U.S. Experts Condemn Soviet Radar

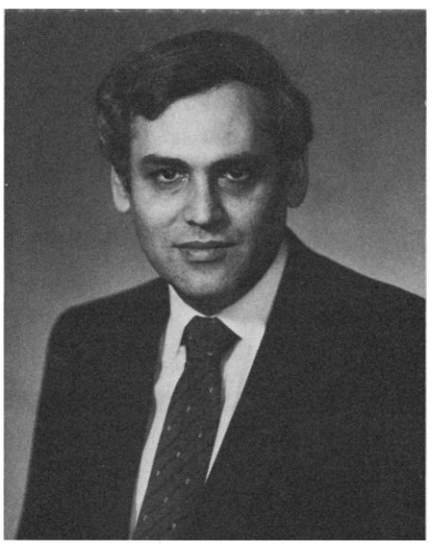
Most experts agree that the Abalakova radar violates SALT I, but they differ on its strategic significance

Near the small town of Abalakova in central Siberia, the Soviet Union is erecting what could easily be an enormous obstacle to progress in arms talks with the United States. A new military radar, 22 stories high and several football fields in length, is rising conspicuously above the countryside there, each rivet an affront to the Reagan Administration. More than a year ago, senior Administration officials concluded that the radar violates the 1972 SALT I accord and must be torn down. To date, the Soviets have refused, and the radar has become the most notorious item on a long Administration list of Soviet treaty violations.

When news of the radar was first leaked to the public, shortly after its discovery by the United States in mid-1983, it was greeted by characteristic skepticism within the arms control community. Former U.S. treaty negotiators Gerard C. Smith and Paul Warnke, for example, told a press conference in January 1984 that although troubling, the radar was not a clear-cut treaty violation and should be pursued with the Soviets in private discussions, not public allegations. Along with many members of Congress, they wondered if the Administration had stretched the facts in order to poison its relations with the Soviet Union and pave the way for its own infractions of SALT I.

Recently, however, Smith and Warnke have both come to accept the argument that the radar violates SALT I, as have such well-known critics of the Administration as former U.S. national security adviser McGeorge Bundy, former ambassador George Kennan, former defense secretary Robert McNamara, and former arms control official Spurgeon Keeny. The allegation is now widely supported in Congress as well. Senator Edward Kennedy (D–Mass.) expressed concern about the radar during a recent closed session of the Senate Armed Services Committee, and on a recent trip to Moscow, Senator Gary Hart (D–Col.) pursued the charge directly with Soviet Foreign Minister Andrei Gromyko.

Specifically, the consensus judgment is that the Soviet Union has violated a provision of the treaty that requires phased-array radars of the type being built at Abalakova to be deployed "along the periphery" of the Soviet Union, and "oriented outward," so that they cannot assist in ballistic missile defense over Soviet territory. The radar at issue is situated south of Abalakova and north of Krasnoyarsk, 600 miles from the nearest border, and its coverage unmistakably extends several thousand miles over the central Siberian plateau.



Richard Perle

"They calculated that they would get away with it."

Beyond the broad U.S. agreement that the radar is illegal at that location, however, lies a substantial dispute over its military significance. On one side are the Administration's more conservative political appointees, such as assistant secretary of defense Richard Perle, who charge that the radar is intended primarily to guide ballistic missile interceptors, which can be quickly deployed in a general Soviet "breakout" of the SALT I accord. Why else would it be constructed near Soviet missile fields in eastern Kazakhstan? In this view, the radar offers substantial evidence that the "U.S.S.R. may be preparing an ABM [antiballistic missile] defense of its national territory," as the Administration charged in an official report to Congress on 1 February.

On the other side of the dispute is the bulk of the U.S. intelligence community, which ascribes a far more benign motive to the radar's construction at that location. It is designed primarily to provide early warning of a ballistic missile attack by Trident submarines expected to begin operations in the north Pacific shortly, according to this view, and is situated at Abalakova primarily as a cost-cutting measure. To obtain the same coverage within the treaty constraints, the Soviet Union probably would have had to construct two radars, not one, and in an area of extreme cold and inhospitable terrain. Analysis of the radar's physical characteristics reveals that it will have only slight ballistic missile defense capability, most intelligence experts say, and additional evidence of an imminent Soviet "breakout" of the treaty is lacking.

Thus far, resolution of these conflicting claims has been obstructed by the Soviets' decision to provide what everyone agrees is a superficial explanation for the radar, both in public and at the supposedly secret meetings of the Standing Consultative Commission (SCC), established under the treaty specifically to thrash out such compliance disputes. The Soviets' argument is that it is being erected to track objects in space, and therefore fits within a treaty provision that clearly permits spacetrack radars.

This claim is widely dismissed because the radar will apparently have only marginal space-tracking capability, according to classified U.S. technical analyses. A phased-array radar of the type already deployed at five sites on the periphery of the Soviet Union, it is said to be capable of tracking objects between roughly 2 and 50 or 60 degrees off the horizon, at a maximum useful distance of approximately 3000 miles. As a high-level Pentagon official notes, "Such a radar will see space objects for a certain portion of their trajectory, but it's certainly not going to be able to swivel to track them, let alone see them directly overhead." A radar designed primarily for spacetrack would either be of a different type, capable of much greater accuracy, or have a smaller face, tilted upward, the official says. "The basic reality is that the Soviets have over 20 radars of various types capable of doing spacetrack. Nobody in his right mind would build this one when existing radars cover the same area."

The issue is muddied, however, by the fact that radars such as the one near Abalakova are clearly capable of some space-tracking. The so-called Pave Paws phased-array radars deployed at four sites on the periphery of the United States, for example, were designed primarily for early warning of ballistic missile attack, but are frequently used to estimate the orbital parameters of satellites within their field of view. "You're not going to find us saying that the Soviet radar cannot do any spacetrack," says the senior Pentagon official. "But what they have already can do that job at least as well if not better."

Unfortunately, the treaty itself provides no explicit means of distinguishing spacetrack from early warning or ballistic missile defense radars. Robert Buchheim, a former chief scientist for the Air Force who served as U.S. commissioner to the SCC from 1976 to 1981, argues that "this problem was built into the treaty from the day it was written. Call it a loophole if you want—the treaty is simply incomplete. On the one hand, it allows radars built for spacetrack or intelligence, and on the other, it limits those for early warning and ballistic missile defense. The problem is that phased-array radars can do all of these things, and the two sides never reached any agreement on how to tell the difference."

In a recent book, *Doubletalk: The Story of SALT I*, Gerard Smith notes that the United States had initially proposed to resolve this problem by requiring joint consultations and agreement before large phased-array radars could be constructed for purposes of spacetrack and intelligence. But the Soviets resisted, arguing that only those radars "specifically designed" for ballistic missile defense should be limited. In a compromise, the Soviet Union agreed to constraints on early warning radars, while the United States dropped its insistence on the right to veto deployments of spacetrack radars. Neither side specified precisely how early warning and spacetrack radars differ.

At the SCC, the Soviets have argued that the unique spacetrack capabilities of the radar at Abalakova will become evident as it nears completion over the next 2 years. "What our specialists say is that when the radar is finished, everyone will see that it is designed for following space research and other space systems," says Georgy Arbatov, the director of the Soviet Institute for U.S. and Canadian Studies. Due to its angle, the radar "cannot serve as a part of an ABM system," he adds. "However, if the Americans have some doubts, they can put these on the table and we will listen very carefully to it."

Senior Administration officials respond that their complaints are already on the table at the SCC, and that the Soviets have been unable to back up these claims. "The Soviets had no credible information to give us about the radar," says Perle. "This is why we have gone from saying that the radar was almost certainly a violation to saying that it was a violation—because of the lies we were told at the SCC. They built it because there was a gap in their radar coverage and they didn't like it. They calculated that they would get away with it, and thus far they've been proven right."

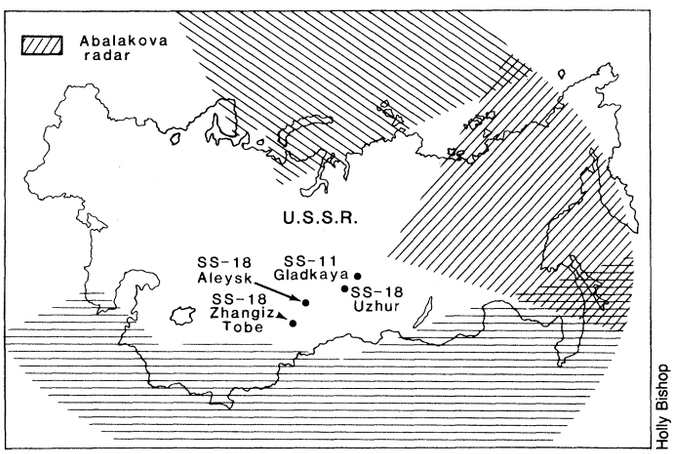
Along with others at the Pentagon, Perle argues that the Abalakova radar is well situated to assist in the defense of nearby military assets, including several ICBM fields to the southwest. "It does indeed give rise to a capability for a modest but effective preferential defense of high value targets, if not today, if not next year, then in the foreseeable future," says Frank Gaffney, an assistant secretary of defense for strategic and theater nuclear forces policy. He adds that the undisputed capability of such radars to track incoming warheads and predict their point of impact was the primary reason why the United States attempted to limit them long ago.

Senior Pentagon officials also dispute the intelligence community's view that the radar is primarily intended for early warning, noting that an additional 7 to 8 minutes of warning could be gained if it were constructed on the nation's periphery, in compliance with the treaty. They assert that it is "on the order of 100 times as powerful as needed for early warning" and that it goes "well beyond the radar base capability that we had planned for the Safeguard/Sentinel ABM program in the mid-1970's." Along with ambiguous evidence that the Soviet Union is developing smaller, mobile radars, as well as operating its air defense radars during missile tests, the Abalakova radar presents a disturbing picture of Soviet intentions, they say.

Several government technical experts who insist on anonymity assert, however, that the radar will have only limited capability in ballistic missile defense. They note that it will operate in the very high frequency range (VHF), rendering it highly vulnerable to blackouts caused by the intense heat following nuclear detonations. It will have little to no ability to discriminate between warheads, decoys, and missile fragments in space. And it lacks the correct orientation and best angle for assisting in a defense against U.S. land-based missiles. In short, it will probably be incapable of steering missile interceptors and at best can deliver information of limited but real value to another more accurate radar, which does not yet exist.

Several experts on Soviet military affairs also take this cautious view. Stephen Meyer, a political scientist at MIT, believes that "it's clearly a treaty violation, and it's stupid for them to have done it, but it's obviously not a sinister plot by them to sneak out under the treaty." Arnold Horelick, a former Central Intelligence Agency (CIA) national intelligence officer on the Soviet Union who now serves as director of the RAND/UCLA Center for the Study of Soviet International Behavior, notes that "it is a technical violation, not tolerable in principle, and should be of great concern as a threat to the ABM treaty. But it poses no strategic threat in and of itself and is probably at best only a marginal add-on to a breakout capability."

Similarly, Sayre Stevens, a former CIA deputy director for intelligence, wrote in a Brookings Institution book, *Ballistic Missile Defense*, last year that



As indicated by the map, the Soviets were able to plug a large gap in their early warning network by constructing the radar at Abalakova.

Holly Bishop

NAE Elects New Members

The National Academy of Engineering has elected 67 new members and 5 foreign associates. This brings the total U.S. membership to 1238, with 108 foreign associates. The new members are as follows:

Richard E. Adams, General Dynamics Corp., St. Louis, Mo.; **Klaus D. Bowers**, AT&T Bell Laboratories, Murray Hill, N.J.; **Sol Burstein**, Wisconsin Electric Power Co., Milwaukee; **John C. Calhoun, Jr.**, Texas A&M University System, College Station; **Alfred Y. Cho**, electronics and photonics materials research, AT&T Bell Laboratories, Murray Hill, N.J.; **John V. Christiansen**, consulting engineer, Skilling, Helle, Christiansen, Robertson, Bainbridge Island, Wash.; **Philip M. Condit**, Boeing Commercial Airplane Co., Seattle; **Paul M. Cook**, Raychem Corp., Menlo Park, Calif.; **William E. Cooper**, Teledyne Engineering Services, Waltham, Mass.

George B. Dantzig, Stanford University; **James M. Duncan**, civil engineering, University of California, Berkeley; **Richard E. Emmert**, photo systems and electronics products, E. I. du Pont de Nemours & Co., Wilmington, Del.; **Charles A. Fowler**, MITRE Corp., Bedford, Mass.; **Donald C. Fraser**, Charles Stark Draper Laboratory, Inc., Cambridge Mass.; **Robert B. Fridley**, Weyerhaeuser Co., Tacoma, Wash.; **Leslie A. Geddes**, biomedical engineering center, Purdue University; **Richard J. Goldstein**, mechanical engineering, University of Minnesota, Minneapolis; **James P. Gordon**, electronics research laboratory, AT&T Bell Laboratories, Holmdel, N.J.; **Herrmann K. Gummel**, computer-aided design and test laboratory, AT&T Bell Laboratories, Murray Hill; **Robert C. Hawkins**, General Electric Aircraft Engine Group, Evendale, Ohio.

Allan F. Henry, nuclear engineering, Massachusetts Institute of Technology; **Lawrence H. Hodges**, private consultant (technical affairs), Racine, Wis.; **William G. Howard, Jr.**, research and development, Motorola, Inc., Schaumburg, Ill.; **Erich P. Ippen**, electrical engineering, Massachusetts Institute of Technology; **Howard H. Kehrl**, General Motors Corp., Detroit; **James F. Lardner**, Deere & Co., Moline, Ill.; **Thomas D. Larson**, Pennsylvania Department of Transportation, Harrisburg; **Ronald M. Latanision**, materials science, Massachusetts Institute of Technology; **Shih-Ying Lee**, Setra Systems, Inc., Acton, Mass.; **Frederick E. Luborsky**, General Electric Corporate Research and Development Center, Schenectady, N.Y.; **John W. Lyons**, national engineering laboratory, National Bureau of Standards, U.S. Department of Commerce.

John B. MacChesney, AT&T Bell Laboratories, Murray Hill; **Craig Marks**, engineering, TRW Inc., Solon, Ohio; **Charles S. Matthews**, petroleum engineering consultant, Shell Oil Co., Houston, Texas; **Sanford N. McDonnell**, McDonnell Douglas Corp., St. Louis, Mo.; **Richard C. Messinger**, Cincinnati Milacron Inc.; **Philip M. Morse**, physics, Massachusetts Institute of Technology; **Warren H. Owen**, Duke Power Co., Charlotte, N.C.; **Yih-Hsing Pao**, theoretical and applied mechanics, Cornell University; **George P. Peterson**, Air Force Wright Aeronautical Laboratories, Wright-Patterson AFB, Ohio; **Robert Price**, M/A Linkabit, Inc., Lexington, Mass.; **A. Alan B. Pritsker**, Pritsker and Associates, Inc., West Lafayette, Ind.; **Robert O. Reid**, oceanography, Texas A&M University, College Station; **Allen F. Rhodes**, Anglo Energy Ltd., New York City; **Ronald S. Rivlin**, Lehigh University; **Ronald E. Rosensweig**, Exxon Research and Engineering Co., Annadale, N.J.

Lucien A. Schmit, Jr., mechanics and structures, School of Engineering and Applied Science, University of California, Los Angeles; **A. Richard Seebass**, College of Engineering and Applied Science, University of Colorado, Boulder; **Eugene Sevin**, Defense Nuclear Agency, Washington, D.C.; **Claude E. Shannon**, Massachusetts Institute of Technology; **Shan-Fu Shen**, Sibley School of Mechanical and Aerospace Engineering, Cornell University; **Reuel Shinnar**, City University of New York; **Franklin F. Snyder**, private consultant (hydrologic engineering), McLean, Va.; **Ponisseril Somasundaran**, Henry Krumb School of Mines, Columbia University; **Fred N. Spiess**, Institute of Marine Resources, University of California, San Diego; **Robert C. Sprague**, Sprague Electric Co., North Adams, Mass.; **Charles W. Stephens**, TRW Electronic Systems Group, Redondo Beach, Calif.; **Gregory E. Stillman**, University of Illinois, Urbana-Champaign; **Eric E. Sumner**, AT&T Bell Laboratories, Summit, N.J.

Joseph F. Traub, computer science, Columbia University; **George L. Turin**, School of Engineering and Applied Science, University of California, Los Angeles; **Willis H. Ware**, Rand Corp., Santa Monica, Calif.; **Walter J. Weber, Jr.**, civil and water resources engineering, University of Michigan, Ann Arbor; **Vern W. Weekman**, Mobil Solar Energy Corp., Waltham, Mass.; **Sheila E. Widnall**, aeronautics and astronautics, Massachusetts Institute of Technology; **Edward L. Wilson**, civil engineering, University of California, Berkeley; **Michael Yachnis**, Naval Facilities Engineering Command, Alexandria, Va.

The new foreign associates are:

Jozsef Hatvany, Computer and Automation Institute, Hungarian Academy of Sciences, Budapest; **Hiroshi Inose**, University of Tokyo; **Francis L. LaQue**, International Organization for Standardization, Ontario, Canada; **Robert Malpas**, British Petroleum Company p.i.c., London, England; **Michiyuki Uenohara**, NEC Corp., Tokyo, Japan.

"consideration of all the factors apt to influence a Soviet decision to abandon the ABM [or SALT I] treaty reveals few powerful incentives for them to do it in the near term. While the Soviet BMD program has momentum and has made significant technological progress over the past decade, it has really only now achieved the level of technology that was available to the United States ten years ago. . . . The Soviet Union continues to fear the consequences of turning U.S. technology loose and probably still finds the ABM treaty desirable as a means of constraining the application of U.S. prowess to BMD."

Thus far at meetings of the SCC, says Robert Dean, deputy director of the State Department's bureau of politico-military affairs, the United States has asked the Soviets "to acknowledge that radar has important battle-management capabilities; that it violates the ABM treaty; and that it ought to come down, or ought to be altered or rendered incapable of performing the mission that it's clearly capable of performing now." A similar request will be made at the comprehensive negotiations on space and nuclear arms in Geneva.

Such a demand clearly puts the Soviets in a difficult spot. To modify or destroy the radar would be to acknowledge that the Politburo made a conscious decision to skirt the SALT I accord by authorizing construction in its present form. Yet virtually everyone on the American side firmly believes this is what they must do. "They should say, 'we don't believe it's a violation, but in the interests of preserving arms control, we're going to undertake unilateral measures to make clear what this thing really is,' " Meyer says. The absence of such an effort only fuels dark U.S. interpretations.

In addition, many experts agree, both nations should reach an understanding about the precise distinctions between permitted and prohibited phased-array radars. "We should recognize that treaties are living documents," Buchheim says. "The architects of the ABM treaty knew full well that there [is no] single function large phased-array radar" and that the treaty's loose language would eventually need repair. Gaffney of DOD says "we would be prepared to consider such an understanding," but that no such effort has been made by the United States to date.—**R. JEFFREY SMITH**

This is the second in a series of articles on U.S.–Soviet treaty compliance. The next will examine U.S. allegations of Soviet cheating on SALT II.