

F.A.S. PUBLIC INTEREST REPORT

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FAS TERMS MX THE ABM OF THE 1980's

Following the President's decision to move MX into full engineering development, FAS issued this statement through its Executive Committee.

The President's decision on MX was a price of ratification of the SALT II agreement. But if these kinds of prices are going to have to be paid to keep SALT alive, the public has a right to demand, in the SALT III (Three) talks, that the SALT process begin to produce more important results than heretofore. And we intend, in any case, to oppose the deployment of this \$30 billion effort to throw good money after bad.

That the MX decision was motivated by the time-urgent need to secure support for the SALT II agreement is beyond any question. This is why the Administration is "buying before basing"—going into full-scale development before it even knows how to base the missile, and after thirty such basing methods have already been found wanting.

All in all, we believe that the Administration will not succeed in finding an MX basing mode that will satisfy the public and environmental attitudes, the strategic realities, and the economic stringency of the 1980's. In many ways the MX is likely to be the ABM of the 1980's. Like the ABM, it will be ineffective in its defensive purpose because vulnerable to hundreds of MIRVed warheads. Like the ABM, it will be unnecessary to any real deterrent purpose. Like the ABM, it will be destabilizing (in this case because of its counterforce capability which, when added to that of the Soviets, will produce hair-trigger firing on warning doctrines). And as the ABM debate was sparked by a "bombs in the backyard" debate, so also will the MX trigger the environmentalists with their concern about (for example) thousands of miles of trenches. Probably, the whole thing will be subsumed in some future tax-payer revolt against such waste.

MX Not Indicated Strategically

In any case, today the program is really driven by SALT and by psychological desire to match the Russians (although the land-based, rather than sea-based, form the program takes reflects the service interests of the U.S. Air Force). The Administration feels that it is not enough to tell hawkish critics that the treaty *permits* MX; it feels obliged to assure them that the decision is on its way to being made—even when the MX basing mode is so little decided that the Administration is forced, as we indicated, to violate the rule of "fly before you buy."

The Administration has hinted to doves, in Secretary Brown's Annapolis speech, that they should consider the decision as a SALT "bargaining chip" option. The Secretary noted that "future reductions of Soviet forces—some that will be in our and the Soviet mutual interests—will require us to have force expansion options of our own. This will provide the Soviets an incentive for mutual reductions through negotiations—negotiations in which we too will have to forgo something."

As the F.A.S. March editorial ("Both Hawks and Doves

Should Insist on Reductions of MIRVed ICBMs") indicated, we do hope, of course, that the development of the MX system can be traded off for sharp and sustained reductions in MIRVed ICBMs on both sides. We recognize that, so long as the SALT process is conducted by both sides in a spirit of hard-bargaining, rather than one of mutual accommodation, reductions of strategic weapons will be considered in a nonsensical context of who's ahead rather than as part of the mutual interest in lowering force levels.

But the point we want to emphasize here is that SALT cannot long be a series of bargaining chips without bargains. While a majority of our members have voted to support SALT without preconditions or maneuvering, most of that majority view the SALT II agreement with dismay. And the rest of our members indicated that their support of the SALT II agreement was contingent on something: promises that SALT III would be better (20%); changes in the treaty (14%); or avoidances of firm commitments to MX (12%).

MX Versus SALT?

In particular, 12% of our members said that FAS should not support the agreement if it emerged that a "firm commitment to deployment of MX" had been made by the Administration as a price of Senate support. This is a significant percentage, especially in light of the fact that members were advised, in the ballot, that our opposition to MX would continue in either case.

Now it is true that this decision of the President to move toward full-scale development of MX is not a decision to deploy the MX; such a decision is not before the Congress and, as we noted, the basing mode is not even decided. So it is possible that even this 12% would, on reflection, still support the SALT II agreement, as would most of our members in any case.

But the general course of the SALT process is wearing out the patience of its most loyal supporters. In time, if the SALT process is not more productive than it is now, Federation members may move toward a policy of "buy only what you need" and withdraw their support from comprehensive SALT treaties that seem to cost more than they are worth. □

DELAYED JUNE NEWSLETTER

Circumstances dictated sending out the June newsletter in mid-summer, and it finds us still wrestling with that epochal event, SALT II. One reason for the delay was the hope that the June Summit, and the subsequent release of the SALT Treaty, would provide some new event. But hopes, and some efforts to encourage commitments at the Summit for progress in SALT III failed. See p. 4 for what Carter should have said (but, presumably, Brezhnev's health intervened, among other things).

Meanwhile, SALT is encouraging MX, but whether even the pressures to ratify SALT can smooth the way for MX is unclear, so many are its drawbacks. □

HOW TO UNDERSTAND THE TREATY

Perhaps the only way to appreciate either what has been at the SALT talks or why, is to have grown up with SALT and followed its twists and turns. What follows is a surrogate experience.

Stage I: SALT I Agreement. On May 27, 1972, the U.S. and the USSR reached agreement on a treaty prohibiting defensive anti-ballistic missile systems (except for one permitted site on each side) that would be, obviously, ineffective strategically. At U.S. insistence, limitations were agreed also on offensive weapons in an interim agreement to last until October 3, 1977. This interim agreement took the form of a freeze on the land- and sea-based missiles. The U.S. was frozen at 1,710 and the Soviet Union at 2,360. At that time, only the U.S. had MIRV multiple warheads; the Soviet Union's MIRV deployment did not begin until 1975.

But SALT critics, unhappy with the disparity in numbers of missiles, passed a Jackson resolution in conjunction with the treaty ratification. By 56-35, they insisted that the next SALT agreement should not "limit the United States to levels of intercontinental strategic forces inferior to the limits provided for the Soviet Union."

Stage II: Vladivostok Agreement of 1974. Charged with the necessity to secure a treaty characterized by equality, but faced with quite disparate numbers of "missiles" in the interim agreement, the Nixon-Ford Administrations noticed that the United States had more strategic bombers than the Soviet Union by a margin of about 400 to 150. If *these* strategic weapons were added to the missile numbers of each side—and they were, after all, "intercontinental strategic forces"—the two sides would, happily, be seen as far more nearly in numerical balance.

At Vladivostok, accordingly, Brezhnev and Ford agreed to limit the total number of bombers, land-based missiles and sea-based missiles to an overall total of 2,400. This required a reduction, on the Soviet part, of perhaps one hundred older missiles, while permitting the U.S. to increase its strategic delivery vehicles, if it desired, by a few hundred. The 2,400 limit was called a "cap on the arms race."

The Soviet Union still had not deployed MIRV, but was obviously about to. The United States either had deployed, or was about to deploy, MIRVed warheads on 550 of its land-based Minutemen, on 31 Poseidon submarines (with 16 missiles each, for a total of 496) and on about 10 Trident submarines (with 24 missiles each, for a total of about 240 missiles.) This added up to about 1,300. Accordingly, the U.S. was ready to agree to limit the number of missiles upon which it would deploy MIRV to 1,320 if the Soviet Union would do likewise when it finally got MIRV. This was agreed. From the U.S. point of view, therefore, the limits were not binding because it was not planning to go further.

Post-Vladivostok Dispute: On return from Vladivostok, two central issues arose. Henry Kissinger seems to have given no thought to the problem of cruise missiles (missiles that are pilotless aircraft rather than those missiles which follow a ballistic trajectory after cutoff of power). It appears that the Defense Department made a major post-Vladivostok effort to survey cruise missile possibilities, recognizing that they were a potentially important loophole in the treaty, and one in which we were far ahead of the Russians.

The Vladivostok Agreement prohibited air-launched "missiles" over 600 kilometers, and, both in that agreement and in subsequent backgrounders, Kissinger made no distinction between "ballistic" and "cruise" missiles carried on aircraft. Subsequently, the United States was forced to return to

insisting that cruise missiles were not limited. In the end, it got the right to deploy cruise missiles on bombers of unlimited range, but only if the bombers were counted against the total of "MIRVed" vehicles and with restrictions on the average number of cruise missiles per bomber.

The second and final major disagreement turned on the Backfire Bomber. Again, this seems to have been insufficiently discussed at Vladivostok. The Defense Department subsequently insisted that Backfire was a strategic weapon, although all evidence suggested that it was neither being bought, nor armed, nor deployed, with attacks on the United States in mind.

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Many believed, at the time, that the Backfire was a make-weight argument to give the United States the bargaining power to renege on the cruise missile issue and to secure the unlimited range which it has. In the end, the United States accepted a letter from the Soviet Union agreeing that it: (a) would not "increase the radius of action" of the bomber; (b) did not intend to give it the capability of in-flight refueling; and (c) would not increase its production rate of 30 per year. President Carter said that it considered the Soviet statements as commitments "essential to the obligations" of the treaty.

Stage III: The March Proposals. In March, 1977, the new Carter Administration proposed: reductions from 2,400 to between 1,800 and 2,000; reductions of the MIRV limits to between 1,100 and 1,200, with a sub-limit on the (land-based) ICBMs that could be MIRVed of 550. The Soviets were to cut their heavy missiles from 308 to 150; cruise missiles on bombers below 2,500-kilometer range were to be permitted in unlimited numbers; and no new ICBMs were to be permitted, a provision to be enforced by limits on their test firings.

The Russians objected: to the public discussion of the new proposal; to the fact that it was sprung upon them when they thought they were close to resolving the Vladivostok provisions into a final agreement; and to the felt-to-be-unequal quality of some of the provisions—notably the cut in heavy missiles; the larger reductions in strategic vehicles required of them from their initial higher limit; and the lack of restriction on cruise missiles which they do not have.

The proposals represented, however, an effort by the Carter Administration to satisfy both hawks and doves at least with an initial proposal that would be tough on the Russians on the one hand, and make more far-reaching arms control progress on the other.

Stage IV: The SALT II Agreement. The overall limits on strategic delivery vehicles moved down only from 2,400 to 2,250. No cuts in heavy missiles on the Soviet side were negotiated, and bans on test firings of missiles dropped out.

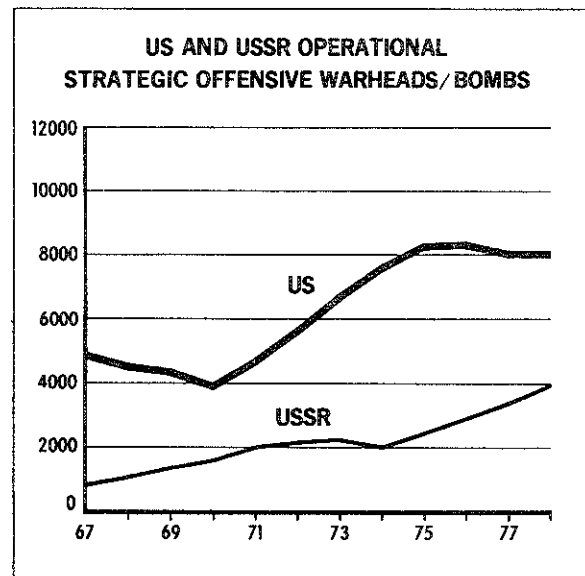
The MIRV ICBM limit moved up from the March proposal of 550 (set at precisely the deployed U.S. level) to 820. The 1,320 limit on MIRVed vehicles remained with the understanding that the U.S. could use part of its quota for "MIRVing" bombers with cruise missiles, which it will do, to about 120.

In the end, the two sides reached agreement not to increase the number of warheads on each existing type of missile. The United States had no plans to do so; whether the Soviet Union had such plans is unclear. Probably both sides had already decided what they considered the optimal trade-off between weight of warheads and their number.

The U.S., ironically, refused the Soviet offer to preclude the "one new type missile" with up to 10 warheads, fearing that it would preclude the MX missile here and probably not preclude Soviet increases in missile effectiveness through modernization.

Finally, a number of the most troublesome items in the negotiations were placed in a "protocol" that enjoined the parties from doing things during the two-year period of the protocol (to December 31, 1981) that, in fact, they were not going to be able to do in any case because of their deployment schedule.

These included the deployment of mobile missiles (our MX will not be ready for deployment, even if mobile based, for almost a decade), and the deployment of cruise missiles on land or sea in the European theater with ranges over 600 kilometers. □



WHO IS AHEAD IN THE ARMS RACE: IN BRIEF

Level 1: Both superpowers are behind. Why? If nuclear war arises, as it always can, through escalation and miscalculation, if not through failures of deterrence, the two superpowers will be virtually destroyed. In this regard, they are far more vulnerable than most other parts of the world: Latin America, Africa, India, China, Australia, etc. The superpowers have got themselves into a highly unique fix and, directly in the line of fire as they are, can only consider themselves both behind.

Level 2: At the next level of analysis, one can say that both superpowers are equal by virtue of "saturation parity." Why? Each has 50 to 100 alert warheads for every one of the 100 largest cities in the other's country. The number of warheads available saturates the target system available. And any differences between the two sides in numbers of warheads are irrelevant beside this fact.

Level 3: If one probes still more deeply, then, at a third level of analysis, one sees "incomparability." As might be expected, the strategic forces of the two sides are not precisely the same in quality and quantity, although composed of land-based missiles, sea-based missiles, and strategic bombers. Thus the Soviet Union has more "throw-weight" if one counts only missiles, but fewer warheads and worse anti-submarine warfare capability, and so on.

Level 4: If one attempts to pull together the "overall" assessment, one would have to conclude that the U.S. strategic system is superior because few, if any, would trade the U.S. strategic force system for the Soviet strategic force system, overall.

Level 5: Going beyond that, if one asks whether one side can do anything with its strategic force which the other cannot, one finds that the Soviet strategic force will, in the early 1980's, and on paper, be able to destroy the U.S. land-based missile force. By contrast, the United States can only destroy, by that time, about 50% of the Soviet strategic force, if it went first.

However, in the longer run, the vulnerability of land-based missiles is certain to apply to Soviet land-based missiles in ever greater degree, via U.S. sea-based missiles (as U.S. sea-based missiles get more capable of attacks on Soviet land-based missiles, or if the U.S. MX missile is built). Since the Soviet force depends far more heavily (to 70% rather than about 33%) on land-based missiles, this trend is far more serious to them. □

SALT TO MAKE WORLD SAFE FOR MX PRESIDENT BUYS ABSURD ARGUMENT

In his speech to Congress on June 19, President Carter explained that SALT II would hold the Soviet Union down to few enough warheads as to make a land-based MX missile survivable under attack. In fact, the SALT II agreement will expire in 1986, long before the MX missile could be deployed at all. Hence, the Administration would be forced to petition the Soviet Union for a continuation of the agreement (not only in 1986 but every several years thereafter when the agreements ran out) to keep to the warhead limitations. Basing a 30 billion dollar strategic expenditure upon a piece of paper—especially a piece of paper due to expire before it is even needed, is simply bizarre and shows the lengths to which the Administration is stretching its arguments.

Here is what he said:

"The agreement constrains none of the reasonable programs we have planned to improve our defenses. Moreover, it helps us respond much more effectively to our most pressing strategic problem—the prospective vulnerability in the 1980's of our land-based missiles. The MX missile permitted under SALT II and its verifiable mobile deployment system will enhance stability as it deprives an attacker of the confidence that a successful first strike would be launched against ICBMs. *Without the SALT II limits, the Soviet Union could build so many warheads that any land-based system, fixed or mobile, could be jeopardized.*" [Emphasis added] □

FOREIGN RELATIONS COMMITTEE CAPITULATES TO PAUL NITZE

On July 10, the Senate Foreign Relations Committee was forced to break its word to the Federation of American Scientists' Director by vigorous protests of Paul Nitze. It came about this way.

The Senate had arranged to open its hearings with two days of civilian Administration officials, one day with the Joint Chiefs of Staff and then a day of hearings of critics. Critics such as Paul Nitze, General Edward Rowney, and Admiral Moorer were lined up for the Thursday in question.

Through the urgings of Senator George McGovern, the Committee staff began planning to add two dovish critics of SALT to the four hawkish critics. Ten days before the hearings, Jeremy J. Stone, and Richard Barnett, were asked if they would appear to express their own view of the limitations of the treaty. They agreed.

On Friday evening at 6:30 p.m., Stone was formally, if orally, invited to appear by Chief of Committee Staff, William Bader, who called to say that the Chairman (Senator Church) had authorized him to invite Stone to appear. Stone accepted and was instructed that he would have to obey the 48-hour rule—which meant testimony in by next Tuesday at 10:00 a.m. in 50 copies.

By Sunday, the grapevine made it clear that the Committee staff was having second thoughts, inasmuch as Nitze was insisting he would not appear if Stone appeared. As word spread, a number of Senators apparently complained on Stone's behalf and, by Monday, William Bader indicated that the

Thursday appearance was back on track, but with two panels; the doves would be in the afternoon.

Stone thereupon appeared at the Committee offices at 9:00 a.m. Tuesday (49 hours before the appearance) with testimony, but suggested that he ought not turn over the testimony without a written invitation. It turned out that this was wise since, it was then promptly admitted, the matter was not yet settled. In the next hour, the Committee capitulated to the demands of Paul Nitze, who was apparently threatening that he would not appear before the Committee, thus embarrassing it, unless the entire day was given over only to hawkish critics.

Later in the day, the Committee called to invite Stone to testify on Monday, a day formally set aside for Former Directors of the Arms Control and Disarmament Agency (and Arms Control Negotiators)—Paul C. Warnke, Gerard Smith, Fred Ikle, and Alexis Johnson. □

SUMMIT CONFERENCE: WHAT CARTER SHOULD HAVE SAID

And let me say further that, in my discussions with Chairman Brezhnev, we have agreed that SALT II will be a foundation for future progress, not only in one way, but in a number of ways.

In the first place, now that we have secured agreement on general overall levels and limits, we can, should, and will, move toward sustained and continuous reductions from the present wholly excessive weapons levels.

In the second place, we plan to begin at once to study how future disarmament agreements should be staged so that the world-wide desire for disarmament is transmuted into an ambitious negotiating program between the superpowers, one that has concrete focus, strategic meaning, and direction. Where do we want to be in 1985, 1990, the year 2000, and beyond, in our struggle to eliminate the capacity for apocalypse? This is a question the world has a right to ask and one which, Chairman Brezhnev and I agree, we must begin at once to answer.

In the third place, we plan to build upon the present SALT II agreement—as an enormously useful backdrop of agreed definitions and conditions to which future agreements can be appended one by one. The SALT II agreement clears away the underbrush for many continuing issues. No one need despair that the successor to this 100-odd-page treaty need be one of 1,000 pages. Quite the reverse, much will be simpler after these agreements are reached.

Finally, Chairman Brezhnev and I have agreed that we need, as our next step, to proceed simultaneously on two fronts rather than one. We need to continue, of course, to pursue reductions of strategic intercontinental weapons. But at the same time, we need to move quickly to control those weapons which, while less than intercontinental in range and purpose, still threaten our allies, or the Russians, and are—as far as they both are concerned—quite strategic indeed. One important advantage of moving forward in this area will be, of course, a direct effort to resolve problems involving weapons systems that are only questionably intercontinental.

Above all, Chairman Brezhnev and I have agreed that we plan to show that disarmament can be meaningful, not only in reducing weapons levels, but in stabilizing the arms race. We plan to show, as it were, that we can even up the legs on an unsteady table even while—and indeed by—shortening those that are longer. In this way, disarmament and stability can go hand in hand as we begin to run the arms race in reverse toward our eventual goal of general and complete disarmament. □

SALT COMMENT: GARWIN "ART OF THE POSSIBLE"

Dear Fellow-Members of FAS:

As a signer of the "Goldberger-Scoville Letter," I have been invited to express my views on SALT, on the "G-SL" itself, on the performance of our FAS Director, and on other items. As a member of the FAS Board of Sponsors, and a former and current admirer of Jeremy Stone, I welcome the opportunity but I fear I shall disappoint almost everyone.

Some of us contribute best when we act as analysts and observers—stating facts and going only so far beyond the facts as is reasonably incontrovertible logic. I have neither stomach for nor talent in politics, and beg to be excused from prescribing or endorsing a particular small segment of action-space. As my testimony of 02/07/79 shows (expertly and accurately excerpted on pages 3-4 of the FAS *Public Interest Report* of 03/79) I am totally persuaded that the "MPS" (=multiple protective shelter) of MX missiles is a mistake, as is allowing such deployment to either side in SALT II. Yet I doubt the viability of a "hawk-dove" coalition to improve SALT II. I doubt that the Jackson amendment of 1972, prescribing "equal aggregates" (even if it helped the ratification of SALT I limited offensive agreement) was worth the price—I testified at the time against B-1 and Trident (which Jackson, Nitze, and others supported) and for an increased-payload missile in the Minuteman silo—essentially MX, which they did *not* support. Evidently, they

preferred to complain about SALT rather than do anything to redress the imbalance which was the source of their complaints! It is this experience which sours me on Jeremy's proposal.

I've said in a recent letter to the Editor of *The New York Times* that SALT was not worth the seven years and the price we have paid, and yet I suggest that it be signed and ratified—"Water over the dam," "spilled milk," "sunk costs." But we should not knowingly in the future get so little for so long and costly an effort.

Politics is the art of the possible; we may differ on our estimate and our certainty as to the possible, but very little on our prescription to be followed if we *knew* what was indeed achievable.

I think we would all favor a reduction in numbers of MIRVed ICBMs—I personally propose that each side be free to substitute six 10,000-kg gross weight single-RV ICBMs for each of the 820 MIRVed land-based ICBMs given up under the MIRV quota; others may want to substitute one-for-one, without restriction as to size. Which is better? Which is more feasible?

It may well be that parallel proposals split our rational supporters. I feel it is my job to propose and that of others to choose.

Richard L. Garwin

JEROME FRANK: "RATIFICATION WILL REDUCE TENSION"

In response to Jeremy Stone's invitation to contribute to the debate over ratification of SALT II, I would like to offer the following observations. It is a truism that humans respond, not to actual events, but to their perceptions of events. When perceptions accord with actuality, the resulting responses are appropriate; when perceived and actual realities sharply diverge, responses become maladaptive, often dangerously so.

With non-nuclear weapons, perceived and actual reality essentially coincided. The image of strength projected by a large stockpile of these weapons was based on real strength; therefore it was realistic for national leaders to rely on them to reassure themselves, intimidate their actual or potential enemies and hold the loyalty of their allies.

With strategic nuclear weapons, however, perceived and actual reality still coincide in one respect but differ drastically in another. They coincide in that strategic nuclear weapons in the hands of one adversary gravely menace the other. They differ sharply in that, beyond a certain point, the more a nation possesses, the more secure and strong it believes itself to be, whereas in actuality the reverse is true. Beyond a level long since passed by the U.S. and the U.S.S.R., accumulating more powerful and sophisticated strategic nuclear weapons increases the danger to all nations, including the possessor.

Although moderate emotional stress encourages flexibility and search for new solutions, prolonged or excessive stress, such as the nuclear arms race has generated, leads persons to cling to solutions that worked in the past, even when they have become obviously maladaptive. Hence all national leaders continue to seek an illusory superiority with nuclear weapons as they did previously to achieve real superiority with non-nuclear ones. The concept of nuclear superiority still possesses psychological reality, however meaningless it is in actuality.

As a result, the debate over the merits or demerits of SALT II becomes lost in a myriad of sophisticated but objectively irrelevant arguments as to whether SALT II will permit the U.S.S.R. or the U.S. to have more or less of a particular weapons system and how this will affect the nuclear balance of terror.

The central psychological imperative is to reduce mutual fears to a level that stimulates flexibility of thinking and behavior instead of stereotype. This is a prerequisite to the creation of the new solutions required if nations are to break out of the nuclear dance of death.

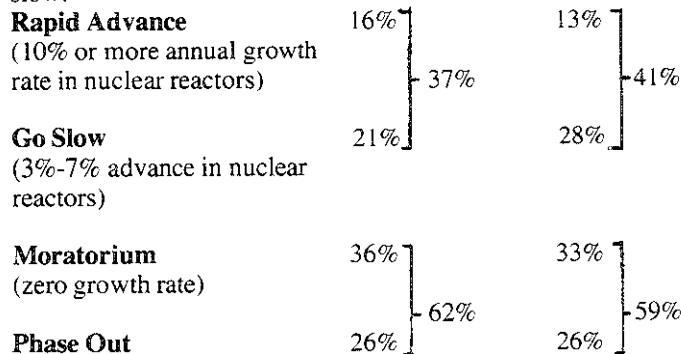
By this criterion, ratification of SALT II would be a clear move in the right direction. Failure to ratify it would leave the field of arms control in chaos, and almost certainly produce a very sharp increase in mutual mistrust and tension. This would bring the world closer to destruction directly by stimulating a feverish, unrestrained nuclear arms competition, and indirectly by making national leaders even more incapable of changing their perceptions of reality to accord with its actuality.

On the other hand, whatever else SALT II may or may not accomplish, ratification will reduce tension. To be sure, it may increase the anxiety of a few Americans who frighten themselves with wildly implausible scenarios, but this would be far out-weighted by its tension-reducing effects. Ambiguity is a major source of anxiety, and the primary effect of SALT would be to reduce this ambiguity by introducing some regularity into the arms race. It sets limits on certain categories of nuclear weapons, thereby reducing the options available for both sides; for the first time stipulates an actual reduction in one category of nuclear weapons, which has great symbolic significance; and facilitates and safeguards verification procedures. For these reasons, I believe its ratification to be imperative.

Jerome D. Frank, M.D.

NUCLEAR REACTOR POLL

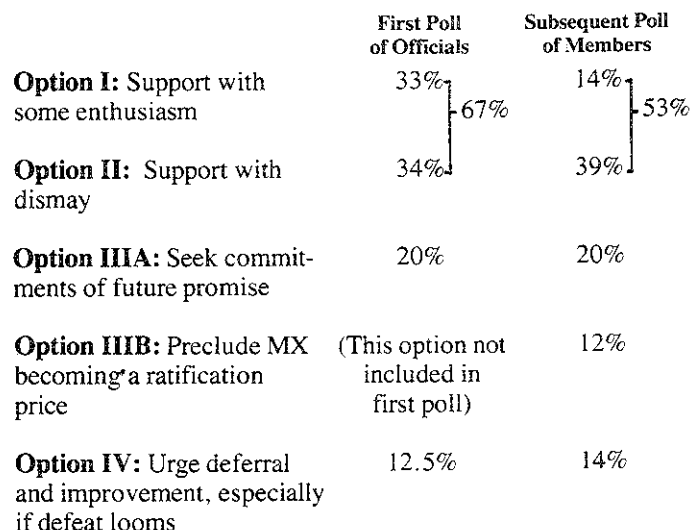
In order to determine whether there had been any change in FAS member attitudes since the Three Mile Island incident, FAS circulated precisely the same questions on reactors which it had circulated in October, 1975. The results showed slightly less interest in "rapid advance" and somewhat more in "go slow."



The earlier vote of 62% to 37% "anti" versus "pro" which is constituted by combining the first two, and the last two, options, has become a vote of 59% to 41%. Since the membership of the Federation changes over the years, these differences in categories may be without numerical significance. □

SALT II POLL

The ballot on SALT II was similar to a poll made, and released, earlier of 100 FAS Council Members and Sponsors, to which 64 persons responded. The 1200 first respondents of the 6,000 members solicited reacted in this fashion.



In short, the polls show a clear majority—of both officials and of members—for supporting the treaty without further preconditions or maneuver. But most of those in the majority do not believe that the superpowers are doing enough to control, and reverse, the arms race, and hence view the treaty with dismay.

A sizable minority of both officials and of members—while none are asking for defeat of the treaty—refrain from giving their support without some further condition. Thus, 20% want

assurances that SALT III will be more promising than SALT II. Twelve percent want assurances that MX will not become a "price of SALT." Fourteen percent would like the treaty deferred and improved with more arms control and disarmament, especially if it would otherwise be recommitted for improvements only by persons concerned with questions of strategic imbalance or Senators concerned about such neutral questions as verification.

The poll shows the rank and file membership responding willing to express more skeptical views about SALT's progress than the 50 Sponsors and 14 Council officials who responded. □

FRANK VON HIPPEL BECOMES CHAIRMAN

In the April election, physicist-trained Frank von Hippel of Princeton University defeated USC physicist Nina Byers for Vice Chairman of FAS, and will serve as Chairman for the remaining year of former Chairman George Rathjens' term. Professor von Hippel is widely known for his work in public interest science in nuclear energy and defense analysis, among other fields, and as the coauthor (with Joel Primack) of the work on public interest science entitled *Advise and Dissent*. Now serving as our Treasurer, he will be replaced in that position by Professor John P. Holdren of Berkeley.

Of the nine candidates standing for election to the Council, those elected were: physicist Hugh E. DeWitt of Livermore Laboratory; Herman Feshbach, Chairman of the MIT Physics Department; John P. Holdren, Professor of Energy and Resources of UC Berkeley; Peter Raven-Hansen of the law firm of Hogan and Hartson; Andrew M. Sessler, Director of the Lawrence Berkeley Laboratory; and Martin J. Sherwin, historian of Princeton University Center for Environmental Studies.

Candidates retiring from the Council on June 30 were: Morton H. Halperin, Daniel Koshland, Jr., Victor Rabinowitch, Leonard Rodberg, George A. Silver, and Frank von Hippel. Election rules virtually prohibit the immediate rerunning in the next election of candidates retiring from the board. □



Frank von Hippel

HALF OF THE SENATE HAS NEVER SEEN MOSCOW

FAS has sought, for a number of years, to encourage leading political figures here and in the Soviet Union to take the trouble to see the opposing nation causing them such concern. In 1970, FAS was instrumental in securing passage of a bill to pay the way to the Soviet Union of all Senators who had not previously been there. The bill was defended in Foreign Relations Committee hearings by its Sponsor, Alaska Senator Mike Gravel, under the slogan "saints and devils thrive on distance." Testimony suggested that hawks were usually tranquilized by the unexpectedly low standard of living and historic fear of war found in Russia, while doves were traditionally disillusioned by the suffocating atmosphere. Fear them less and trust them less was the succinctly stated result of such visits according to one observer.

At that time, only 40% of the then Senators had visited the Soviet Union. Today, an FAS poll revealed, the ratio has risen to 50%, mainly because of two Congressional delegations related to SALT. Senators still seem to be traveling to China more rapidly than they are to the Soviet Union. And only, at most, 40% of the Soviet Politburo has ever seen the United States, according to State Department figures.

FAS wrote the majority and minority leaders, giving the names of the Senators who had not had this opportunity. The Senators, listed below, even included the Chairman of the Senate Foreign Relations Subcommittee on Europe (which has jurisdiction for the Soviet Union) but this Senator (Joseph Biden of Delaware) wrote FAS promising to rectify the omission shortly.

Senators who had not been to the Soviet Union (as of June 1979):

Democrats:

Baucus
Bentsen
Biden
Chiles
Exon
Ford
Heflin
Huddleston
Inouye
Johnston
Levin
Long
Matsunaga
Melcher
Metzenbaum
Nelson
Proxmire
Pryor
Randolph
Riegle
Sarbanes
Sasser
Stewart
Stone
Talmadge
Tsongas
Williams
Zorinsky

Republicans:

Boschwitz
Chafee
Cochran
Cohen
Dole
Durenberger
Goldwater
Hatch
Heinz
Helms
Humphrey
Jepsen
Kassebaum
Lugar
Packwood
Pressler
Simpson
Thurmond
Weicker
Young



Jeff Leifer

STUDENT PUGWASH MEETING HELD

Through the sustained enterprise of the UC San Diego student body president, Jeff Leifer, a convocation of about 50 students met for a week in June to discuss science and society issues. Funded by the National Science Foundation and the Endowment for the Humanities, the meeting brought together senior and graduate students from throughout the country and a handful of foreign nations. Each brought a paper which was discussed by the students in workshops devoted to: science and defense; science and ethics; science and politics; science and development; etc. Afternoon plenums heard renowned speakers and debated such issues as SALT.

The meeting was inspired by the Pugwash Conferences, and thus took its name as "Student Pugwash." Their final meeting was addressed by Governor Jerry Brown, in one of his first major policy addresses on the arms race. Standing behind him was a large sign entitled, hopefully, "First Annual Student Pugwash." But whether the affair can be duplicated and continued is much less certain. □

HUMAN RIGHTS SITUATION IN CHINA

Immediately after the overthrow of the "Gang of Four," there was considerable "liberalization" in China with posters permitted and many of the oppressed rehabilitated.

According to the Society for the Protection of East Asians' Human Rights (Box 1212, New York, N.Y. 10025), 360 researchers in the Chinese Academy of Science have been rehabilitated, but "Some of the comrades are crippled and some were persecuted to death." The number of formerly imprisoned CAS scientists may run into the hundreds. In the new climate, the *People's Daily* is now saying that "We should fully trust and boldly use capable specialists of all kinds. We must not fear ungrounded charges such as 'pursuing a specialist line.'" Two thousand scientists and technicians in Yunan who had not been engaged in work related to their expertise have been transferred to proper posts.

On the other hand, subsequent to the overthrow of the Gang of Four, the Chinese leadership evidently feared that events might be getting out of control, and cut back on the permission to prepare and show posters and arrested some outspoken editors. In this new climate, and after consulting with all Executive Committee members, FAS wrote the Chinese Embassy encouraging the rehabilitations and urging a continuation of liberalizing trends for which FAS is standing elsewhere throughout the world. □

KOVALEV BEGINS HUNGER STRIKE RENOUNCES SOVIET CITIZENSHIP

Biologist Sergei Kovalev has become so desperate in prison as to begin a hunger strike, in response to which FAS Sponsors John Edsall and Robert Holley released the following letter.

Word has reached the West that Soviet biologist Sergei Kovalev, imprisoned since 1976 for circulating Samizdat Chronicles on human rights, has become so desperate as to renounce his Soviet citizenship on June 15, and to begin a hunger strike without end. Readers may recall that, at the time of his trial, Nobel Peace Prize winner Andrei Sakharov called Kovalev a "man of great spiritual beauty and force, of limitless altruism."

Kovalev, and Yuri Orlov, who was subsequently imprisoned, personify the dilemma of dissidents who seek to remain in the Soviet Union, and to reform its conditions. While Soviet citizens of Jewish extraction who want to leave the Soviet Union get most of the attention in America—and garner most of the concessions made by Soviet authorities—ironically, it is the Soviet treatment of dissident defenders of human rights that reveals most about whether one can or cannot "trust the Russians." It is, in effect, Kovalev and Orlov who campaigned to secure or monitor most of the substance of the Helsinki agreement, while the would be emigrants only test provisions relating to emigration and religious persecution. While we fully support the defense of the rights of Jewish Soviet citizens, both to stay and work and to leave, we do hope that the Department of State will give equal time to human freedom across the board, and that, in particular, some quick effort will be made to save Kovalev from death by hunger strike.

*John T. Edsall
Robert W. Holley*

FAS Director Stone released the following statement as his own view:

"American scientists want the release of biologist Sergei Kovalev, and of physicist Yuri Orlov also; no government

which represses and imprisons scientists and humanitarians like these can win the respect of American scientists.

"With every dissident like Kovalev it destroys, the Soviet Government is destroying the capacity of Soviet society to evolve and to compete in the world marketplace of ideas and values. By suppressing lawful change, the Soviet Union is becoming an arrested society. How long can the Soviet Government continue its pointless policy of building weapons and losing respect?" □

VIETNAMESE SCIENTIST SPEAKS ON DIOXIN

On May 9, a member of the Vietnamese Government committee on science and technology spoke at FAS on the possible relationship between dioxin and liver cancer. Dr. Ton That Tung, former Vice Minister for Health in North Vietnam during the war years, was on a visit to America sponsored by the American Friends Service Committee. He cautioned that the relationship was not established between cancer and dioxin but thought his researches suggestive.

An audience of about 40 persons included representatives from environmental groups and Vietnamese War veterans groups and at least one representative from the U.S. Air Force studying these same questions. Interest stems from the exposure of U.S. veterans to dioxin, which is a very toxic contaminant present as an impurity in the 2,4,5-T herbicides used in the war. Further interest arises from the use of herbicides domestically. An organization based in Chicago, called CAVEAT, is pressing for an investigation, and claims that several thousand veterans are suffering from maladies that might be dioxin related, including such nervous system problems as inability to maintain attention, numbness in extremities, and chloracne.

FAS welcomed Dr. Tung's visit and lecture as a first example of Vietnamese scientific exchange since the war. However, on a different front, that of human rights, FAS has written to Vietnam about the treatment of ethnic Chinese who are perishing, in the hundreds and thousands, on the high seas after having been forced by persecutions to leave Vietnam. □

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