes with the Prime Minister himself.

The Prime Minister, who is now running for a seat in the Duma on the Yabloko party ticket, was friendly and relaxed and permitted the meeting to run on much longer than his aides expected. (They complained later that he almost missed his flight to the Ukraine for a State visit.) I said his advisers were making two mistakes. First, they worry about building up Russian forces rather than about lowering (through disarmament) the threatening U.S. forces.

Second, they worry about a *new* arms race instead of about eliminating the dangers created by the *last* arms race. To this he said: "Yes, we have a proverb that says if one leaves a rifle on the rug long enough, it will go off."

He accepted copies of two different ancient maps of Moscow--one for himself and one for Yeltsin and explained the button. In the end, as the picture on page 4 shows, he put on the button, signifying his approval of the FAS idea, and said: "This is for *The Washington Post*." He then qualified this assertion by saying he would have to talk to President Yeltsin who was the "commander-in-chief". (Yeltsin had twice before called for 1,000--the first time on September 15, 1997 after meeting with his Defense Minister



Igor Sergeyev.)

In general, Stepashin's concern seemed to have been largely political. What would the Duma be told? I suggested he tell the Duma that, through hard-bargaining, he had reduced U.S. weapons to 1,000 and achieved parity. The Prime Minister said: "Yes and saved a lot of money for both sides." Would the U.S. agree to 1,000? I suggested that the U.S. really wanted Russian agreement to the ABM Treaty modification and that 1,000 warheads at the ready was more than enough for U.S. retaliatory needs.

The U.S. could hardly announce that it was unwilling to move toward 1,000 because it wanted to retain the ability to launch massive nuclear strikes on Russia to disarm it in advance of any Russian attack! The world would consider this absurd. The Prime Minister alluded, in response, to the fact that the world had not supported Moscow on the bombing of Belgrade.

The arms control alternative to the defuse approach, much bruited about by some Administration officials, was to permit the Russian side to amend START II to permit the Russians to have land-based missiles with multiple warheads in compensation for the U.S. amending the ABM Treaty to permit a small ABM system against the North Koreans. I argued that this alternative would provide Russia with very few extra warheads and these would all be placed on missiles that were as vulnerable as they had been with one warhead.

We discussed amending the START II Treaty

to change the number from 3,500 to 1,000 while keeping everything else the same. In a maneuver worked up with Ambassador Paul C. Warnke, the U.S. and Russia would amend the ABM Treaty simultaneously. Both amended treaties would be put forward for ratification and signature at the same time.

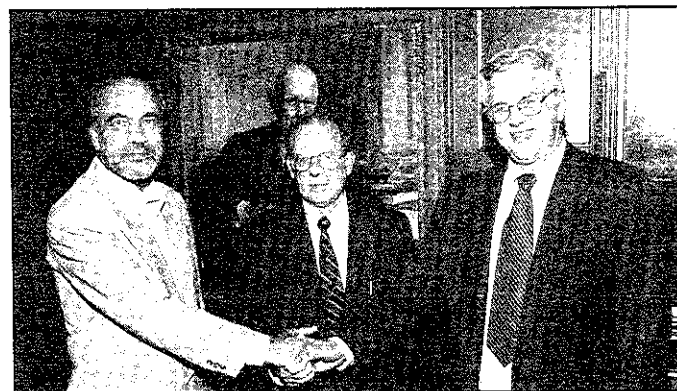
* * * *

Where do things stand now? The Russians are talking about "1,500 or less" rather than 1,000 and the American side has not yet decided, as this newsletter goes to press, what ABM amendments it will seek. According to an unclassified paper by Dean A. Wilkening, *ABM Treaty Compliance: Past Concerns and Future Debates* [Center for International Security and Cooperation, Stanford University], which is said to mirror official reality, the U.S. was considering options ranging from a mere 20 interceptors at one site to 100 interceptors at one site to 200 interceptors at two sites to more. It is entirely possible that the Russian side would urge 1,500 in return for little or no ABM Treaty modification while insisting on lower offensive strategic limits in return for larger ABM treaty modifications. This would be entirely consistent with the defuse proposal. On the other hand, some Russian thinking might say that larger ABM modification required that they have *larger* numbers of offensive weapons--thus 1,500 or *more*. (On the other hand, again, it is unclear that Russia can maintain 1,500 in the time period involved--many people think not.) □

FAS BREAKTHROUGH IN SCIENTIFIC RELATIONS WITH IRAN

Jeremy J. Stone

After eight difficult months of negotiation, FAS managed to unite the scientific communities of Iran and the United States, after a period of separation of twenty years. A September 7-13 visit of the leadership of the Iranian Academy of Sciences to the United States turned out to be successful beyond all expectations. The delegation came at the joint invitation of FAS and the National Academy of Sciences (NAS), but the visit was organized and the delegation was hosted by FAS.



The Three Presidents: Davari, Stone, Alberts

This visit has been under negotiation since the FAS visit to Iran in December by myself, Robert Adams and Massoud Simnad. After that visit, FAS offered, in effect, to receive any delegation we could get. Working through an intermediary, Professor Ali Mansoori of the University of Illinois at Chicago, I learned, after a few months, that the Iranian Academy would be willing to send this delegation. But painful negotiations ensued for months.

On its first working day, after visiting FAS, the Iranian delegation had a warm and constructive meeting with the National Academy of Sciences after which NAS agreed to a return visit in the spring to explore future areas of cooperation such as health, renewable energy, earthquake hazard reduction, education, food security and the environment. NAS announced this agreement to visit Iran on its web site to the amazement of Iranian watchers.

On the next day, the delegation toured Capitol Hill, saw the Iranian collection at the Library of Congress, was introduced in passing to three Senators whom we met in the halls, saw the Senate in action on the Senate floor, met with experts on "distance learning" (correspondence courses) and with experts on heating and cooling, and had a gala reception in the evening at the National Academy of Sciences for senior scientists and FAS staff and officials.

Delegation Met with Many Scientific Groups

On the third day, the delegation managed, by splitting up, to have a wonderfully warm reception with officials from the American Association for the Advancement of Science (AAAS) that set up a return visit, to meet with the Director of the American

Society for Mechanical Engineering and to have a productive meeting at the National Institute of Health (NIH). The engineers in the delegation were meeting that afternoon with the Alliance to Save Energy, with the World Resources Institute on Climate Change, and with the American Society for Civil Engineering.

After the weekend, the group had excellent meetings with the American Physical Society and with the American Chemical Society both of which have had long interest in such scientific contacts with Iran but had not been able to secure them at this level. In all, five scientific societies, besides NAS, agreed to scientific exchange and, in some cases, to have their Presidents make return visits.

The delegation was led by a philosopher, Professor Reza Davari Ardakani, President of the Academy of Sciences and Professor of Philosophy of Tehran University. The medical doctor, a former Minister of Health in Iran, was Professor Reza Malekzadeh, Secretary of the Academy of Medical Sciences and Chairman of the Department of Internal Medicine at Tehran University.

The delegation had two mechanical engineers, both from Sharif University: Professor Mehdi Nejad

Bahadori and Professor Hassan Zohoor. They are respectively the Vice President and the Secretary of the Academy. A coordinator of the visit, also from Sharif University, was Professor Abolhassan Vafai, a founder of the Society for Civil Engineering of Iran.

Full cooperation was received from the State Department in arranging this visit even though it required very special efforts from the Iran Desk.

At the close of the meetings, however, the delegation was uniformly delighted and felt that the visit was far more productive than the members had expected and called it historic. □



Left to right (standing): Ali Mansoori, William Wulf, Professor Zohoor, Bruce Alberts, Professor Vafai, Professor Davari, Dr. Malekzadeh, Professor Bahadori, Left to right (seated): Massoud Simnad, Jeremy Stone

FAS URGES U.S. TO SIGN OTTAWA PROTOCOLS

Kevin Kavanaugh

FAS has recently signed a petition to urge the United States to sign the Ottawa Protocols. As of 1 March 1999, when the international treaty to ban Anti Personnel (AP) mines came into force, 135 countries had signed it, including all members of NATO except the U.S. and Turkey, and all nations in the Western Hemisphere except the U.S. and Cuba; 65 nations had ratified the treaty. Other major powers, including China, India, and Russia, had declined to sign.

However, President Boris Yeltsin has declared that Russia would sign the accord, and China and India have pledged not to deploy AP mines outside their own borders. President Clinton has stated the goal of achieving a ban on all AP mines as soon as possible. In 1996 the United Nations adopted a U.S.-sponsored resolution advocating this objective, with 156 affirmative votes, none against and only 10 abstentions. But the current U.S. position is that it cannot sign the Ottawa Treaty because of its special responsibilities as the only world superpower and the need to protect its own military personnel.

Yet the U.S. Joint Chiefs of Staff and the major field commanders declared in their 1997 letter that "we are ready to ban all AP mines for ourselves when the major producers and suppliers ban theirs ..." (Joint Chiefs 1997). Since AP mines are not employed to counter their use by enemy forces, this statement strongly suggests that senior U.S. military leaders actually regard the military utility of AP mines for ourselves as marginal rather than indispensable.

Then U.S. Secretary of State Warren

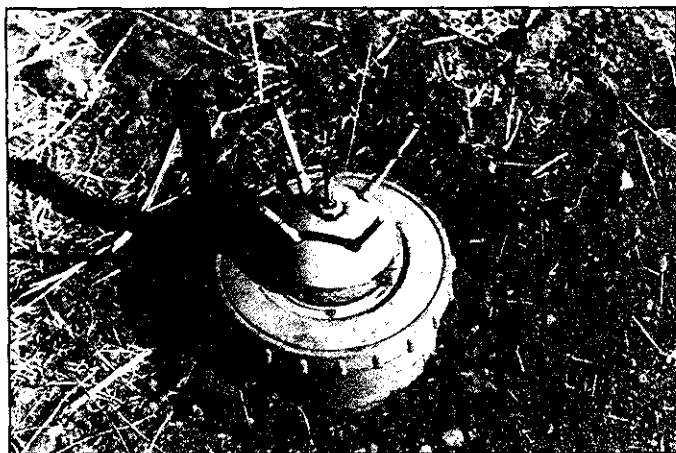
Christopher noted in 1996 that AP mines "probably kill more children than soldiers." He expressed U.S. "determination to eliminate these deadly instruments of terror," noting that "an international ban on land mines cannot happen without American leadership" (White House 1996a: 1-2).

This question of leadership arises with regard to chemical warfare. During the debates on U.S. adherence to the Chemical Weapons Convention (CWC), Senator Joseph Biden argued strenuously against withholding U.S. ratification until all other states with a chemical weapons capability had acceded to the treaty (Biden 1997). On 8 April 1997, Secretary of State Madeleine Albright stressed:

... the imperative of American leadership. The United States is the only nation with the power, influence and respect to forge a strong global consensus against...weapons of mass destruction...I believe that--if the United States joins the CWC--most other nations will too...But the problem that states will never accept a prohibition of chemical weapons if America stays out, keeps them company and gives them cover (Albright 1997:1-2).

In urging Congressional support of the CWC, Secretary of Defense Cohen took the same line pointing out that the treaty "will reduce the chemical weapons problem to a few notorious rogues" (Cohen 1997), and Senator Biden noted that the rogue states would be "isolated and targeted" (Biden 1997). The points made by Senator Biden and secretaries Albright and Cohen supporting ratification of the CWC are equally valid for the international treaty to ban AP mines.

But while the U.S. supports a ban on the use of mines by other nations, it is reserving exceptions for itself. If the U.S. persists in this position, it seems evident that other nations will be encouraged to claim that they, too, have special circumstances that warrant exceptions. During 1994-95, the U.S. and the United Kingdom engaged in a campaign promoting the U.S.-U.K. Land Mine Control Regime to try to persuade other countries that there should be a ban only on dumb mines, and that smart mines should be



An Italian Valmara-69 in Iraqi Kurdistan

exempted. This was rejected as an attempt by advanced industrialized nations to deny AP mines to less developed countries or to require them to purchase smart mines from advanced nations.

U.S. spokespersons, including the President, have acknowledged the necessity of a total ban on all AP mines to deal effectively with the humanitarian problem caused by their use. In a background press briefing on 3 July 1997, a senior Department of Defense official, referred to the "horrendous problem" of 26,000 casualties per year caused by mines and stated that "a ban is a critical part" of solving the problem. He continued: "we think the ban's essential," and "we are willing, unilaterally, to ban the high-tech, self-destructing type land mine." He noted that a "new international norm has been established. The world is going to do without land mines."

U.S. Has Changed Its Policy

Nevertheless, the U.S. has retreated even from its earlier position and has declined to sign the international treaty to ban AP mines unless and until it can develop and field suitable alternatives to replace what it regards as the critical military functions of these weapons: protecting against the rapid neutralization of anti-tank mines; and in the defense of Korea, employing dumb as well as smart mines. The President seems to be allowing the Department of Defense to take too narrow an interpretation of "alternatives" or substitutes for AP mines.

In the Korean situation, AP mines are redundant for effective close in defense south of the demilitarized zone (DMZ). Retired Lieutenant General James Hollingsworth, who designed the plan to defend South Korea, has observed: "... we have developed numerous methods other than APLs [AP mines] to halt the North Korean advance." He characterized the military utility of AP mines in Korea as "minimal, and ... even offset by the difficulty our own APLs pose to our brand of mobile warfare." In refuting the need to employ AP mines in the defense of South Korea, retired General Jack Galvin, former U.S. Supreme Allied Commander, Europe, stated, "In offense, but also in defense, American forces rely on mobility;" and that AP mines "stifle and frustrate mobility" (Galvin 1997).

However, for whatever military utility they may provide, about one million dumb AP mines already are emplaced in the six-mile-deep military control zone immediately south of the two-and-a-half-mile band of the DMZ, augmented by an estimated two million or more such mines within the DMZ; all of these minefields have been turned over to the South Koreans, so they are no longer a U.S. responsibility. Another million dumb AP mines held in reserve could be emplaced in the military control zone prior to the United States acceding to the Ottawa Treaty. There would be no obligation to remove these mines for 10 years after the treaty comes into effect; thus these mines could be left in place several years beyond the U.S. target date of 2006 to replace them. Surely, by then, action could be taken to compensate for the loss of whatever contribution AP mines might make to the strength of the defense south of the border between the two Koreas.

Mines In Remote Locations

The more complex problem is the mixed mine systems in the U.S. inventory for use in more remote locations not directly under observation of U.S. soldiers on the ground in Korea and other theaters of operation. It is argued that the AP mines offer important protection against the capability of enemy forces to neutralize the anti-tank (AT) mines more quickly than if AP mines were absent. However, to enable an attack against forces brought to a halt by the mines, the area would have to be under observation. So it is evident that the U.S. has the capability to detect enemy personnel attempting to clear or detonate emplaced AT mines; and there are effective antipersonnel weapons other than AP mines to interdict their capability to do so. The May 1997 report of the Under Secretary of Defense for Policy concluded that "much of what is already being developed can be leveraged into area denial operations," and that lethal alternatives can be achieved by "precise real time surveillance systems to automatically detect, classify and track vehicles and/or people; precise firepower to immediately suppress movement of enemy forces; and command and control systems (a 'man-in-the-loop') to cue the precise firepower" (Under Secretary 1997: 4).

Weapons already in the inventory at the time provided the basis for the conclusion of the letter to the President signed in April 1996 by 15 senior, retired U.S. military officers: "Given the wide range of weapons available...banning [AP mines] would not undermine the effectiveness or safety of our forces ..." (Letter 1996).

A companion approach to substituting other weapons to perform the functions of AP mines is to modify military doctrine and tactical concepts to compensate for the absence of these mines. A Department of Defense news release noted that the President's policy on AP mines, announced on 16 May 1996, "directs fundamental changes in war plans, doctrine and tactics of the U.S. military with the goal of eliminating reliance on antipersonnel land mines" (Assistant Secretary 1997). William Perry, then Secretary of Defense, stated that the principal purpose of AP mines is "to delay and disrupt, slow down ... infantry .. There are other ways of doing that, too, that have to do with tactics, techniques and other weapons.

That broad approach involves "changes across the board in the way we fight... in tactics and doctrine as well as in systems" (White House 1996a: 5). The report of the Office of the Undersecretary of Defense for Policy noted that the Secretary of Defense, in June 1996, directed the Chairman of the Joint Chiefs of Staff to change "war plans, joint doctrine, and training to reduce and eliminate the reliance" on AP mines, and directed the services [Army and Marine Corps] to

"begin development of tactics and Service doctrine eliminating the need to rely on self-destructing APL [APmines] in anticipation of prompt international agreement to ban all APL" (Under Sec, 1997: 3, 45).

It is appropriate to return to the issue of determining if there is justification of military necessity for the use of AP mines to achieve legitimate military objectives; and if so, whether or not their employment can be considered proportional in view of the resultant humanitarian costs.

AP mines are inherently indiscriminate weapons that cause disproportionate civilian casualties and unnecessary suffering; and it is evident that their military utility is convincingly outweighed by the humanitarian costs of their use. There are some situations in which AP mines might contribute to the effectiveness of military operations. However, their use is counterproductive, and alternative means of achieving the desired military result already are available to U.S. forces. The use of AP mines causes civilian casualties and suffering on a massive scale; stigmatization of the weapon by means of an agreed prohibition to establish an international norm against its use is essential to reduce and eventually stop the carnage. If the U.S. does not sign the treaty to ban AP mines, it will not be effective; and the continued use of the weapon will prove a net disadvantage to the U.S. military. AP mines should be banned, and their use classified as a war crime. □

POLYGRAPH PROPOSAL STIRS CONTROVERSY

Steven Aftergood

A proposal to subject thousands of Department of Energy scientists to polygraph testing has produced an uproar at the National Laboratories and elsewhere, as critics have questioned the validity and propriety of the so-called lie detector.

In the face of allegations that Chinese spies had stolen nuclear weapons secrets, Congress and the White House have recently moved to upgrade security and counterintelligence programs, including an expanded polygraph program. Some 5000 scientists at the nuclear weapons labs who have access to the most sensitive information will be asked to undergo

polygraph testing. Although DOE describes the tests as "voluntary," refusal to participate will entail transfer to a less sensitive position. The proposal "has created great anxiety within the laboratory," according to Los Alamos director John Browne.

Ever since a primitive polygraph device was invented 60 years ago by psychologist William M. Marston -- whose other notable achievement was the creation of the comic book character Wonder Woman -- it has been the subject of intense controversy. As recently as 1994, the CIA-Defense Department Joint Security Commission concluded that "the scientific

validity of the polygraph is yet to be established."

Security officers in the intelligence community insist that the polygraph test and the associated employee interview frequently yield productive investigative leads that can be obtained in no other way. Meanwhile, there are persistent reports of abuses, and careers stalled or derailed on the basis of an adverse polygraph test.

In response, the Department of Energy has declared that it will narrowly limit the application of the polygraph to questions concerning security and espionage, and that no adverse action will be taken solely on the basis of an uncorroborated polygraph exam. But such assurances did little to assuage critics, who blasted the plan at a series of public hearings in September as an insult, an unwarranted burden, and an invasion of privacy.

One of several vexing issues raised by the proposed policy is the question of "countermeasures." After all, the polygraph does not "detect lies," it detects physiological responses to verbal stimuli, including changes in respiration, heartbeat, electrodermal response, and so on. Is it possible for an individual to effectively manipulate his own responses so as to defeat the polygraph?

DOE officials say no. I "have never seen it work yet," senior counter-intelligence official Edward Curran said recently. But this seems to be a tautology, which means only that the successful use of countermeasures to avoid detection have never been detected.

Psychophysicologists have conducted a number of peer-reviewed studies that appear to demonstrate that countermeasures can indeed be used to skew the polygraph test. Self-stimulation (e.g. biting one's tongue) can serve to augment physiological reactions to innocuous questions; conducting elaborate mental calculations can minimize the reaction to sensitive questions; and so on. Such methods have been surveyed and described by psychologist David T. Lykken in his critical assessment of the polygraph entitled *A Tremor in the Blood* (Plenum Press, 1998).

In short, "There is nothing to prevent a practiced deceiver from passing a polygraph examination," the CIA-DoD Joint Security Commission concluded. In fact, it is precisely those who are guilty of serious security violations who would be the most highly motivated, and perhaps the

best trained, to defeat the polygraph.

Viewed in this light, polygraph testing -- to the extent that its results are taken seriously -- could in fact create a new security vulnerability. It is interesting to note that the State Department refuses to use the polygraph, even on employees with access to the most sensitive intelligence or other information.

The polygraph program, which may now be unstoppable, is a remarkable case study in the defects of contemporary policy-making. The White House issued a directive in 1998 calling for expanded use of the polygraph at DOE laboratories, and Congress has just passed legislation making it a requirement. Only now, however, is the proposal being subjected to independent critical scrutiny-- when it may no longer matter. □

NOTE: A variety of resources on polygraph testing, both pro and con, and an FAS statement presented at the recent DOE public hearings are posted on the FAS web site at the following address: www.fas.org/sgp/othergov/polygraph/index.html.

MATCH MADE IN FAS



Steven Aftergood, project director, and Kimberly Bejarano, former staffer, met at FAS in 1996 and got married last August. Congratulations, Steve and Kim!

NET.NEWS

John Pike

The September 1999 issue of Foreign Affairs carried a review of the FAS web site by Elliot Cohen, principal author of the landmark Gulf War Airpower Study. The review, unusual in itself in the magazine's book review section, noted that the FAS web site is "... now one of the best around for students of military affairs. The Military Analysis Network portion of the site is particularly rich...an exceptional resource for students of military affairs."

These views are evidently widely shared. The FAS web site went online nearly five years ago, and the inexorable growth in the usage of this resource has been a source of abiding attention. While it has long been recognized that the FAS web site attracts a large audience relative to other organizations in our immediate community, in recent months our audience has matched that of the primary Defense Department web site, DefenseLink. In fact, during the Kosovo War, the DOD and FAS web sites achieved virtually identical usage, with about 100,000 users downloading a million pages during the peak week in mid-April.

We have been challenged to meet these high expectations, given the proliferation of crises in areas such as Taiwan and Korea, and continue to expand our resources covering the military and political situations in these regions. Our missile expert Charles Vick has updated and expanded our profiles of North Korean missile programs, and our Public Eye satellite imagery specialist Tim Brown is scouring declassified

CORONA spy satellite imagery for locales that figure in current events.

Within hours of the decision to deploy American troops as part of the peacekeeping force in East Timor, we developed a special focus page modeled along our popular resource covering Kosovo. Within days, we received a request from Canadian Maritime Forces Pacific asking permission to include the FAS articles on "Timor Movement", "Security Agencies", and "Militias" in a strategic study to be used by Canadian Naval officers deploying to East Timor. The request [which was readily agreed to], observed that the "information that FAS has produced ...is extremely impressive and would be highly valued" by deploying Canadian forces.

Our ability to cover current conflicts such as Kosovo and Timor, as well as the various wars in Africa, has been greatly enhanced by the latest addition to the staff, Grace Kim, who has assumed growing responsibilities for maintaining our current news archives, as well as updating our existing resources on nuclear and missile proliferation. In addition, we are working on a major upgrade to our on-line coverage of Russian and Chinese strategic weapons programs. Our fall intern, Mirko Jacobowski, has mastered the intricacies of machine translation computer software, and turned this powerful capability on the large body of recent Russian-language literature covering nuclear weapon systems. □

FAS PUBLIC INTEREST REPORT (202) 546-3300
307 Mass. Ave., N.E., Washington, D.C. 20002
Return Postage Guaranteed
September/October 1999, Volume 52, No. 5

Periodicals
Paid at
Washington, D.C.

<input type="checkbox"/> I wish to join FAS and receive the newsletter as a full member. Enclosed is my check for 1999 calendar year dues.	
<input type="checkbox"/> \$25 Member	<input type="checkbox"/> \$75 Supporting
<input type="checkbox"/> \$150 Patron	<input type="checkbox"/> \$1000 Life
<input type="checkbox"/> \$15 Student/Retired	
Subscription only: I do not wish to become a member but would like a subscription to: <input type="checkbox"/> FAS Public Interest Report - \$25 for calendar year.	
<input type="checkbox"/> Enclosed is my tax deductible contribution of _____ to the FAS Fund.	
NAME AND TITLE _____ <small>Please Print</small>	
ADDRESS _____	
CITY AND STATE _____ <small>Zip</small>	
PRIMARY PROFESSIONAL DISCIPLINE _____	