Soviets prevent publication of speech on their beam-weapon program

by Dean Andromidas

It was recently revealed to *EIR* that in a closed-door East-West disarmament conference held Nov. 14-16, 1988 in the city of Amsterdam, Soviet representatives responded in a "very heated" manner when one of their Western counterparts detailed the ambitious Soviet commitment to develop weapons based on "new physical principles," particularly radio-frequency weapons. Following the conference, the Soviets demanded that the conference organizers *not publish* the presentation by Lt. Gen. G.C. Berkhof (ret.), in their forthcoming book on the proceedings of the conference. The conference organizers acceded to that demand.

It was at an *EIR* seminar held in September 1987 in Munich, West Germany, that Lyndon LaRouche first put forward the assessment that the Soviet Union was in the midst of its own crash program to develop electromagnetic or radio-frequency weapons, as a spearhead of their drive to achieve military superiority over the West. The aforementioned action by members of the Moscow-based Institute of the World Economy and International Relations (IMEMO), was the first public response by Soviet representatives, upon being confronted with the facts of their effort to develop and field these weapons. The September 1987 seminar was the first in a series held in all the major capitals of Western Europe over the course of 1987 and 1988. *EIR* then published a Special Report, "Electromagnetic Weapons, the Technology and Strategic Implications," in the English, French, and German languages, which received extensive circulation throughout military and political circles in Western Europe and the United States.

The Amsterdam conference was sponsored by an organization called INSTEAD, whose aim is to conduct research in the area of "alternative defense" strategies. Those in attendance at the meeting, which was held at the Free University of Amsterdam, included arms control experts from various institutions in the Netherlands as well as the Rand Corporation of California. It was one of several such conferences held since the signing of the INF agreement, to develop principles for conventional disarmament negotiations, as well as to probe the question of "alternative" or "nonprovocative" defense. These latter terms have been popularized by such peace movement ideologues as Mary Kaldor of European Nuclear Disarmament (END).

The Soviet representatives, Dr. Alexander Konovalov and Dr. Valeri Mazing of IMEMO, in their presentation entitled "Conventional Imbalances and Technological Threat," took the opportunity to lay out a Soviet strategy for conventional disarmament talks aimed principally at hamstringing NATO's only advantage, its technological edge. Their presentation not only sidestepped the issue of the tremendous conventional superiority of the Soviet Union in Central Europe, but also totally ignored the huge Soviet research and development effort in weapon systems based on "new physical principles." Confining themselves to the technological areas of microelectronics, etc., the two Soviets argued that NATO's more advanced weapons systems, particularly the development of "smart weapons" and more advanced strike aircraft, are more threatening than Soviet absolute numerical superiority, because they are aimed at bankrupting the Soviet economy. The Soviet spokesmen charged that these technologies "give the possibility of the maximum use of American technological leadership and make it difficult for the U.S.S.R. to keep parity in the military field, and seriously devalue Soviet investments already made in the military sphere."

Discussing NATO's deep strike doctrines such as Follow on Forces Attack and the U.S. Airland Battle, the Soviet representatives asserted that U.S. advanced technology is dangerous from a "psychological" and "moral" standpoint, because they "depersonalize" warfare. In conclusion, they said that conventional arms control talks should proceed in the direction of outlawing all categories of weapons where the West has the technological advantage—smart weapons, missiles with highly accurate guidance systems, etc. They went further, calling for the withdrawal of aircraft with deep strike capabilities to points several hundred kilometers from the German-German border, a proposal that would eliminate the fighter-bombers of West Germany, the Netherlands, and Belgium, and would force the withdrawal of U.S. air forces from Western Europe.

The fraud of Soviet 'disarmament'

To the surprise of the Soviet scientists, General Berkhof pulled the rug out from under their argument by introducing into the debate the Soviets' own development of what they call "the new revolution in military affairs" and the development of weapon systems based on "new physical principles" such as high-energy lasers and radio-frequency weapons. General Berkhof is one of the Netherlands' and Europe's

leading military and strategic thinkers, and spoke from a highly informed standpoint. His presentation was a devastating exposure of the sham of the Soviet argument.

Entitled "Strategy and Technology," General Berkhof's presentation compared the development of military technology in the Soviet and Western systems. While the West has a far more dynamic research and development methodology, allowing rapid interchange between the military and civilian sectors, the Soviets, through a centralized system that gives full priority to the military field, have a "surge potential" in areas given priority. Radio-frequency weapons are one of those areas.

The general explained:

"R&D of weapons based on new physical principles, such as lasers, particle-beam weapons, and radio-frequency weapons, is in general not a responsibility of the defense production ministries, but of research institutes, often specially set up for this purpose. If the General Staff, or in some cases the Defense Council, accords a high priority to a particular program, for instance because they believe that it will give them a strategic advantage over the United States, an organization will quickly be created and provided with the necessary resources. Such special programs are recommended by the Scientific Committee of the General Staff, in close cooperation with the Academy of Sciences, thus ensuring the fusion of technology and strategy at an early stage. This policy is comparable to the American 'Competitive Strategy' elaborated by Alexander Konovalov and Valeri Mazing.

"The Soviet General Staff looks far ahead. For instance, as early as 1962, Marshal Sokolovsky, in the first edition of his book *Military Strategy,* had this to say of weapons based on new principles in physics: 'Possibilities are being studied for the use, against rockets, of a stream of high-speed neutrons as small detonators for the nuclear charge of the rocket, and the use of electromagnetic energy to destroy the rocket in the descent phase of the trajectory or to deflect it from its target.' "

The general emphasized the profound impact these developments will have on the science of war:

"Surprisingly not mentioned by Konovalov and Mazing, weapons based on new principles in physics could have an equally revolutionary effect on warfare at the turn of the century. They include high-powered lasers, particle-beam weapons, and radio-frequency or microwave weapons. The latter consist of phased array antennas or gyrotrons emitting nonlinear combinations of radio frequencies which, depending on the power output and the frequencies used, could disorient or kill people and damage or destroy electronics.

"Most high-energy lasers or HELS—the abbreviation used by American experts with their often macabre sense of humor—particle-beam weapons (PBWs), and radio-frequency weapons (RFWs) use large amounts of energy. They all project electromagnetic energy at or near the speed of light. But the beam ranges and the modes of interaction with both the target and the environment through which the beam is propagated differ considerably. For instance, lasers might destroy a given target by depositing large amounts of energy on its surface. RFWs use complicated pulse shapes and pulse trains involving several electromagnetic frequencies and modulations with a wide spectrum ranging from extremely low frequencies to the hundred-gigahertz range. They can penetrate weapon systems and damage the electronics inside. In human beings, they induce an effect called 'biological coupling,' damaging or destroying the nerve synapses. In an anti-personnel mode, RFWs use relatively little energy, as the power output needed for disorientation is low. Defenses against RFWs will be difficult, if not impossible, to devise.

"PBWs, using electrons in the atmosphere or neutralized hydrogen atoms in space, possess an immense destructive force. On impact, the high-energy particles both irradiate the material and subject it to kinetic energy, causing rapid burn-through, damage to electronic components, and in some cases the ignition of fuels and explosives. Protective measures such as hardening, which is effective against lasers, are unlikely to be of assistance here. HELs are also more strongly affected by dust, smoke, rain, and atmospheric turbulence, and require complex adaptive lenses which automatically compensate for the heat waves generated by the Earth's surface."

General Berkhof, who is also an expert on Soviet spetsnaz commando forces and other aspects of irregular warfare, underscored that these technologies are not for the indefinite future, but for the here and now, and can be integrated into operations of special forces:

"Although all beam weapons kill people, only RFWs and some lasers offer realistic prospects for use as anti-personnel weapons. One-shot briefcase-size RFW devices can be used in operations of special forces, while larger devices with a range of several kilometers carried by large trucks or transport aircraft can be deployed against C^3I [command, control, and communications infrastructure] modes, military and civilian electronic databanks, harbors, and other targets of opportunity. Both RFWs and lasers can function as air defense weapons by disorienting or blinding pilots. Indeed, Soviet low-energy laser designators aboard ships illuminated American patrol aircraft, and temporarily blinded their pilots during missile tests on the Kwajalein missile range. In addition to blinding, high-energy lasers ignite plastics in the cockpit and render the canopy opaque. All types of beam weapons are suitable for a missile defense role. RFWs and lasers are probably best for tactical operations."

U.S. and Soviet programs compared

While reviewing how the United States launched its R&D program in 1978, following the realization that the Soviets were making advances far beyond U.S. capabilities, General Berkhof compared the Soviet and American capabilities:

"Owing to the asymmetrical developments in the Soviet

Union and the United States, it is difficult to ascertain which country is ahead. On the analysis of the American and Soviet literature, the impression is that the United States is in the forefront in all areas using microelectronics, i.e., surveillance, pointing and tracking, and battle management and C^3I systems. Both countries are about equal in lasers—though the U.S. could be ahead in free electron lasers—while the Soviet Union heads the field in high-power particle beams and radio frequency weapons, not surprisingly in the light of pioneering research work of V.I. Vernadsky (1863-1945)

"Concentrating on the reduction of classical weapons, while neglecting the new weapons which, though not nuclear, chemical, or biological, can hardly be termed conventional, will be futile at best. It may be a favorite pastime for politicians, but not one that brings a greater military stability within reach."—Lt. Gen. G.C. Berkhof (ret.)

and A.G. Gurvich (1874-1954). Moreover, research on magnetohydrodynamic (MHD) generators, which convert explosive power into electrical energy, started earlier in the Soviet Union than in the United States. An MHD generator developed by the vice president of the Academy of Sciences E.P. Velikhov produced 50 megawatts in 1977. The device, called Ural, was used for geological exploration. It is quite small, and can probably also be used for powering mobile RFWs."

Pointing to the revolutionary impact of these developments on the practice of warfare, General Berkhof stated:

"Although the implications of these new weapons are still being studied, it is clear that they will have a revolutionary effect, negating entire classes of traditional weapons. At sea, surface combatants could become obsolete (unless defenses can be found), and in the air and in space, manned aircraft and satellites in lower orbits could be highly vulnerable. It is equally clear that while the Soviet military scientists can hardly be confident that their industrial base can cope with the 'revolution in electronics,' their prospects with regard to the 'revolution in physics' are less gloomy, if the West keeps its research programs at the present low level and does not embark on a catch-up effort."

General Berkhof concluded by pointing out the impossibility of controlling the development of these technologies through the arms control process, because there is no real difference between "civilian" and "military" science and technology:

"Can the introduction of these weapons be averted through arms control negotiations? The prospects are not very encouraging, for one thing because most of the technologies also have important civilian applications. Low- and moderate-energy lasers, for instance, are used for a wide variety of civilian purposes, including surgery, high-precision welding, cutting and manufacturing, cartography, the generation of electricity by controlled nuclear fusion processes, isotope separation, communications, and even light shows, to give only a few examples. Particle beam research is also needed for the generation of nuclear fusion energy. High-energy research labratories are now on the brink of mastering the technique required to harness the force of conventional and even nuclear explosions so as to generate very high energy levels. Tests have yielded excellent results and proved that the projects are technologically feasible. It may still take some time to bridge the gap between small-scale laboratory experiments and cost-effective power stations based on this principle, but the technology of generating power by this means, including the intricacies of related high-energy transmission and switching, is being acquired.

"This is one of the principal reasons why research on lasers and particle-beam technology cannot, or rather will not be stopped. In this field there is no such thing as civilian science and technology or military science and technology; they are inextricably intertwined. Of course, it could be agreed not to deploy certain weapon systems such as ASATs [antisatellite weapons] or 'Battlesats,' or even larger ground-based stations, but the technology would still be there. Moreover, even if both sides were to agree to conduct negotiations on weapons of this kind, verification would be a difficult problem, because of the asymmetries existing in this as in other areas, and because of the intracacies of devising formulas on the basis of destructive power or range, etc., even for installations that can be detected by the national means of verification. Installations could, for instance, be tested at a lower power output or even camouflaged to look like civilian laboratories, while 'zap guns' and smaller mobile RFWs carried by trucks or aircraft cannot be detected at all. . . .

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The complete text of General Berkhof's speech will be available in the forthcoming issue of EIR*'s "Global Showdown Update."*