

F. A. S. PUBLIC INTEREST REPORT

Formerly the FAS Newsletter

SPECIAL ISSUE ON
MOSCOW TEST BAN TREATY

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FAS REJECTS TEST BAN TREATY: URGES REOPENING NEGOTIATIONS

FAS has long been firmly committed to an end to nuclear tests. Our organization first fought for the partial test ban treaty signed in 1963. It prevented all but underground tests. For the next nine years we struggled to get the superpowers to fulfill their commitment to "determinedly" negotiate for a complete test ban. During this period, the U.S. negotiating position did not change one iota.

In January, 1972, we saw a ray of hope. We released a newsletter explaining how much and how favorably the technology of inspection had changed. We called for a total test ban without on-site inspection. It was endorsed by eight leading observers of this problem, all ex-highly-placed Governmental scientists. Within a few days, a New York Times editorial quoted and endorsed our approach. A few weeks later, on January 24, 1972, Senator Edward M. Kennedy introduced S. Res. 230 calling for an immediate moratorium on underground nuclear weapons testing with a view to the opening of prompt negotiations for a comprehensive test ban. Two weeks still later, on February 4, the Washington Post reported that the Nixon administration, spurred by Senator Kennedy's initiative, was taking a new look at the test ban.

HOPE FADED

But then there was nothing. Rumor had it that the Nixon Administration considered strategic weapons agreement the central issue; the test ban was something to be put off until that was solved.

Two and one half years later, in June 1974, the dying Nixon Administration felt intensely interested in some kind of agreement at the Moscow Summit. It became evident that agreement could not be reached on any important aspect of strategic arms limitations. For one thing the Administration was too weak to bring the State and Defense Departments into agreement.

Attention was turned to the test ban. Leaks had it that there would be an attempt to negotiate a "threshold" test ban agreement in which underground tests would be banned only above a certain size. On May 21, FAS held a press conference warning that such an agreement was

more complicated to monitor than even a complete test ban—and much less desirable. We assumed that the size of explosions permitted under the threshold would be at worst only those smaller than the size of the Hiroshima bomb, about 15 kilotons.

Imagine our distress when the threshold was set ten times higher, 150 kilotons. We knew there was no justification for such a high threshold in any inspection problem. We knew the non-nuclear powers would consider this a joke—and buttress their case for their own nuclear weapons accordingly. And then we noticed that peaceful nuclear explosions were to be permitted under a treaty not yet even negotiated. We knew very well that these explosions were ineffective, unnecessary, and sometimes dangerous despite 20 years of searching for a suitable application.

THE TREATY WAS WORSE THAN NOTHING

We thought it over. A great deal of telephoning went on and some visits. We reached the sober decision to oppose the ratification of the treaty and to urge the negotiators to return to the bargaining table. While they were negotiating the problem of peaceful uses, they might as well try again for a better treaty. We felt a subsequent Administration would have a better chance to negotiate the issue determinedly and steadily. We had waited ten years. We would wait longer.

When, and whether, this Moscow Test Ban Treaty will be presented to the Congress we do not now know. But we are convinced that it would be better for our Congress to reject the Treaty and reopen the negotiations. This would send a signal round the world that we are indeed determined and committed to end nuclear testing. The alternative is to approve the Treaty and thus announce that—after more than a decade of commitment to a complete test ban treaty—the U.S. had changed its policy; after a decade of arguing that inspection was the obstacle to a total test ban, the U.S. had negotiated much less than national inspection would permit.

The Executive Committee of FAS
(For the text of the FAS statement at its press conference of July 25, see page 2; for text of Treaty, see pg. 6.)

TREATY PROSPECTS POOR

As of the beginning of September, it seemed plausible that the FAS position on the Treaty would be accepted. President Ford had called for new negotiating efforts on disarmament with the Soviet Union and these efforts could well include Test Ban. The 37 Senators who urged Secretary Kissinger in June to negotiate "an agreement that will lead progressively to a total ban" seemed to provide more than the one-third of the Senate necessary to block a threshold treaty. (Assorted hawks seemed likely to oppose the Treaty as well.) More relevant, the Administration can hardly send to the Senate a treaty which permits any underground test of any kind so long as it is called "peaceful"—as things stand, that is what this treaty does.

FAS DEFENDING RIGHTS OF SCIENTISTS BOTH ABROAD AND AT HOME, Pages 7-8

FAS STATEMENT ON TEST BAN

The United States has been testing nuclear weapons for thirty years and the Soviet Union for twenty-five. During this period there have been literally hundreds of tests.

For almost twenty years, there has been active discussion between the United States and the Soviet Union of negotiating a halt to such tests. These discussions reached a peak in 1963 when the Partial Test Ban Treaty was ratified, prohibiting all nuclear tests except those underground.

The failure to stop underground nuclear tests in this treaty arose from disagreements over the number of permitted "on-site" inspections that would be used to verify compliance with a ban on such tests. The United States wanted seven such inspections and the Soviet Union offered three.

While agreement was not reached, U.S. policy was then declared to be the achievement of a comprehensive (i.e., total) nuclear test ban provided it could be adequately verified. The Partial Test Ban Treaty itself contained a commitment to proceed to a complete ban:

"Seeking to achieve the discontinuance of all test explosions of nuclear weapons for all time, determined to continue negotiations to this end . . ."

And U.S. declaratory policy repeatedly, and unexceptionally, emphasized only the problem of verification for years thereafter.

Since that time, the national capacity to verify compliance with an underground test ban has proceeded apace. Without any on-site inspections, clandestine cheating is far less plausible now than it would have been in 1963 with the on-site inspections President Kennedy required. Indeed, with seismological improvements, on-site inspection is much less necessary to identify whether or not detected earth movements are, or are not, due to explosions. And non-seismological methods of detecting tests, such as aerial reconnaissance, have improved enormously. It was for these reasons that FAS called, in January, 1972, for a total test ban without on-site inspection. By 1972, on-site inspection was of only marginal value in verifying a test ban.

With these advances in mind, and because the superpowers had by now tested so many weapons, we had reason to believe that they might now—finally—negotiate the complete test ban that had so long been sought. Further fuel for our expectations was provided by various reports that the Soviet Union was ready for a complete ban either now or at an agreed future date. Chairman Brezhnev stated in response to a U.S. proposal to halt tests only above a certain size, on June 14:

[His country] "was ready to reach agreement now with the United States on the limitation of underground nuclear tests, proceeding to their full termination according to a coordinated timetable."

U.S.-Soviet Agreement of No Significance

However, the agreement negotiated in Moscow on July 3, 1974 was a far cry from the agreement for which we had hoped. It did not stop underground nuclear testing but only restricted such tests to greater than 150 kilotons or about 10 times the size of the Hiroshima bomb. Even this restriction does not begin until March 31, 1976. It

NUCLEAR TESTS INCREASED AFTER TREATY

Before Partial Test Ban Treaty—477 for 18 years
1945 to August 5, 1963

	Atmospheric	Underground	Underwater
U.S.	193	89	5
USSR	161	3	1
U.K.	21	2	0

After Partial Test Ban Treaty—456 for 10 years
August 5, 1963 to December, 1973

Underground:	U.S. 260	USSR 136	U.K. 2
France	34 in Atmosphere	and 9 Underground	
China	14 in Atmosphere	and 1 Underground	

--(Data from SIPRI Yearbook, 1974)

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provided for "peaceful" nuclear explosions of any size without providing any agreement to limit such uses, thus leaving the same loophole the Indians used to justify their first nuclear test.

In particular, the treaty represents a definitive break with the official declaratory policy of more than a decade. This is because tests banned do not correspond with those that can be reliably monitored by national means. In other words, the agreement does not go as far as it can go with present verification capabilities. Indeed, in our view, a total test ban could be negotiated with present national technical means of verification. But, even among other schools of thought, no one can derive from verification problems the justification for setting the limit on tests as high as 150 kilotons! Thus the treaty represents a step backwards—rather than a step forwards—in our policy toward nuclear testing.

In fact, as well as in policy, the Moscow test ban treaty represents no substantive progress. The threshold is so high that it prevents, for the most part, only tests that neither side had any intention of conducting. It thus represents no real brake on the testing of either side.

U.S.-Soviet Agreement Provides Possibilities For Misunderstanding

Indeed, the treaty may provide more political problems in monitoring compliance than would a complete test ban. The agreement calls for each nation to carry out calibration shots at its test sites; but we can not know the yield of the Russian weapon used for calibration from examination of seismological data or reconnaissance. It could be 300 kt instead of the stated 150 kt. In general, we cannot tell by national means whether the threshold is being violated since the same explosive force can give varying readings on a seismograph at different times.

Paradoxically, it is easier to monitor a complete test ban since, in this case, one only needs to know whether an explosion has occurred at all—not its size. And since identification of such explosions is now possible at about 2 kilotons in hard rock, one can get very good confidence indeed that compliance has occurred.

Moreover, the cheating power can have very little confidence that an explosion will not be identified and even less that a test series would not be picked up by intelligence apparatus of the other side. In short, a complete test ban may be easier to monitor than a threshold test ban at any level. And, of course, the complete test ban will stop all tests!

In addition, the failure of the treaty to solve the problem of peaceful uses provides the treaty with an enormous loophole. As things now stand, any test could be called "peaceful" and permitted. Even if and when the Senate is presented with a supplementary treaty on peaceful uses, it will be asked to ratify the desirability of having peaceful nuclear explosions. The desirability of this inclusion is highly uncertain. We do not believe that the utility of peaceful nuclear explosions is sufficiently high to warrant their becoming an escape hatch for large and small countries alike to continue testing and building nuclear weapons.

U.S.-Soviet Agreement Worse Than Nothing

As the superpowers continued testing over decades, the

STATES WHICH HAVE NOT SIGNED PARTIAL TEST BAN TREATY OR NON-PROLIFERATION TREATY

People's Republic of China
Cuba
France
Equatorial Guinea
Guinea
Guyana
Qatar
Saudi Arabia
United Arab Emirates

significance of stopping their tests has become, more and more, its role in bringing a halt to the proliferation of new nuclear powers. The moral and political authority of the superpowers to halt the growth of nuclear powers wanes with every year that they themselves continue nuclear testing. A man cannot forever lecture children about smoking and pressure them to abstain while he himself is puffing on a cigarette.

Today this problem is particularly acute. The Indians have tested a bomb on the grounds that it was for unspecified "peaceful uses"—the same loophole in the treaty under consideration. In the Middle East, the most likely tinder box for future World War, the tendencies to build nuclear weapons exist in Israel, Egypt and Iran. The non-proliferation dike is about to burst and not only in the Middle East. Candidates for nuclear weapons countries include Brazil, Argentina, South Africa and others. How will this treaty affect this problem? How will it appear to the powers considering going nuclear?

It will, without doubt, appear as a complete and cynical fraud. Some Americans and some Russians may persuade themselves that it is progress or momentum. But this will not be the case in any other country. The treaty is patently much too little and much too late for that. Indeed, it could only have been negotiated bilaterally with the other superpower. Had we taken this treaty to the Conference Committee on Disarmament at Geneva, where we have been working on a comprehensive ban for more than 10 years, the other nations would have ridiculed our approach, as they will when the treaty is ratified. This reaction of these nations will be a body blow to our efforts to halt the further spread of nuclear weapons.

Should The Treaty Be Ratified?

We believe that both sides can and should do much better. In particular, the Administration was too eager to get just any test ban agreement. The political background to this treaty is only too well known and too painful.

Recognizing that it could not get a quick political triumph in a major SALT agreement, the Administration turned to the Test Ban which, hitherto, it had considered a subsidiary matter to be dealt with only after SALT II had been completed. The Administration sought a quick negotiation timed to the Moscow summit and arrived in Moscow without major efforts at home to secure bureaucratic agreement—except at this highest common

denominator of a high threshold. In better times, with a stronger Administration, the United States could and would, we believe, be able to secure a much better Treaty.

In this connection, for example, 37 senators urged the Administration to secure—if not a comprehensive agreement—at least a quota on tests which would go to zero over time. There was no need to permit unlimited testing up to 10 times the Hiroshima bomb!

A further and related problem with the treaty was its failure to involve the non-nuclear weapon states that it seeks to influence. Not only were they not consulted in the negotiations but the treaty does not even provide a mechanism by which they could adhere to it. Any future treaty must do more both in consultation and in providing a means for securing third-country participation in its result.

We do not mean to imply that all of the obstacles to the treaty we want spring from U.S. political and military problems. The Soviet emphasis on a total test ban unfortunately hides a desire for continued explosions for peaceful uses. Thus, on July 21, Mr. Brezhnev said of the agreements reached in Moscow:

“We would like to achieve something more and were prepared to go further. The Soviet Union is ready in particular to conclude an agreement on complete cessation of all underground tests of nuclear weapons.”

Unfortunately, this statement uses the word “weapons” advisedly. The Soviet Government is apparently insistent upon maintaining this right to use nuclear explosions for peaceful purposes. The U.S. is unsure how to verify the entirely peaceful character of nuclear weapons explosions. Thus the problem arises of either talking the Soviet Government out of its interest in peaceful uses or deriving an acceptable method of verification. We do not argue that either of these courses is sure to work. But they will take time to try and they deserve such time.

All things considered, to our mind, there are two major reasons why it would be better not to ratify this treaty.

1. We believe that the United States and the Soviet Union are much more likely to keep the test ban a high priority item on their arms limitation agenda if the treaty is rejected than if the treaty is accepted. In particular, a threshold treaty is a dead end on the road to a total ban since there is no logical way to extend it. Since the major powers are required by this treaty to keep negotiating on a peaceful uses treaty, why not let them keep under negotiation the entire matter. If not this Administration, then the next one will do better.
2. It would be better for those concerned about the test ban to send a signal around the world that we are determined to stop testing than it would be to permit the many nuclear-inclining powers to conclude that the superpowers have finally and decisively shown their insincerity in this matter.

We are most reluctant to oppose any arms control treaty. But if ever an arms control treaty is to be opposed, this clearly is the one that deserves it.

Our opposition does not, in any way, stem from hostility toward detente. We support detente and we support

TWENTY TEST-BAN TREATY SIGNATORIES WHICH HAVE NOT SIGNED THE NON-PROLIFERATION TREATY

(Such States Could Test Underground)

Algeria
Brazil
Burma
Chile
Gabon
India
Israel
Malawi
Mauritania
Niger

Pakistan
Portugal
Rwanda
Sierra Leone
South Africa
Spain
Uganda
Tanzania
Western Samoa
Zambia

in particular, the addition to the ABM treaty just negotiated. Nor does our opposition stem from hostility toward this Administration. We are non-partisan and we support the Administration's efforts to reach accommodation with the Soviets in arms control and other areas.

But this treaty is indeed a sham. It arose from impeachment politics and the politics of summitry. An effort at a quick fix, it sells out the efforts to reach a comprehensive test ban for which so many have worked for more than a decade. It undermines the momentum toward that treaty by retreating on policy grounds and by taking the matter off the national agenda. It sends entirely the wrong signal around the world toward the nuclear-capable powers. The treaty is, in short, counterproductive of our national goals. The national interest lies, we believe, in instructing the negotiators to return to their negotiations. □

Speaking for FAS at the Press Conference were:

Herbert Scoville, Jr., FAS Secretary and Chairman of its Strategic Weapons Committee; formerly Deputy Director for Science and Technology of the CIA and Assistant Director of the Arms Control and Disarmament Agency; and

Adrian Fisher, FAS Sponsor; former Deputy Director of the Arms Control Agency under Presidents Kennedy and Johnson.

TWO TREATY COMMITMENTS TO SEEK TOTAL TEST BAN

October 10, 1963

Seeking to achieve the discontinuance of all test explosions of nuclear weapons for all time, determined to continue negotiations to this end. . . .

Partial Test Ban Treaty

July 1, 1968

Recalling the determination expressed by the Parties to the 1963 Treaty banning nuclear weapon tests in the atmosphere, in outer space and under water in its Preamble to seek to achieve the discontinuance of all test explosions of nuclear weapons for all time and to continue negotiations to this end. . . .

Nonproliferation of Nuclear Weapons Treaty

PEACEFUL USES OF NUCLEAR WEAPONS

During the last quarter century, there have been a wide range of proposals for the peaceful use of nuclear explosions. There have been excavation proposals in which one would dig canals, deepen harbors, clear mountain passes, and construct underground reservoirs for oil or gas. None of these ideas has been tried. In any particular case, the advantages in cost-per-ton of explosives are offset by such practical problems as residual radioactivity or movement of near-site population. In addition, most excavation proposals require using explosions that will vent, and this conflicts with the 1963 Partial Nuclear Test Ban Treaty's prohibition on above ground tests.

Another class of proposals concerns the recovery of natural resources. Explosions might be used to "cook" the oil out of oil shale, or to break up rock for underground mining. Of this class of proposals, the only one which has generated serious interest is plans to stimulate the flow of natural gas. The notion is to use nuclear explosion to create a giant "chimney" through which gas formerly trapped below might be piped to the surface.

First attempted in 1967 with a 29 kiloton device, the experiment was disappointing because the gas flow fell off faster than expected, the energy content of the gas was below normal and the radioactivity hung on for longer than expected.

FAS Opposed Rio Blanco

In April, 1973, FAS opposed a continuation of these gas stimulation experiments named Rio Blanco. It was to begin with three 30 kiloton explosions and to be followed with 4-6 different well stimulations (using 3-5 explosions each) and then by 20-60 well stimulations. Thus 300 nuclear explosions of 30 kiloton yield were to be attempted simply to show the feasibility of the technique. Full-field development was to require firing about 1,000 underground explosions. This is approximately the number of explosions that have been undertaken in weapons tests by all nuclear powers during the entire cold war!

FAS complained that the environmental impact of the full program had not been assessed and that hazards could occur: due to accidental venting; from the flaring of the gas during production testing two months later; or by the slower migration of radioactivity into subsurface water streams.

In a letter to Senator Floyd K. Haskell of Colorado, who was chairing hearings of the Senate Interior Committee, FAS pointed out that all of these explosions were designed to produce only about 2-3% of the total U.S. estimated 1985 gas requirements—itsself only a small fraction of our overall energy needs. (The letter was signed by Gordon J. F. MacDonald, former member of the President's Council on Environmental Quality; Edward L. Tatum, Nobel Laureate in Medicine and Physiology; and Herbert Scoville, FAS Secretary and former Assistant Director of the Arms Control and Disarmament Agency, who testified before the Committee.)

A review of other similar experiments shows that Project Plowshare, the 16-year old AEC program for peaceful nuclear explosions, has not been able to come up with a program that is tempting to industry, much less one that

"RISKS ARE CERTAINLY LARGER"

*"... although the safety of the underground nuclear weapons testing program has been impressive with no nuclear accidents and only a few cases of venting in more than 300 announced underground tests, the risks are probably larger for the 1900 explosives required * * * (a limited commercial development program) and certainly larger for the 30,000 explosives required for the release of the 300 trillion cubic feet of gas." (italics added)*

*—May, 1972 report by
General Advisory Committee to AEC*

is attractive in the context of the general national interest—including environmental interests and the desire to halt nuclear weapons testing.

At the moment, the problem seems to be to convince the Soviet Union that peaceful nuclear uses are not a sufficiently interesting possibility to justify leaving a loophole for them in a test ban treaty. This is a difficult problem. In the first place, the Soviet Union lacks many constraints on public opinion that are obstacles to peaceful uses. It also has a lower environmental consciousness than the U.S. It has a naive confidence that technology works for man and finds it hard to believe that nuclear weapons can never be useful. Finally, it is believed that there have been already a variety of Soviet peaceful use experiments.

If the Soviet Union cannot be persuaded to forego the right to peaceful uses, the present problem of drafting a treaty governing such peaceful uses will be unavoidable. At the moment, no one sees how it would be possible to distinguish a "peaceful" nuclear explosion from one which provides useful military knowledge. Even on-site observations would not provide this assurance. In short, the peaceful uses loophole may be a very large one indeed, and may make a total test ban impossible.

The notion of peaceful detonations is already being exploited by nuclear-tending countries. The Indians not only called their nuclear explosion "peaceful" when it was set off, but their Ambassador argues, as he did in the New York Times in July, that the superpowers are themselves making the distinction between peaceful tests and weapons tests in efforts to negotiate a treaty that will permit peaceful uses. □

FAS MOVING INTO NEW HOUSE NOTE ADDRESS CHANGE

FAS will become the very proud owner of its new townhouse on September 16, 1974 and will move in over the next week. Persons writing to us after mid-month September should write to:

307 MASS. AVENUE, N.E.
WASH., D.C. 20002

Many thanks again to the members who made this possible.

Treaty Between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Underground Nuclear Weapon Tests. July 3, 1974

The United States of America and the Union of Soviet Socialist Republics, hereinafter referred to as the Parties,

Declaring their intention to achieve at the earliest possible date the cessation of the nuclear arms race and to take effective measures toward reductions in strategic arms, nuclear disarmament, and general and complete disarmament under strict and effective international control,

Recalling the determination expressed by the Parties to the 1963 Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water in its Preamble to seek to achieve the discontinuance of all test explosions of nuclear weapons for all time, and to continue negotiations to this end,

Noting that the adoption of measures for the further limitation of underground nuclear weapon tests would contribute to the achievement of these objectives and would meet the interests of strengthening peace and the further relaxation of international tension,

Reaffirming their adherence to the objectives and principles of the Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water and of the Treaty on the Non-Proliferation of Nuclear Weapons,

Have agreed as follows:

Article I

1. Each Party undertakes to prohibit, to prevent, and not to carry out any underground nuclear weapon test having a yield exceeding 150 kilotons at any place under its jurisdiction or control, beginning March 31, 1976.

2. Each Party shall limit the number of its underground nuclear weapon tests to a minimum.

3. The Parties shall continue their negotiations with a view toward achieving a solution to the problem of the cessation of all underground nuclear weapon tests.

Article II

1. For the purpose of providing assurance of compliance with the provisions of this Treaty, each Party shall use national technical means of verification at its disposal in a manner consistent with the generally recognized principles of international law.

2. Each Party undertakes not to interfere with the national technical means of verification of the other Party operating in accordance with paragraph 1 of this Article.

3. To promote the objectives and implementation of the provisions of this Treaty the Parties shall, as necessary, consult with each other, make inquiries and furnish information in response to such inquiries.

Article III

The provisions of this Treaty do not extend to underground nuclear explosions carried out by the Parties for peaceful purposes. Underground nuclear explosions for peaceful purposes shall be governed by an agreement which is to be negotiated and concluded by the Parties at the earliest possible time.

Article IV

This Treaty shall be subject to ratification in accord-

ance with the constitutional procedures of each Party. This Treaty shall enter into force on the day of the exchange of instruments of ratification.

Article V

1. This Treaty shall remain in force for a period of five years. Unless replaced earlier by an agreement in implementation of the objectives specified in paragraph 3 of Article I of this Treaty, it shall be extended for successive five-year periods unless either Party notifies the other of its termination no later than six months prior to the expiration of the Treaty. Before the expiration of this period the Parties may, as necessary, hold consultations to consider the situation relevant to the substance of this Treaty and to introduce possible amendments to the text of the Treaty.

2. Each Party shall, in exercising its national sovereignty, have the right to withdraw from this Treaty if it decides that extraordinary events related to the subject matter of this Treaty have jeopardized its supreme interests. It shall give notice of its decision to the other Party six months prior to withdrawal from this Treaty. Such notice shall include a statement of the extraordinary events the notifying Party regards as having jeopardized its supreme interests.

3. This Treaty shall be registered pursuant to Article 102 of the Charter of the United Nations.

Done at Moscow on July 3, 1974, in duplicate, in the English and Russian languages, both texts being equally authentic.

Protocol to the Treaty

The United States of America and the Union of Soviet Socialist Republics, hereinafter referred to as the Parties,

Having agreed to limit underground nuclear weapon tests,

Have agreed as follows:

1. For the Purpose of ensuring verification of compliance with the obligations of the Parties under the Treaty by national technical means, the Parties shall on the basis of reciprocity, exchange the following data:

a. The geographic coordinates of the boundaries of each test site and of the boundaries of the geophysically distinct testing areas therein.

b. Information on the geology of the testing areas of the sites (the rock characteristics of geological formations and the basic physical properties of the rock, i.e., density, seismic velocity, water saturation, porosity and depth of water table).

c. The geographic coordinates of underground nuclear weapon tests, after they have been conducted.

d. Yield, date, time, depth and coordinates for two nuclear weapon tests for calibration purposes from each geophysically distinct testing area where underground nuclear weapon tests have been and are to be conducted. In this connection the yield of such explosions for calibration purposes should be as near as possible to the limit defined in Article I of the Treaty and not less than one-tenth of that limit. In the case of testing areas where data are not available on two tests for calibration purposes, the data pertaining to one such test shall be

exchanged, if available, and the data pertaining to the second test shall be exchanged as soon as possible after the second test having a yield in the above-mentioned range. The provisions of this Protocol shall not require the Parties to conduct tests solely for calibration purposes.

2. The Parties agree that the exchange of data pursuant to subparagraphs a, b, and d of paragraph 1 shall be carried out simultaneously with the exchange of instruments of ratification of the Treaty, as provided in Article IV of the Treaty, having in mind that the Parties shall, on the basis of reciprocity, afford each other the opportunity to familiarize themselves with these data before the exchange of instruments of ratification.

3. Should a Party specify a new test site or testing area after the entry into force of the Treaty, the data called for by subparagraphs a and b of paragraph 1 shall be transmitted to the other Party in advance of use of that site or area. The data called for by subparagraph d of paragraph 1 shall also be transmitted in advance of use of that site or area if they are available; if they are not available, they shall be transmitted as soon as possible after they have been obtained by the transmitting Party.

4. The Parties agree that the test sites of each Party shall be located at places under its jurisdiction or control and that all nuclear weapon tests shall be conducted solely within the testing areas specified in accordance with paragraph 1.

5. For the purposes of the Treaty, all underground nuclear explosions at the specified test sites shall be considered nuclear weapon tests and shall be subject to all the provisions of the Treaty relating to nuclear weapon tests. The provisions of Article III of the Treaty apply to all underground nuclear explosions conducted outside of the specified test sites, and only to such explosions.

This Protocol shall be considered an integral part of the Treaty.

Done at Moscow on July 3, 1974.

FAS DELIVERS PETITION ON SOVIET SCIENTISTS

In October, the FAS Report discussed the responsibility of scientists under conditions of detente and concluded that American scientists had an obligation to speak out in defense of their colleagues abroad when the opportunity to function as scientists was denied.

Subsequently, a petition was generated and circulated in support of three specific principles. The petition, with 2,000 signatories, was sent in due course to the Soviet Ambassador in defense of the rights of Soviet and Eastern European scientists.

The letter is reprinted below. A polite note to the Soviet Embassy asking for the opportunity to present the petition by hand and to discuss its content was, sadly but predictably, ignored. FAS therefore placed the material in the mail and has received no further word. The letter of August 12, 1974 indicates that FAS is devoted to super-power detente.

Dear Mr. Ambassador:

Mankind needs science and science is a cooperative endeavor. With this in mind, the Federation of American Scientists has long sought to protect the rights of scientists

in all countries to function as scientists and to cooperate internationally with one another.

For this reason, more than 2,000 scientists—inside our organization and outside it—have signed the following petition to you expressing principles which we would apply as well to our own country:

“Mr. Ambassador: Co-existence and detente between East and West make it all the more important that we, as scientists, insist on the right of our Soviet and Eastern European colleagues: to communicate and travel freely for scholarly purposes; to function as scientists inside their countries (or, if not so permitted, to leave them to function as scientists elsewhere); and, in general, to debate their views inside their countries and abroad.”

Why was this petition circulated and why was it signed? It does not spring from any dislike of detente. Our organization has worked for better U.S.-Soviet relations, and for disarmament, since its founding in 1946 as the Federation of Atomic Scientists, and we continue to do so.

Instead, it originated in our genuine concern that Soviet scientists be permitted to make their full contribution to world science and to their own Nation. Who can doubt that Soviet science, and world science also, will progress best if Soviet scientists can communicate and travel freely for scholarly purposes. And what highly industrialized society can hope to function efficiently if its scientists cannot debate their views fully. Those nations who suppress their scientists can only arrest their own development.

If, for some reason, the Soviet Government or society does not wish to permit a scientist to function, we ask that this scientist be permitted to emigrate to function elsewhere so that the pool of world scientific manpower is not diminished.

Sincerely,
Philip Morrison

FAS COUNCIL CALLED FOR FREEDOM OF DEBATE

As scientists, we must also have a special moral concern that science—the product of our thought—not be misused. Without the right to criticize its use, and to have our criticism heard, how will we fulfill our obligations?

Finally, all who are concerned with the state of Soviet life must ponder what a failure to permit internal criticism will mean. It is impossible for industrialized nations to function efficiently without internal criticism. Despite all the paeans to progress that fill the pages of Soviet newspapers, Soviet progress has been slow in many areas. Soviet citizens whisper that the streets are filled with cars in many of the Western nations. Meanwhile the excuses of war and Stalinist terror recede into the past. Today the Soviet Union thinks that transfusions of Western technology will provide a quick-fix to their lagging economy. But there is no economic substitute for freedom of debate on economic alternatives.

—From October 1973
Public Interest Report

FAS SECURES GROUND-BREAKING LEGAL DECISION

On May 24, four scientists at the Maryland Psychiatric Research Center in Baltimore were fired effective June 24 on a variety of charges of misconduct and professional incompetence. The scientists contended that the reason for their dismissals was their public criticism of policies of the Center's administration through letters to State officials and statements to the public media.

The scientists were: Lawrence S. Gaines, Ph.D. in psychology; Mishrilal Jain, Ph.D. in pharmacology; John R. Lenox, Ph.D. in psychology and Reuben Sawdaye, Ph.D. in chemistry.

This dispute had been underway for a considerable period. Indeed, two of the scientists had been fired in May, 1973 and then reinstated. The complaints of the four covered the gamut, charging: discrimination on the basis of race (Dr. Jain is of Indian descent and Dr. Sawdaye of Iraqi descent); favoritism in promotion; links by the Research Center administration to drug firms; unconcern and insensitivity of administration resulting in waste of funds; and so on. A State of Maryland legislative investigation had resulted. FAS was in no position to determine the merits of the various positions.

Quite apart from the merits, however, the procedural questions were an opportunity to establish safeguards against arbitrary firing. After all, the scientists had not been given any formal notice of charges and they had been complaining publicly and bitterly about Center activities. It could have been reprisal. If whistleblowing was to be protected by due process, this was the opportunity to establish that fact. As noted in the June Professional Bulletin, upon their appeal to FAS, we secured for them the legal services of the firm of Rabinowitz, Boudin and Standard which assigned Mr. Herbert Jordan to the case.

The scientists had no contracts of employment with the State and there is no statutory provision in Maryland which accords tenure to professional employees. The State was therefore taking the view that no hearing was required either before or after the dismissal at which the scientists could attempt to contest the charges.

On July 12, Mr. Jordan secured for the scientists a pre-

liminary injunction affording them a "post-termination administrative hearing before an impartial tribunal". However, the Judge declined to order reinstatement pending the review.

Mr. Jordan thereupon appealed and secured an order reinstating the scientists. Judge Winter of the Fourth Circuit Court of Appeals ruled that the State's prerogative as an employer permitted it to transfer the scientists to other equivalent jobs but not to fire them without constitutionally adequate proceedings.

Mr. Jordan believes that the decisions in the Jain case will now impose a constitutional requirement on Maryland and other States to give some form of *prior* hearing in nearly all cases in which the State seeks to dismiss any employee. In particular, this will, of course, fully protect State employees whose whistleblowing activities have motivated their dismissal.

This is a significant advance and very promptly secured. FAS sent a letter of thanks to Mr. Leonard Boudin, Mr. Herbert Jordan and to the Bill of Rights Foundation which financed the legal expenses of the defense. □

HOUSE DEFEATS BINARY NERVE GAS PROPOSAL

On August 6, on an amendment of Mr. Floyd Hicks of Washington, the House of Representatives deleted \$5.8 million to begin production of binary nerve gas munitions. The vote was 214-186. Called binaries because they are composed of two ingredients that are brought together to form nerve gas only immediately prior to detonation, these munitions are safer to transport.

The House was persuaded that there was ample nerve gas around, that nerve gas weapons should not be used anyway and that the U.S. was in the process of negotiating prohibition on chemical warfare.

The testimony of Dr. Fred Ikle, Director of the Arms Control and Disarmament Agency, who firmly opposed the expenditure, obviously weighed heavily with critically placed Congressmen. Others quoted in support of opposition to the fund during the floor debate were Dr. Julian Perry Robinson of the University of Sussex, Dr. Charles Price of the American Chemical Society and Dr. Matthew S. Meselson of Harvard University. □

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