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SPECIAL REPORT

Soviet Union Possesses Laser Defense Against Nuclear Attack

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Dec. 19 (IPS) — Analysis just completed by the International Caucus of Labor Committees' Research and Development staff of recently released data on Soviet laser capabilities indicates that the USSR almost certainly possesses a system of laser defenses against intercontinental ballistic missiles (ICBMs). The existence of such a system would give the Soviet Union a decisive strategic advantage in any military confrontation with the United States, and enable it to survive a general thermonuclear war.

The ICLC analysis is based on information recently leaked to the press concerning the irradiation of several U.S. satellites with high intensity infrared beams from the USSR, and on background intelligence on known Soviet advances in laser-fusion and general laser technology. As was first reported in the Dec. 8 issue of Aviation Week, U.S.early warning satellites and two U.S. communications satellites of the SAC bomb command network were exposed to intense radiation on Oct. 18 and again on Nov. 17-18, which temporarily completely blinded or nearly blinded them for periods of up to four hours. The radiation emanated from locations in the western part of the Soviet Union.

U.S. early warning satellites, intended to detect the launching of ICBMs from the Soviet Union, orbit the earth at a distance of 25,000 miles (40,000 kilometers).

The validity of the information reported by Aviation Week was admitted by Department of Defense spokesman Bill Wade in testimony Dec. 13 before the House Arms Services Committee hearings. Since then the Defense Department has circulated the absurd explanation that the satellites were blinded by a natural gas flare. Such a flare would produce radiation less than 1 per cent as powerful as that of a large rocket of the sort the satellites are intended to detect.

The ICLC analysis of this report drew four main conclusions:

(1) **Any laser capable of coming even close to blinding U.S. early warning satellites at a distance of 25,000 miles would have sufficient power to destroy incoming ICBM nuclear warheads at a range of 6 miles (10 kilometers).**

Early warning satellites designed to detect infrared radiation must be protected against the levels of radiation which can be expected to be caused by natural phenomenon, such as the reflection of the sun's radiation off large bodies of water, and in fact are probably even more heavily protected. Therefore it can be very conservatively calculated that radiation intensities in excess of .05 watts per square centimeter must have been detected by the satellite to cause the evident concern manifested by the Department of Defense.

Since the intensity of a laser beam increases as the square of the distance with decreasing range (as the area the beam is spread over decreases), a laser capable of achieving the cited intensity at 40,000 kilometers would have 16 million times greater intensity at 10 kilometers, or about .8 to 1 Megawatt per square centimeter.

An ICBM warhead is protected against the 3,000 degrees Centigrade temperatures reached in re-entering the atmosphere by a less than two-inch-thick layer of heat shield material. Based on published results of laser matter interactions, it can be calculated that a laser beam of 1 megawatt per square centimeter would heat this shield to more than 5,000 degrees Centigrade, far above its boiling point, and cut through it in a few tenths of a second. An incoming warhead, traveling 7 kilometers per second, would be exposed to increasingly intense laser radiation for at least a full second, enough to destroy the electronic detonation devices with certainty and almost certainly enough to fragment the warhead as a whole. In either case, the warhead would not detonate.

In addition, it is possible that with feasible focusing devices, the effective destructive range of the laser weapons might be extended to as much as several tens of kilometers, thus further increasing the warhead-destruction probability.

(2) **The laser powers implied by such intensities could have been achieved by the Soviets in a short-term (two-year or so) crash project.**

Based on the size of the beam necessary to destroy incoming warheads confidently (10-20 centimeters diameter) it can be calculated that total laser powers in the area of several tens of megawatts would be necessary to produce the needed intensity. In 1968 gas dynamic lasers were developed which had continuous outputs of .06 megawatts. N.G. Basov, leading Soviet laser physicist and co-inventor of the laser, proposed methods of rapidly increasing the power of this type of laser. By 1975, the largest declassified laser in the U.S. was producing .4 megawatts of power, but classified lasers are estimated to produce several megawatts. Given the Soviets' documented overall lead in laser and especially high-powered laser fusion technology, it is completely credible that the Soviets could have increased their laser powers ten-fold over the U.S. levels to achieve anti-missile capability.

(3) **The Soviet Union has already deployed a substantial laser defense system — its defense capability is not merely developmental but actually operational.**

The only possible explanation for the Soviet irradiation of U.S. satellites was that it was a direct "open diplomacy" warning to the U.S. military that the

Soviet Union has already deployed a capability for laser defense which would make any nuclear confrontation gamble suicidal for the U.S. It would obviously be much easier to test a weapon still in the process of development on the Soviets' own satellites, and it would be irrational to advertize a new weapon which was merely being tested. The thesis that the entire story was merely fabricated by some U.S. intelligence agency is untenable; no intelligence unit would invent a story which demonstrates its own total incompetence in failing to dectect such a strategically crucial Soviet system until it was announced to them.

(4) **The deployment of a laser defense system within the capabilities of Soviet defense industries would enable the USSR to survive a U.S. retaliatory strike as a functioning society. This gives the Soviets the ability to actually win a thermonuclear war — in a meaningful sense of "winning."**

A laser defense system of a few hundred units, mounted either on large transport planes (equivalent to the U.S. C-5A) or on the ground, would give excellent protection to the USSR's top 40 or 50 cities. Assuming that the Soviets struck first in a preemptive attack (as they would be forced to do if faced otherwise with the inevitability of a U.S. first strike), they would be able to knock out with their own missiles a significant portion of the heaviest U.S. ICBMs, the Titans, which would be the most difficult to destroy by laser defense. The laser defense system would be able to provide an umbrella against both the rest of the land- and submarine-launched missiles, as well as against the later waves of U.S. bombers.

Given the exceedingly effective Soviet civil defense program, the Soviet Union would be able to limit its casualities, while undoubtedly massive, to a level similiar to Soviet losses in World War II (20 million). The U.S., however, would be utterly obliterated.

In addition the Soviets would be able to increase their advantage by using their lasers to knockout all U.S. early warning satellites, navigation satellites (for submarine location), and communications satellites at the beginning of the attack.

Given the advanced state of Soviet plasma physics research, also stemming from their fusion and related work, it is quite conceivable that the impact of this attack on disorganizing a U.S. retaliatory strike could be massively increased by various methods of destroying ionospheric radio communications. Research recently done by Stanford University on the ionosphere (the plasma part of the atmosphere) shows that certain resonating radio frequencies pumped into the ionosphere can be amplified sufficiently in passing through this layer to possibly significantly disrupt all radio communication.

The Implications

The existence of Soviet war-winning capability totally destroys all the strategic calculations RAND and every other think tank has made since World War II. A confrontation strategy in a situation in which the Soviets could clearly survive a war if they struck first is simple suicide from even the craziest cabalist's standpoint.

Any competent military analysis of the Soviet laser incidents would have arrived within days at precisely the same conclusions as the ICLC analysis. The realization that the Soviet Union is now militarity as well as industrially and politically the most powerful nation on the earth is filtering through the ruling circles of the Rockefeller clique and its bourgeois opposition factions. It is for that reason that the Department of Defense has been attempting to keep a tight rein on the policy debate now raging on the subject, for general knowledge of the real strategic situation by Rockefeller's bourgeois opponents would expose in the most dramatic way the suicidal idiocy of Rockefeller's strategic perspectives in general and the current Hilex-75 scenario in particular. It is clear that the leak to Aviation Week of the basic data on the satellite blinding was an attempt by some faction within the military to open up just this policy debate.

Many frightened think-tankers, cabal leaders, and military men must now be asking themselves: How could this have happened? How did the U.S. get Sputniked again, and in such a militarily vital field?

The answer lies in precisely the epistemological edge possessed by the Soviets, which we have described repeatedly in this newspaper. While the RAND "experts" played endlessly with their psychological warfare games and computer simulations, U.S. technology, both industrial and military, and the basic science on which it rests fell apart. The Soviet Union on the other hand, isolated the key technological areas in which breakthroughs would lead to qualitative strategic superiority, and devoted the necessary resources for a crash program to achieve those breakthroughs.

The Soviets scientific capability to successfully carry out such breakthroughs stemmed in turn directly from their emphasis on basic science and their broad-based, well funded program of research in controlled thermonuclear fusion power, the same program which promises to provide the world with the almost limitless possibilities of a world fusion economy. Basov, the leader of the Soviet laser fusion effort, was also in all probability the man most responsible for achieving the breakthroughs necessary to develop a laser defense system.

Whether the Soviets will be forced to use this advanced laser technology to fight a thermonuclear war against the U.S., or can use it to pave the way to worldwide development based on controlled thermonuclear fusion power, depends on whether Rockefeller and Kissinger are allowed to remain in power and continue their escalation toward World War III. And that decision rests squarely and immediately on the U.S. working class.