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FAS THREATENED BOYCOTT TO DEFEND GORBACHEV

By noon of the first morning of the abortive Soviet coup, TASS was delivering to the conspirators FAS's response: that FAS would catalyze a world scientific boycott—akin to that organized for Sakharov—unless and until we heard from Gorbachev.

Thus, in the open letter reprinted on page 2, FAS amplified the demand—first made by Russian Republic President Boris Yeltsin—that Gorbachev should be allowed to speak.

Federation members will recall that, in 1976, FAS invented the notion of an "American refusenik" who would adopt a Soviet scientific colleague being denied his or her rights and would refuse scientific cooperation unless and until this colleague was provided those rights.

That campaign proved quite effective and, in particular, led to the establishment of Human Rights Committees in many scientific societies including the National Academy of Sciences.

In the 1980s, FAS human rights efforts focused on Andrei Sakharov, who was "adopted" by FAS itself. Now, Gorbachev's right to speak was being suppressed for precisely the same reason that Soviet authorities feared letting Andrei Sakharov speak: the power that his words would have over Soviet public

opinion. To show support for Gorbachev, FAS turned to the same technique. Fortunately, events of the next two days made this unnecessary.

SOVIET EVENTS OUTPACE PIR

As the PIR went to press on August 30, FAS had no opportunity to prepare an assessment of the dramatic events in Moscow. But our early thinking is that they herald historic opportunities for FAS projects.

Our Joint US-Soviet project can more easily proceed in dismantling the Sword of Damocles.

Much of what our Space Policy Project has opposed, including ABMs, can now be dealt with more decisively.

Our Arms Sales Project can now expect much more Washington-Moscow cooperation.

Our project on excessive government secrecy can look toward a new era of openness.

And our past efforts in Asia, including China, Vietnam and Cambodia, leave us well positioned to work on a variety of human rights and security issues there.

We hope now to see an era of real progress. ■

CAMBODIAN FACTIONS SEIZE THE RUDDER

Genocide Witness Project

FAS continued its efforts to prevent the return of the Khmer Rouge with a visit to Cambodia from July 7 to July 14, the conclusions of which were published in *The Washington Post* op-ed page on July 28. What follows is an extended report of a period in which, backed by China, the Cambodian factions, for good or ill, were taking the lead in negotiations from the five major powers of the Security Council.

During this trip, FAS conceived and organized a "Genocide Witness Project" to interview the few dozen survivors of the genocide period who had personal contact with the top dozen Khmer Rouge officials. American University professor Gregory Stanton, who accompanied FAS on this mission and helped shape the project, and Professor Ben Kiernan of Yale University have agreed to conduct the interviews. ■

With hope running out for the Perm 5 U.N. plan for Cambodia, the Chinese Government decided to press the four Cambodian factions to take the lead themselves. Its Foreign Minister Qian Quchen told the Japanese Government, it is "time for Cambodian chefs to make Cambodian cuisine, not foreign cooks." He explained that "modifications are possible" in the plan of the great powers. And he told officials, privately, that the Chinese Government now recognized that a military solution was not possible and that the time had come for a political solution.

Prince Sihanouk, who considers China and North Korea to be his only true friends, was thus advised by his greatest backer that the time had come to work with Phnom Penh's Prime Minister Hun Sen. And the Khmer Rouge were told, in no uncertain terms, that China would not support them if they let themselves become isolated from a Cambodian consensus. As a consequence of this Chinese pressure, the Supreme National Council (SNC) of the four

(Continued on page 2)

Open Letter to Gorbachev

Dear Mr. President:

If the coup cannot be reversed, the Federation of American Scientists hereby adopts you, as a fellow (political) scientist, and intends to struggle to preserve your right to speak in the Soviet Union or, alternatively, your right to leave so as to be heard elsewhere. Our members cannot be expected to engage in traditional scientific exchange with their Soviet counterparts until your position is clarified and your rights respected. And we are prepared to urge the entire world scientific community to follow our lead.

T)T As you well know, this is precisely the position we took for your Nobel Laureate colleague, Andrei Sakharov, whom you released from confinement on the basis of just such appeals as part of the glasnost you provided your country. And it is precisely the position we took for "refusenik scientists" denied rights to either leave or work—rights you restored.

You have provided the world with unprecedented services in lowering the risk of nuclear war and in your talented efforts to reform your country. We respect your achievements and your idealism enormously. The world in general, and the Soviet Union in particular, require your continuing voice.

If all else fails, FAS warmly invites you and Raisa to be our guests in the United States and we will make all arrangements.

Finally, as a token of our commitment, we now place a reservation on our new program of encouraging "sibling institution" scientific exchange between our two countries until this matter is settled.

Jeremy J. Stone
President

(Continued from page 1)

Cambodian factions became "operational" and decided to have its headquarters in Phnom Penh.

In turn, this development opened the possibility—which FAS had urged on several States in September 1990—that governments could open embassies in Phnom Penh in recognition of the SNC. Australia promptly announced it would. Ten other governments followed suit. Australian officials think that such an embassy would give its officials the right to travel in all parts of Cambodia, not only in the area controlled by Hun Sen's Government.

SNC Not a Government

The SNC would be recognized, however, only as embodying the sovereignty and integrity of Cambodia—enough to hold the U.N. seat in September, with a delegation headed by Prince Sihanouk planning to do just that. It would not be recognized as a Government. Cambodia would remain under the administration of two governments: the Phnom Penh Government (State of Cambodia)

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LAND-BASED ABM: YELLOW-PERIL II

In 1964, with the first nuclear explosions of the People's Republic of China, it was the conventional wisdom in Washington that a "thin" ABM system was the right, or at least the inevitable, response.

Maoist China seemed inscrutable and unpredictable. Pentagon estimates for the operational capability of China's first ICBMs were conveniently near term, a few years off. ABM proponents, who really wanted an anti-Soviet ABM system had long been searching, for openers, for a suitable rationale for a less-than-full missile defense. This China provided.

Events Altered Perception of Threat

History produced a different outcome—the ABM Treaty of 1972. It left the United States and the Soviet Union with the right to build at most one ABM site. Ironically, in that same year, President Nixon's visit to China so changed America's vision of the Chinese threat that the anti-Chinese ABM system was never heard of again. And while, today, the Chinese do finally have a half-dozen ICBMs—a decade later than predicted—America finds their strategic force to be politically irrelevant and completely deterred.

Now a quarter of a century after this initial Washington panic, in a remarkably similar context—with supporters of defense systems again searching, for openers, for a rationale for a "thin" defense—the experience in the Iraqi War with Scud missiles has triggered in Congress a comparable response: "yellow-peril II".

ABM proponents are now, of course, termed Star Wars devotees. In place of China's bomb explosion, we have the CIA's bureaucratic bomblet that: "By the year 2000, as many as 15 countries could be producing their own ballistic missiles."

Congress Assumes Worst Case

Congress, with that remarkable ability to leap to conclusions that characterizes all large committees, has assumed that these ballistic missiles will be long-range ICBMs; that they will be armed with nuclear weapons; and that they will be controlled by countries hostile to our interests which can be dealt with in no other way. All four of these assumptions are overwhelmingly wrong.

Indeed, China and Israel in the sixties were the last countries in the world to embark on major strategic nuclear weapons programs. The worldwide nuclear non-proliferation drive has been so successful that, for the quarter of a century since 1964, only India is known to have detonated a bomb. With the United States and the Soviet Union finally working together on arms control—and with both their interests in this matter obvious enough to keep them fully engaged despite the recent coup—we can expect continuing major successes in holding down the number of nuclear powers.

In addition, we have the Missile Technology Control Regime (MTCR) in full swing now, including more than a half dozen of the leading suppliers of missiles. Thus, we



US Army photo

Grand Forks, site of the SAFEGUARD Complex deactivated in 1976, would get 100 ABMs under Nunn-Warner proposal.

can expect real success in keeping countries producing "ballistic missiles" from producing "ICBMs". ICBMs are, after all, a far more difficult undertaking than just "ballistic missiles" and one that has such little payoff for countries involved in regional struggles that few, if any, will attempt it.

Specifically, following successes in persuading Brazil and Argentina to halt their nuclear programs, we can anticipate, in the near and medium term, nuclear weapon states at most in Israel, India, Pakistan, South Africa, possibly, North Korea. North Korea has offered to allow inspections of its nuclear facilities if Korea as a whole becomes a nuclear free zone. And none of this raises the specter of future nuclear-armed (ICBM) threats to the United States.

Even if ICBMs without nuclear warheads were deemed a major problem, which they are not, many of the countries projected to have missiles are friendly to us: Egypt, Saudi Arabia, Taiwan, South Korea, Argentina and Brazil. Others are too small and technologically backward to mount an ICBM threat for periods too far in the future upon which to base U.S. public policy: Syria, Iran and Libya. Iraq's entire strategic weapons program, has been eliminated.

If Not China, Then Not Third World

For all these reasons, China in the sixties made a better case for a thin ABM than all of these "fifteen countries" make put together. Yet neither we, nor the Soviet Union, have felt it necessary to have a missile defense against Chinese ICBMs.

And even if a Third World exception to this analysis emerged, were it to threaten us despite our deterrent capability, we would very likely attack its ICBMs in a serious

crisis rather than rely upon ABM technology which, let's face it, is not at all certain to function reliably.

For these reasons, Americans have every right to expect that the developed world, as presently organized, can prevent nuclear armed ICBM threats to the United States by diplomatic and political pressures, by embargoes of the components needed for nuclear weapons and intercontinental missiles and, above all, by the general strategic disinterest of other nations in building ICBMs, a disinterest we can reinforce.

The "Accident" Rationale

Because of the force of the anti-ABM arguments today, as a quarter century ago, much is made of the subsidiary argument that "accidents" or "unauthorized" behavior justifies a thin-defense even if there is no real threat. Experience during the last 30 years of ICBMs has shown otherwise.

The United States is quite confident that its missiles will not be fired accidentally and, accordingly, does not urge the Soviet Union to build a missile defense to protect against such accidents—by either us or the French, British or Chinese—even though such accidents by ICBMs aimed at Moscow might be as dangerous to us indirectly as to the Soviet Union directly.

To reduce incidents, the United States should simply offer to share its ideas on accident protection in the sure knowledge that all relevant countries, including the Soviet Union especially, will be ready and eager to receive them. It is, after all, far more cost effective, and far more reliable, to prevent accidents from occurring than it is to protect against them after they occur. Above all, nothing really resembling the missile accidents in question has ever occurred; when the very, very rare accident has occurred, the missile failed to fly or aborted promptly.

Nor has the "unauthorized behavior" scenario been endorsed by specialists. America's top military adviser, General Colin Powell, has testified that "they (the Soviets) have very good control over their systems, and they treat them with the same care that we do." And the world is now in a period where Soviet and U.S. forces will be standing down, with far less likelihood of crisis standoffs.

All in all, to build a thin defense for accidents or unauthorized behavior—after the arms race and cold war are largely over—would seem bizarre.

The Shell Game and How It Ends

The present ABM debate represents a kind of shell game. Under the first shell is a proposal that the United States proceed to a very limited ABM system that is compatible with the existing ABM treaty, because it requires only the one ABM site which that treaty permits. But the Nunn-Warner proposed one-site system would leave the East and West Coasts without protection, making it highly irrelevant.

The Senate is putting forth the first shell proposal as a step toward a second shell: a negotiated agreement with the Soviet Union to modify the ABM treaty to permit more

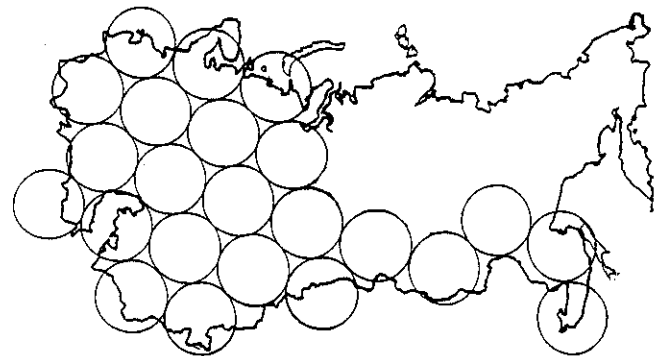
sites and a larger, albeit still limited, defense. Proponents seek to persuade alpolitical commentators that the U.S.-Soviet situation is ripe, politically, to complete such negotiations. What the shell hides is whether a politically feasible agreement can be designed.

There is real question whether even strategists who were permitted to play both sides of the U.S.-Soviet chessboard could design a suitable shift in the terms of the ABM Treaty. The two sides have different geography and, worse, different technologies for their interceptors.

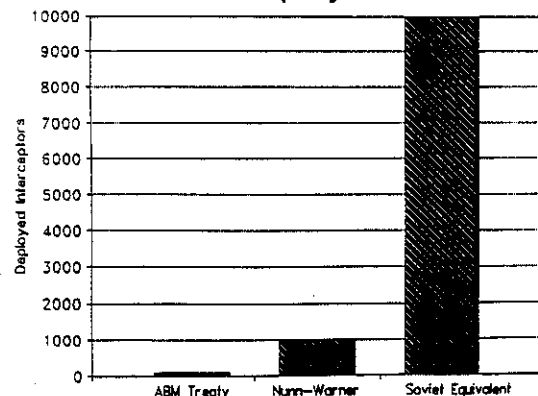
The U.S. would have to permit the Soviets to have more interceptors if the U.S.S.R. were to be provided with equal protection. Alternatively, the Soviet Union would have to permit the U.S. a greater degree of protection. For example, the Soviets might have to deploy 10,000 interceptors to match an American deployment of 1000. And, on the basis of much past experience, we know that a Soviet deployment of even 200 interceptors would reignite concerns in the United States that the Soviets had some ABM protection, in being or prospect, against the United States. As so often happens, Washington might well not want to take "yes" for an answer.

These are some of the reasons why experienced analysts point to the third shell, which houses destruction of the ABM treaty and see a full Star Wars defense as the likely outcome.

Soviet Deployment Equivalent to GPALS



ABM Deployments



After all, this is the admitted goal of the main proponents, just as a "thick" defense of the United States was the goal of "thin" defense proponents in the mid-sixties. Is it so unreasonable for ABM Treaty supporters to fear the escalation ladder in which one ABM leads to another larger one? We are not, as one political commentator put it, "ABM purists," we are Washington realists.

Proponents Seek To Destabilize

Washington cynics, incidentally, would note that a one-site ABM system could in fact be built, with the most minimal change in the ABM Treaty, and would cover both coasts against Third World threats. Indeed, it could be built later, after seeing the whites-of-the-eyes of some specific Third World threat. But this preparedness option would have been too easy and would not have provided the springboard to destabilization that the ABM proponents want.

It is worth mentioning that ABMs and disarmament are, in fact, in opposition to one another. The more ABM defense there is, the harder it is to imagine either Washington or Moscow or the other nuclear powers bringing down their missile levels. ABM is a floor under disarmament. And if the ABM Treaty is lost, the START Treaty will be also.

This replay of the anti-Chinese ABM debate shows Washington at its worst, beset by political pressures, abstract conceptual arguments and bland assumptions. At least China had a bomb, was a potential adversary, and was headed for an ICBM, albeit a decade later. The same cannot be said with precision about any of the 15 countries to which the CIA refers and, accordingly, these 15 countries represent, collectively, another shell game. In the 1990s, pure numbers of minor countries have replaced the reality, in the 1960s, of a nuclear-armed China.

Of course, Washington is not really buying into all these abstract assumptions. In its own inimitable way, it is just acquiescing, via an alleged "middle ground", to the perennial pressures of the military-industrial complex to build the ABM.

If history is any judge, precisely because it is so unreal, this "yellow-peril II" debate will vanish even more quickly than that of its predecessor. Whether it will vanish soon enough to prevent the ABM proponents from achieving the critical mass they desire is unclear. What is clear is that the struggle against the ABM will reemerge every few decades as public fears, fanned by commercial pressures, lead to periodic panics. □

—John E. Pike and Jeremy J. Stone

Stone, FAS President, has been working on the ABM issue since 1963, when he wrote early papers advocating mutual restraint and an ABM Treaty. Pike, Director of the FAS Space Policy Project, has been the most visible American opponent of Star Wars ABMs since they were proposed in 1983.



Barbara Hatch Rosenberg joins Council

1991-92 Council Elected

Barry M. Casper, Barbara Hatch Rosenberg and J. David Singer have been elected to the FAS Council for a four-year term ending in 1995. The 1991-92 Council, since 1987 in the process of being downsized from 24 to 12 members, will be composed of the three new members, plus Stephen Cohen, Alex DeVolpi, David Hafemeister, Denis Hayes, Jessica Matthews, George Rathjens, Arthur Rosenfeld, Martin Sherwin and Valerie Thomas.

Barry (Mike) Casper, who earlier this year took leave from Carleton College to serve as Policy Adviser to Senator Paul D. Wellstone (D-MN), has returned to teaching. Barbara Rosenberg, a member of the Expert Working Group on Biological Weapons Verification and adjunct professor at SUNY-Purchase, has been working closely with FAS on proposals for the Biological Weapons Convention. David Singer, just back from the International Institute of Peace in Vienna where he did research on military conversion, is professor of political science at the University of Michigan at Ann Arbor.

Of the three, only Casper has before served on the Council, and each of them brings to the governing group expertise in areas important to the work of FAS—infusing science into political decisionmaking, constraining biotechnology to humanitarian purposes and converting military-industrial complexes to peaceful pursuits.

Andrew Sessler of Lawrence Berkeley Laboratory will continue as Chairman until July 1992. Retiring from the Council are Julius Axelrod, Deborah Bleiviss, Dudley Herschbach, Art Hobson, Stephen Schneider and Robert Weinberg.

Frank von Hippel and Martin J. Stone have been re-elected trustees of the FAS Fund, the research and education arm of the Federation funded by tax-deductible contributions and foundation grant monies.

ENVIRONMENTAL IMPACTS OF SOLID ROCKET PROPELLANTS

The environmental effects of the solid rocket propellants widely used in the U.S. launch fleet have recently become the focus of controversy and concern. There is arguably enough evidence of adverse environmental impacts from solid rocket exhaust to warrant the gradual phase-out of today's solid propellants and to render environmental considerations an important factor in the future evolution of space launch vehicles.

The thrust that lifts a rocket against the pull of gravity is provided by the highly energetic combustion of precisely formulated and mixed reactants. In standard solid propellant, the primary ingredients are aluminum metal powder and ammonium perchlorate.

The primary reaction products from the combustion of such propellant are hydrogen chloride, aluminum oxide, carbon dioxide and water. Of these, the principal environmental effects are produced by hydrogen chloride and aluminum oxide.

The most severe impacts of solid rocket launches naturally occur where the exhaust is most concentrated, i.e. in the vicinity of the launch site. The near-field effects of solid rocket exhaust include moderate to severe damage to local flora and fauna due to deposition of highly acidic particles.

Impacts on Stratospheric Ozone

Due to mounting concern over depletion of the stratospheric ozone layer, the global effects of solid rocket exhaust have begun to receive renewed attention, particularly since, unlike other industrial activities, much of this exhaust is injected directly into the stratosphere.

The stratosphere is the layer of the atmosphere that begins at an altitude of 8 to 16 kilometers, depending on latitude, and extends up to about 50 kilometers. (The Shuttle's solid rockets burn out at an altitude of 44 kilometers.) Ozone is a naturally occurring compound in the stratosphere that serves a vital function by absorbing hazardous ultraviolet radiation.

In response to evidence that the ozone layer is being depleted as a result of human activities, an international consensus has developed that the use of ozone-depleting substances, particularly chlorofluorocarbons (CFCs), should be restricted.

As part of our continuing work on new environmental issues, FAS has examined some of the environmental problems associated with the launch of rockets using solid propellants. We found them to be neither dire, as some have warned, nor negligible, as other have claimed. FAS Senior Research Analyst Steven Aftergood, who prepared this article, has recently addressed this question on the CBS Evening News, in *New Scientist*, in the *Journal of Geophysical Research*, and in a longer FAS report from which the following article is excerpted.

The principal effect on stratospheric ozone from solid rocket exhaust is due to the presence of chlorine. Though the hydrogen chloride in the exhaust plume is inert with respect to ozone, it yields free chlorine in the presence of hydroxyl radicals. This chlorine is then available to act as a catalyst to break down ozone molecules.

How serious is the threat to the ozone layer from solid rocket exhaust? At current launch rates, and averaging over the entire globe—two important limiting assumptions—solid rockets add a very small fraction to the chlorines already in the stratosphere, with a correspondingly small reduction in ozone. A recent NASA study estimated an increase of less than 0.6% in stratospheric chlorine due to the launch of nine Shuttles and six Titan rockets per year, and a global increase in ozone depletion of less than 0.1%.

This is well below the natural fluctuations in ozone levels and therefore the global impact of these launches would not be detected. This of course is not equivalent to saying that they have no impact. It should be recognized that when considered on a global environmental level, few individual human or industrial enterprises appear to be very significant. The problem is that collectively they can have a critical effect.

Furthermore, the NASA study observes "Local destruction of ozone in the immediate vicinity of the rocket plume could be significantly larger." Indeed, in perhaps the only such measurement to be performed, a reduction of ozone greater than 40 percent below background was measured in the exhaust trail of a Titan III solid rocket at an altitude of 18 kilometers after a mere 13 minutes.

Mounting Scientific, Political Opposition

The growing concern about the environmental impacts of solid rocket propellants has become manifest in a growing chorus of opposition.

For example, in a briefing to Congress, an official of the Strategic Defense Initiative Organization cited acid rain as an environmental hazard of present-day launch systems and indicated that the goal of one SDI program is to "eliminate toxic by-products from today's solid rocket propellants."

For its part, the Office of Technology Assessment of the U.S. Congress has observed that "If the Nation were to continue to use these solid rocket boosters on its launch vehicles, environmental considerations would at some point limit their allowable launch rates." There is no consensus on what that point might be.

The National Research Council of the National Academy of Sciences has called for a transition to liquid propellants asserting (debatable) advantages in safety and reliability, long-term financial costs, and environmental propriety: "Pollution of the atmosphere by chlorides, as occurs with solid propellants, would be eliminated. This is likely to become an increasingly serious issue as launch rates rise. . . ."

Shuttle Launch Exhaust Products

(in kilograms)

	within the stratosphere (13 to 50 km)	Total
hydrogen chloride	56,732	162,915
chlorine	11,727	24,125
nitric oxide	293	6,608
carbon monoxide	2,198	3,168
carbon dioxide	147,684	375,329
water	146,393	509,331
aluminum oxide	110,304	175,973

Source: *National Aeronautics and Space Administration, Final Environmental Impact Statement, Space Shuttle Program, April 1978, p.59*

Note: *Nitric oxide, carbon dioxide, and water are formed in reactions with ambient air*

Conclusion

The environmental impacts of solid rocket propellants should not be exaggerated. They are not by any means a major culprit in global stratospheric ozone depletion, for example—they currently add less than 1% to the ozone-depleting chlorine produced by industrial CFCs in the stratosphere. On the other hand, when compared to most other individual industrial activities, a single Shuttle launch is still a very large pollution source.

Given the uncommon breadth of criticism of solid rockets, it is reasonable to project that a significant increase in launch rates, or the development of new launch vehicles utilizing the standard solid propellant, will encounter significant opposition and sooner or later will be judged intolerable on environmental grounds.

If that is the case, and if NASA and other sectors of the launch industry are to phase out chlorinated solid propellants over the next decade or so, then preparation for a transition to cleaner propellants should begin promptly. □

—Steven Aftergood

CHEMICAL WEAPONS CONVENTION: BEYOND BACK PEDALLING

In 1984 George Bush addressed the 40-nation Conference on Disarmament (CD) in Geneva and introduced a U.S. draft Chemical Weapons Convention (CWC), which has since been the basis of that body's effort to ban chemical weapons. A cornerstone of the draft was the concept of short-notice inspections, any time and anywhere, of a facility suspected of harboring illegal chemical weapons production or storage activities. These inspections could not be refused by parties to the treaty.

The United States, Bush said, was willing to "open for international inspection on short notice all of its military and government-owned or government-controlled facilities." At the time, it must have seemed unlikely that the Soviet Union would agree to the unprecedented intrusive system of "challenge inspections" that Reagan Administration hard-liners deemed necessary to assuage doubts that the ban could be verified.

However, in August 1987 the Soviets accepted the verification system. Since then the United States has been waffling on the issue.

Three Nations Join U.S. in Verification Plan

In mid-July this year, the United States tabled a new challenge verification proposal, with British, Australian and Japanese co-sponsorship. Under this plan, any state suspected of illegal CW activities could restrict or deny access to any site challenged, provided it made "every reasonable effort to provide alternate means to satisfy compliance concerns." Alternatives to on-site access envisioned in the proposal include aerial over-flight or observation from an elevated platform such as a tower, ladder or hoist. The plan also allows the inspected state to define the boundaries of any facility it has agreed to open up, and even this limited access might be delayed for up to a full week.

The Bush Administration claims that the new policy strikes a balance between the needs for preserving unrelated military secrets and adequately verifying the treaty. Under the inspection rules thus far elucidated, a representative of the state requesting the challenge inspection could send an observer to witness the inspection. Thus, the Administration says, sensitive national security installations would be protected from "fishing expeditions" that would divulge military secrets to hostile states.

Elements of the Reagan and Bush Administrations, mostly in the Department of Defense, have in the past opposed the CWC on the grounds that verification was well nigh impossible. Now, ironically, those same elements within the Administration are militating against challenge inspection, thus greatly reducing the degree of confidence achievable through the treaty's verification provisions. Their main rationale is the need to protect classified, and especially "black" military and intelligence programs.

British Had Supported Challenge Inspection

Closing a gap between the two countries' positions, the United Kingdom signed onto the new verification proposal this summer, after a consultation between high-level British and American officials. Previously, while the U.S. was backing away from it, the British had staunchly supported on-site access via challenge inspection and had in fact, in July last year, tabled at the CWC negotiations a plan for challenge inspections employing "managed access." Based on six practice challenge inspections it had conducted, including one at a nuclear weapons establishment and one at a sensitive communications center, the British government found: "There is no UK site so sensitive from the national security viewpoint that we could not allow some form of access within the site, appropriately managed, to an international inspection team under the provisions on challenge inspection of a Chemical Weapons Convention." Under the challenge inspection regime, Foreign Office Minister William Waldegrave said "there should be no sanctuary sites safe from inspection."

Managed access is analogous to putting the family jewels into the safe before strangers knock at the door—removing sensitive paperwork, logging off computers and shutting down data-indicating devices in the inspected facility. It also employs specified non-destructive interrogation devices and other techniques that would provide inspectors just enough access to alleviate doubts as to the nature of the facility but protect national security secrets.

Random Selective Access Strikes Balance

Random Selective Access, another facet of managed access tested by the British, permits entrance to a given percentage of a highly secure area's storage bunkers or rooms, to be chosen by the inspection team. Within the selected bunkers, masking and shrouding operations can be conducted to hide objects from sight. Using x-ray, ultrasonic and neutron activation techniques, a reading can be taken of the shrouded object to determine whether specific chemical warfare agents or precursors are present. During the shrouding process, personnel of the challenged state coming and going from the bunker are checked by the inspection team to make certain that they remove nothing. Another example of this technique would have the inspected state divide a sensitive room into zones, with the inspectors again choosing and receiving access to a given percentage of those zones.

There is a good deal of opposition to the new verification plan at the negotiation, where it was widely hoped that the United States would accept challenge inspection using managed access. However, the U.S. Arms Control and Disarmament Agency argues that its new plan represents a concession necessary to ensure the adherence of Third World countries to the CWC. For a variety of reasons Pakistan and some of the other neutral and non-aligned countries at the CD support the Administration's proposal; it is easier and cheaper than a more intrusive inspection verification system such as managed access, which requires that preparations for inspection be made. Some smaller

states also are reportedly concerned that the U.S. and Western countries would use challenge inspection to interfere with or expose their non-CW related military programs. Pakistan and India, especially, might fear discovery of undeclared nuclear activities. Disclosure of safety and environmental laxness might be another concern prompting this apparent support. Other countries, like China for example, oppose anytime, anywhere inspection largely for internal political reasons. China wants challenge inspection limited to "relevant" sites, meaning that some undetermined body would make the political and subjective determination of whether an inspection is merited.

Adequate Verification Key to Success

But greater adherence is not assured by lax verification. More countries are likely to join the Convention if it enhances their security vis a vis their adversaries, rather than because it is easy. Without adequate verification, the chemical ban will go the way of the Biological Weapons Convention (BWC). That treaty currently has over 110 signatories but no effective mechanism of verification. While it does provide a norm against biological warfare and possession of BW weapons, confidence in the treaty has eroded greatly over time, and allegations of non-compliance go unanswered. Similarly, inadequate verification will undermine confidence in the CWC and lower the deterrent threshold of challenge inspections. Short of adopting the best possible verification, the door remains open for continued, often highly politicized claims of non-compliance.

Reversing several U.S. policies that had been holding up progress at the negotiation, President Bush in May called for the completion of the CWC within a year. This may well be accomplished, but without sufficient verification it is uncertain that the treaty will be of much value. The considerable expenditure of manpower and resources used in 20 years of negotiating the chemical treaty would then result in less than a complete success. There remains hope that the U.S. proposal is a negotiable one that may still be modified. □

—Lora Lumpe

***The International Handbook on Chemical Weapons Proliferation* (New York: Greenwood Press, 1991) prepared painstakingly by former FAS staffer Gordon Burck and FAS consultant Charles Flowerree has just been published. The 680-page reference manual provides a detailed examination of public record allegations on the spread of chemical weapons to over 35 countries. Also included are chapters on the manufacture of chemical weapons, military use of chemical weapons, long-range delivery of chemical agent, and a thorough treatment of anti-proliferation measures that might be taken. The book is complete with several useful appendices and a comprehensive index. It is available from the publisher at \$95.**



Hor Namhong, formerly interned during Pol Pot reign of terror, met with Sihanouk at Pattaya.

(Continued from page 2)

which controls 90 percent of the territory and the Khmer Rouge (National Government of Cambodia) which controls about 10 percent.

All this is a favorable short-term development from the point of view of Phnom Penh's Government, which achieves a kind of de facto recognition since it controls Phnom Penh and thus hosts the SNC, and since it brings Prince Sihanouk home in November.

On the other hand, the plan also brings the Khmer Rouge back into Phnom Penh, as part of the SNC, and represents, for them, a further step in re-legitimization. However, even very well informed citizens in Phnom Penh have no idea what popular feelings will be expressed on seeing Khieu Samphan (former President of Democratic Kampuchea) and Son Sen (former Defense Minister of Democratic Kampuchea) back in town. One citizen was overheard saying that if he could not kill these Khmer Rouge on their arrival, he could at least kill whatever Khmer Rouge came to the market to buy vegetables.

Some Western diplomatic officials think that the momentum for a solution is irreversible now and that a situation has been created in which the Khmer Rouge cannot go back to seeking a military solution. Experts on the Khmer Rouge think, in any case, that the Khmer Rouge decided to try to regain power through a political solution as long as two years ago.

Pink Solution Benefits China

The Chinese role in getting the factions together may well hide a Chinese desire for a "pink" solution in which less than full democracy would occur. An "Asian democracy" solution would suit China far better than real democracy since China would avoid having such a "bad" democratic example in its environs. And it would leave China in a most influential situation with regard to both Sihanouk and the Khmer Rouge. With the Khmer Rouge down, but not out, the Vietnamese would have to be cautious in their confrontation with China over such issues as the Spratlys,

etc. This notion of a "pink" solution seems to have struck other serious observers in Phnom Penh independently.

One of these observers, a diplomat, reports that both Laos and North Korea are telling China that, since the Socialist camp is taking a beating, China should hold it together in Asia. This observer acknowledges that a "pink transition" may be of some value in controlling the Khmer Rouge.

A Phnom Penh Viewpoint

A high-ranking Phnom Penh official says that the Khmer Rouge (KR) wants the Perm 5 peace plan because it is their only way to legitimacy. Phnom Penh has had to accept Son Sen and Khieu Samphan on the SNC but this does not mean that they have accepted the KR "with regard to genocide." He is optimistic. After Pattaya, the negotiating process has, as he puts it, gone from a "small road" to a "highway;" there will still be "traffic" but the road will be easier.

On the remaining three issues, his views are, respectively:

Cambodian Sovereignty: We cannot accept that the special representative of the U.N. is the proconsul of Cambodia. (Apparently earlier explanations of U.N. Undersecretary Akmed were "very good" but not enough.)

Demobilization: Since the KR could not be disarmed, we have a natural reluctance not to be disarmed either.

Concrete Measures for Preventing the Return: Non-disarmament is one.

This Phnom Penh official thinks that they will get a solution together early next year and that the "interim period" before the election will be 9 months or a year. 1992, he says, will be crucial. The economic situation is serious but not without hope.

He notes that Sihanouk prefers only four parties—indeed, probably all the factions agree on this. Possibly, there will be more parties, after the constituent assembly.

At the June Pattaya meeting of the factions, Sihanouk said "Hun Sen is more liberal than I was."

The Khmer Rouge original leaders (apparently other than Khieu Samphan and Son Sen) won't show their face but are preparing younger men, he thinks.

After Hor Namhong and Hun Sen returned from their Pyongyang meeting with Sihanouk, they were, this official says, invited to visit China July 24-26 as guests of the Chinese government. This is considered to be extremely important.

The Phnom Penh official considers the Chinese to be flexible in private (but inflexible in public) while the Vietnamese are the opposite. He says that Sihanouk told Hun Sen that the U.S. is "looking for an opportunity to talk to you."

KR Experts Assess The Situation

One expert on the Khmer Rouge says that the Khmer Rouge are confident in part because Sihanouk cannot live forever, because Phnom Penh depends upon a few personalities and because the economy could collapse.

Chou En-lai saved Sihanouk from being killed by the

Khmer Rouge during the Pol Pot period, but Sihanouk has now seen the minutes of the Khmer Rouge high-level debate that earlier reached the decision to kill him and is disturbed by it.

According to this expert, a major element in the struggle is that the U.N. is in Phnom Penh's court since it won't compromise on guaranteeing elections and monitoring the cease fire. In particular, it will not monitor without control of the Phnom Penh ministries.

The issue of demobilization will be easier to solve because the Khmer Rouge will simply note that this means *neither* side will disarm. As for the issue of genocide, the KR will merely respond that the Phnom Penh Government is composed of Vietnamese lackeys. Probably China will pressure the KR leaders to say that they have retired.

The Khmer Rouge, who are, of course, willing to say anything, say they want British style democracy. They still believe the Vietnamese are there in large numbers and, accordingly, proposed a 500-person U.N. monitoring team which they considered will be large enough to find the Vietnamese. They are using the Army only as a political tool. They are engaging in intimidation of peasants, but their strategy is based on the flaws of their enemies, specifically in the way the other factions are either oppressing or conscripting peasants. If excluded they would launch a nation-wide war and create chaos.

They consider China to be their only friend but fear that it is now trying to make itself legitimate in the eyes of the U.S. and others. The U.S. and Western Europe are considered by them to be their tactical allies. But, in fact, even China cannot dictate events in Cambodia.

Lower ranks of the KR cadres have been left quite confused by their indoctrination and, once exposed to reality and if given the opportunity, might defect. Even some senior-level field commanders might join in. But now they have no place to go.

Indeed, some lower-level troops of the Phnom Penh (State of Cambodia "SOC") Government get political sanctuary under the KR. An effective peace process would permit defections and show up lies. The Khmer Rouge know this but think long term and will try to get 20 percent of the vote. Proportional representation favors the KR.



Cars and motorbikes now dominate traffic jams in Phnom Penh, as bicycles fall out of favor.

A Different View on KR Preference

A second expert on the Khmer Rouge takes a different view. He agrees that the KR goal is to be part of a coalition government and that it would prefer a "pink" solution to a "white" one, which might leave them in parliament but in sufficiently small numbers not to be included in the Government. A "white" solution would help Hun Sen.

He believes, however, that the status quo is better than letting the Khmer Rouge in the door. A single death squad could dramatically change the balance of power if the KR tries it. But under the status quo, the KR have not done well and "at least at the moment, they have been contained." It is hard to gauge their real capacity since one does not know how hard they have been trying. But since the Vietnamese have left, they have had their long awaited opportunity to take more territory and have not made any advances. All provincial capitals and all but two of 105 district capitals, including all the low-level rice growing areas, are controlled by the SOC. The KR tried, but failed, to disrupt the January 1989 Ten Year celebration. And their position at the bargaining table would be much stronger if they controlled Angkor Wat or Battambang. Instead, the Vietnamese seem to have built up an army capable of holding off the KR. The Army is doing much better than the economy, he concludes.

Travel to Phnom Penh

Nowadays, a visitor to Phnom Penh is able to fly directly from Bangkok on Bangkok Airways, without having to go to Vietnam, but must reach the airport by 3 a.m. for a 5 a.m. flight. The plane flies so low that one can see the B-52 bomb craters left throughout Cambodia.

There are other changes. The Wat Phnom guest house is being refurbished to serve as the headquarters of the SNC. Since 1990, the riel has inflated to 850 per dollar, a rate of almost 100 percent. Nevertheless, Phnom Penh looks quite prosperous, and it is said there are now four (US\$) millionaires in the city. In a startling development, a large fraction of the population has moved from bicycles to motorbikes—in one year. From the Hotel Cambodiana (a very modern hotel with full amenities), one sees 25 motorbikes pass by for each bicycle and a car for every ten motorbikes. (This is a much better ratio than in either Hanoi or Saigon.) Bicycles are now for children and students. The motorbikes—second hand and broken—are imported in large shiploads from Japan through Singapore and are repaired in Cambodia. Also, some Cambodians who had motorbikes before now have 10-year-old Japanese cars.

Diplomat Notes Euphoria

An Eastern European diplomat, expert in Khmer matters for ten years, says there is euphoria in the city about Sihanouk's expected arrival. People want a new beginning after 20 years of war. There are, beyond the four factions, other political roots below the surface waiting to sprout.

Inside Phnom Penh's government itself there are three factions: (a) the Cambodian Peoples Revolutionary Party (KPRP), a tactical alliance of leftists like Chea Sim, whose

credo is nationalism, orthodox Buddhism, populism and traditionalism; (b) Vietnamese puppets and orthodox Marxists like Heng Samrin; and (c) centrist pragmatists like Hun Sen.

This diplomat thinks that the Cambodian factions may now want to take over their own destiny with their common nationalist identity overshadowing their differences. The Cambodians, he says, are xenophobic and, especially, Vietnamophobic and Sinophobic and don't like witnesses. They might well get together and fix the seats in some parliament so as to legitimize their situation.

Another foreign diplomat says it is "very dangerous" that the P-5 document is forcing the Khmer Rouge into the agreement. The KR are not a "genuine party" but a military force and have not changed their behavior since 1973. The Chinese position that the KR should be in the government but not in control of it is, he thinks, like saying "you can contest in the Olympics but you cannot win a medal." The Chinese are, however, beginning to realize that the KR are a liability. A marriage of convenience, forced on the U.S. by the three non-Khmer Rouge factions, will be good and will atone for past U.S. mistakes. He is convinced that Stephen Solarz has badly misread the situation here, failing to appreciate Hun Sen's Government and underestimating the danger of letting the Khmer Rouge into the game.

In any case, this particular diplomat wants an early election to limit the period of uncertainty. He feels that the negotiations thus far have been a grand success for Phnom Penh.

Khmer Rouge forces are defecting and the State of Cambodia has captured 1000 tons of weapons. But, he says, the KR will be helped by economic frustration and corruption in the general election. Meanwhile, the overseas Khmer are very little interested in helping their country but are mainly concerned with "making a quick buck."

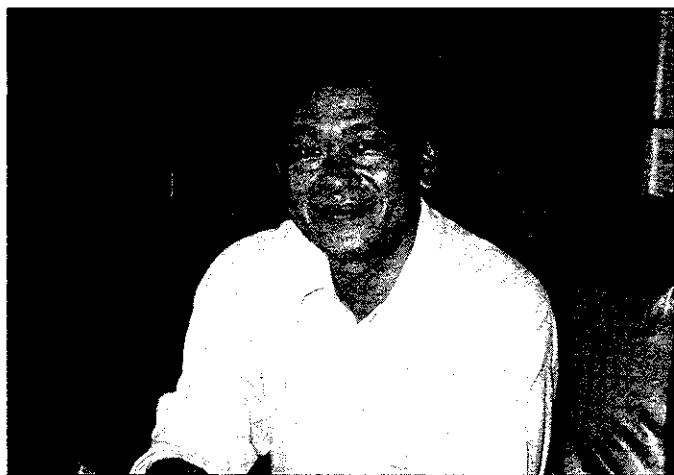
Comments From Khieu Khanarith

Khanarith seems to be working on a draft constitution. He understands that, in elections, the devil is in the details. He thinks that, if there were a general election without controls, there might be 20 parties, and the Khmer Rouge might "win" if the other parties split their constituencies. Also, he thinks there may be some parties that are acknowledged KR, but others that are secretly KR.

Without elections, on the other hand, one party could monopolize power and the war could start again. It is better to have a general election than not. But the role of the international community in this matter is, he says, crucial.

The disarmament envisaged under the Perm 5 plan is "too dangerous." The problem is that the (false) premise of the peace plan is that everyone will be sincere. The outsiders may later say that they made a "mistake," but, for Cambodia, the risks cannot be afforded.

If the present situation could be maintained, "the longer the better" it would be before the election took place. But, because the present situation is unstable, the election should be held "the sooner the better." In particular



Khieu Khanarith wants draft constitution ready before general elections.

Phnom Penh wants an election within 6 to 9 months—partly because of the economic situation, partly because the fighting might restart, but also because the SNC and UN may not be around too long.

With regard to a "pink" solution, he agrees that the Chinese would want it and that all four factions would probably prefer to see just four factions run in the next election. Khanarith envisages that a draft constitution will be prepared before the general elections for the constituent assembly.

Genocide Witness Interviews

FAS had two interviews with high-level Pol Pot survivors of the type targeted for its "Genocide Witness Project" described on page 1.

Deputy Foreign Minister Long Vasilov, who had been interned in the diplomats camp with Hor Namhong, says that in the Democratic Kampuchean Constitution, the goal of destroying private property had two distinct meanings. It meant tangible goods such as clothes. But it also meant "spiritual" private property, such as ideas. There were no words for "I", "me", "my". People were told to use only "we" and "our".

When Khieu Samphan explained to interned diplomats the need to evacuate the cities, he admitted that the idea that American planes might return to bomb the city was a "pretext." The real two reasons were (a) we couldn't abolish private property at once but thought that by evacuating the cities most of it would be gone and the rest, taken with people, would be used up; and (b) it was better to abolish tradition which is, itself, private property of a spiritual kind.

Even sentiment was treated as private property and provided the excuse to separate families. The Nation of Cambodia was to be the only family. And marriages were arranged by Ankar for 10 or 15 people at once with five days given for the marriage to be consummated. Special knowledge was treated, also, as private property to be banned; this justified killing people who knew English. And in the name of equality houses were destroyed because revolutionaries in the jungle did not have houses—and, anyway, one could not eat houses. Long Vasilov was told to plant

tomatoes in the street, although it was paved with asphalt, on the theory that the asphalt street was for the bourgeoisie to drive.

Ieng Sary had told them: "We don't need the older generation because it can't change its thinking. After we train the new generation, we can dispense with the older generation."

Mat Ly, deputy head of the Cambodian Assembly, had been in the Pol Pot National Assembly and had met with Nuon Chea. He says that the Deputy Chief of the Eastern Zone (deputy to So Phim) had made a distorted report to Pol Pot that had induced Pol Pot to decide he had to crush the zone. Mat Ly had seen Pol Pot only during a September, 1974 Congress in the Eastern Zone when Pol Pot had told those assembled that Vietnam was, for public purposes, their friend but for private purposes, to be considered their permanent enemy.

He thinks the main lines of the future actions (against money, private property, etc.) had been decided before 1975. Hu Yuon was against them and had, therefore, been killed. It was in the stadium in May 1975 that eight principles were announced:

1. Abolition of private property
2. Deportation and re-education
3. Abolition of religion
4. Abolition of currency as a kind of private property
5. Destruction of marketplaces because people went there instead of to work
6. Abolition of schools except "paddy field universities" and Army schools to learn to fight the Vietnamese
7. Abolition of hospitals
8. Destruction of everything from the roots which meant killing all members of any family that had lost one of its members

These principles were not discussed. Instead, the delegates were read 49 predetermined questions and answers. □

—Jeremy J. Stone

EASTERN FRONT OPPOSED POL POT

In Thailand FAS discovered a book published by the Federal Research Division of the Library of Congress under its "Country Studies—Area Handbook Program" entitled: **Cambodia: A Country Study**. This book is a far more balanced summary of what happened in the Eastern Zone than one would get from Congressional supporters of Prince Sihanouk who have constantly described Phnom Penh's top leaders (who came from the Eastern Zone) as having hands "dripping with blood" and being former Khmer Rouge. (The book, reviewed by both the Department of State and the Army before release, notes:

- The Eastern Zone was the main opposition to Pol Pot (pp. 59 and 64)

- The evacuation of Phnom Penh was used to weaken the position of "their factional rivals" (p. 50)

- In the Eastern Zone "executions were few;" "old people" and "new people" were treated largely the same and food was made available to the entire population, a decided contrast with the situations in the Western, Northwestern, Northern and Central zones (p. 54)

- The Eastern zone leaders "questioned, and at times openly defied" Pol Pot's policies (p. 59) and made an armed attempt to overthrow Pol Pot (p. 64)

- "Cadre behavior toward the civilian population in the Eastern Zone was generally exemplary" (p. 64)

- The Eastern Zone remained "largely unaffected by the purge until May 1978, when [its leader] So Phim led a revolt that provoked massive retaliation by Pol Pot". (pg. 66) ■

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