

Soviet disinformation campaign out to sabotage U.S. x-ray laser research

by Charles B. Stevens

In September of this year, the *Los Angeles Times* ran a series of articles attacking Lawrence Livermore Laboratory and in particular Dr. Edward Teller, its associate director emeritus. Robert Scheer, the author of the series and a former editor of the left-wing magazine *Ramparts*, reported on an FBI witch-hunt against Livermore Laboratory beam-weapon scientists, which began with a leak to the *New York Times* of the extraordinary success of the x-ray laser tests. Those tests showed the x-ray laser to be a "robust means" of defending the United States against Soviet nuclear-tipped missiles.

Now, with the FBI reportedly engaged in an "intensive investigation" of scientists who favor President Reagan's Strategic Defense Initiative, the *Los Angeles Times*, in conjunction with *Science* magazine, has begun a campaign of disinformation against this most lethal of all anti-missile shields, selectively leaking classified technical information from scientists opposed to the SDI. The campaign has tried to make the case that the May 1985 underground tests of focusing methods for the x-ray laser were in fact a failure. This disinformation was directed in part at sowing policy confusion during the Reagan-Gorbachov summit meeting in Geneva; but more fundamentally, stopping U.S. x-ray laser research is a top-priority Soviet strategic objective.

As for the claim of these liberal publications that the x-ray laser program is technically flawed, the scientist who headed up the original presidential commission which studied the feasibility of SDI technology, Dr. James Fletcher, stated flatly: "That is simply ridiculous."

Selective leaks

The *Los Angeles Times* reported on Nov. 12, 1985 selected details of top-secret reports from Los Alamos and Lawrence Livermore National Labs on x-ray laser tests obtained from anti-SDI physicists:

- "Three months after the reportedly successful Cottage test [in March 1985—ed.], scientists at the Los Alamos weapons lab reviewed the highly classified data and warned Livermore officials that the results had been distorted because the device used to measure the laser's intensity cannot provide accurate readings." The scientists who reportedly submitted this evaluation were Jack C. Comly, Donald E. Casperson, Nelson M. Hoffman, and Gottfried T. Schappert.

- "An internal Livermore review . . . by . . . Joseph Nilsen reached the same conclusion."

- The reports claim that there was "a problem with beam collimation."

Science magazine on Nov. 8, 1985 had revealed sensitive data on the x-ray laser program along similar lines, in an article titled "Experts Cast Doubts on X-ray Laser." But in this case, defense scientists allied with Georgetown University's Center for Strategic and International Studies, such as Donald Kerr, the former director of Los Alamos, are quoted to the effect that even if the x-ray laser works as well as Dr. Teller and Dr. Lowell Wood predict, it would not be effective for missile defense and would only work as an offensive weapon against space-based defense systems.

Experts refute disinformation

Leading scientists and beam-weapon researchers have now refuted in detail the claims made by the *Los Angeles Times* and *Science*:

- Dr. Robert Jastrow, a leading astrophysicist who has published numerous reviews of SDI research, told this reporter that he had discussed these allegations, including those of the *Los Angeles Times*, with leading x-ray laser researchers and that "they are not accurate statements. There are no fundamental problems in the Livermore x-ray laser program. I know that there is no lack of confidence in Livermore or their x-ray laser program. Technically, what the *Los Angeles Times* raises is not a consequential matter."

- Dr. James Fletcher, director of the 1983 study of SDI feasibility commissioned by President Reagan, declared in an interview with this reporter: "These claims are simply ridiculous. . . . While complicating President Reagan's negotiating position at Geneva is certainly the hope of the people spreading this misinformation, it won't work, because the President doesn't expect much from the Geneva summit anyway. You can't do much in three days." With regard to the contention that the x-ray laser is only an offensive weapon, Dr. Fletcher replied that this could only be based on twisted logic and sophistries. "Offensive weapons to me are ones that produce mass destruction on the surface of the earth," whereas missile defense means denying those weapons a free transit of space. It is precisely the capacity of the x-ray laser for destroying systems in space that make it such an effective means of missile defense.

- A leading SDI scientist: "In terms of the technical data that they purport to reveal, these articles are totally confused."

I am fully informed on this program and I am in no way discouraged.”

● Even the *Los Angeles Times* had to report what SDI chief scientist Gerald Yonas replied to the allegations of a test failure: “Substantial progress has been made in the Livermore x-ray laser program. Support of the program is continuing.”

● Dr. Lowell Wood, leading Livermore x-ray laser scientist, replied to *Science*: “‘Obviously, we aren’t satisfied with where things stand, or we would have pushed the weap-

on out the door and we wouldn’t be doing a lot of work that we are manifestly doing,’ he says. ‘Where we stand between inception and production I can’t tell you. . . [but] I am much more optimistic now about the utility of x-ray lasers in strategic defense than when we started.’ In particular, he adds, there has been ‘very substantial improvement, relative to where we started,’ in laser beam fractionation and brilliance.”

Contrary to the media campaign, the x-ray laser has made startling progress over the past five years. Moreover, it is

Soviet scientists pioneer x-ray laser work

Advocates of a sharp reduction in the U.S. x-ray laser program, such as the *Los Angeles Times* and *Science* magazine, choose to ignore the fact that Soviet scientists have been the *pioneers* in x-ray and gamma ray laser research. Virtually every approach currently being explored in the United States was originally developed by Soviet physicists.

Prior to the first reported demonstration of x-ray lasing by Livermore scientists in 1980, Soviet physicists were publishing more than 10 times the number of papers on this type of research as their counterparts in the West. According to American experts, this rate of publication reflected an x-ray laser research effort at least 10 times the size of that in the West. But just before 1980, Soviet publication of original papers on x-ray lasers abruptly halted—a phenomenon which in the past has generally meant that research has made a transition to actual development.

Consider the following summary indications of the Soviet research effort:

● West German scientist Rolf Engel, in a paper on “The Soviet View of Missile Defense” presented at a June 1985 conference in memory of space pioneer Krafft Ehrlicke, reported that in 1971, Soviet professional journals published “the first designs for an electron-beam-pumped x-ray laser.” Then in 1973, “new designs appeared in the professional press for electron-beam-pumped x-ray lasers, and an x-ray laser was described which is pumped by a nuclear explosion. (E. Teller in the United States believed for a long time, that he was the first to propose nuclear-explosion pumping. Contrary to their own better knowledge, the Soviets claim the same thing to this day.)”

● Dr. Peter L. Hagelstein, a leading Livermore x-ray laser scientist, provided a sobering review of the status of

x-ray laser research in his January 1981 Ph.D. thesis, “Physics of short wavelength laser design,” documenting the depth of Soviet research:

Electron collisional pumping stirred considerable interest when the Lebedev group reported experimental results. . . .

Recombination as a pumping mechanism was proposed by Gudzenko and Shelepin (1964). . . . The extension of recombination to other sequences is straightforward. Theoretical results for helium are given by Gudzenko et al. (1974). . . . Kononov and Koshelev (1975) examine 4-3 transitions in lithium-like aluminum. . . .

Vinogradov et al. (1975) suggested photoexcitation pumping. . . . Photoexcitation schemes involving optical photoexcitation pumping were discussed in . . . Gudzenko et al. (1974), (1975). . . . Experimental production . . . was reported by Vekhov et al. (1975). . . .

Ion-atom resonant charge exchange was proposed in Vinogradov and Sobl’man (1973). . . .

Vinogradov and Zel’dovich (1977) present theoretical results for multilayer mirrors and find theoretical normal incidence reflectivities which are quite high. . . .

● *EIR*, in its April 24, 1984 issue, reviewed the work on x-ray lasers of A. A. Rukhadze of the Moscow Lebedev Institute and Ya. B. Faynberg of the Kharkov Physicotechnical Institute. Since the early 1970s, these two scientists have led the Soviet effort in this field.

● At a May 1985 Conference on Lasers and Electro-Optics, Dr. Mark J. Eckart reviewed the Livermore experiments, which represented the first unambiguous demonstration of a laboratory x-ray laser in the West. He presented a list of scientific papers which provided the basis for the Livermore work, pointing out that all but one of these papers were by Soviet scientists!

now understood that an effective x-ray laser anti-missile system does not necessarily require the huge energy outputs of nuclear explosions. Dr. Charles Rhodes reported in a paper published in *Science* in September that he has carried out experiments at the University of Illinois which indicate that considerable improvements in x-ray laser pumping efficiencies can be attained in the very near future. Dr. James Ionson of the Defense Department's SDI Office pointed out last spring that Rhodes's experiments could lead to an effective, non-nuclear x-ray laser weapon, and that the research needed to demonstrate the scientific feasibility of this could be completed before the end of 1985.

Lawrence Livermore scientists unambiguously demonstrated x-ray lasing *in the laboratory* for the first time in 1984, utilizing pump beams from the Novette optical laser system. (It should be noted that Soviet scientists had previously reported achieving laboratory x-ray lasers, but had, in most cases, not provided sufficient data to clearly demonstrate these claims.)

Even what the recent published attacks report as a "flaw" in the x-ray laser program may, indeed, actually derive from the overwhelming *success* of the Livermore program. Scientific diagnostic equipment is designed to operate within theoretically predicted parameter ranges. It is well known that the original 1980 Livermore demonstration of x-ray lasing was so successful that the output was beyond the calibrated scale of the detection instruments. Judging from public reports the more recent tests this March appear to have been even further "off scale"; that is, orders of magnitude beyond the theoretical projections which the instruments were designed to anticipate.

The Soviet propaganda line

The clearly implied, though unstated premise of *Science* and the *Los Angeles Times*, is that the Soviet Union is far behind the United States in x-ray laser research. A corollary to this is that it could be easily verified whether or not the U.S.S.R. had developed and/or deployed x-ray lasers. From these assumptions, *Science* and the *Los Angeles Times* attempt to show that the x-ray laser, if it can be made to work at all, will only function as a destabilizing, first-strike offensive weapon. Therefore, if the United States continues its R&D program, the Soviet Union will be *forced* to develop its own x-ray laser, inadvertently enhancing its own first-strike capability and leading to far more destabilizing circumstances than presently exist. On the other hand, if the United States were to unilaterally end its R&D program, the Soviet Union could supposedly be prevented from acquiring such a first-strike weapon, through a nuclear test ban.

This line of reasoning coincides neatly with the propaganda tack taken by the U.S.S.R. From the very beginning of the SDI debate, Moscow has insisted that the x-ray laser is a first-strike offensive weapon, which is being unleashed

Behind the supposed flaw in the x-ray laser

Science and the *Los Angeles Times* contend that Los Alamos National Laboratory scientists found a flaw in the diagnostic measurements made at Lawrence Livermore Laboratory during x-ray laser tests. The instrument for determining the power density of the x-ray laser beam output, in particular, had reportedly failed to operate correctly. While it is impossible to fully assess this assertion without access to top-secret data, the following facts do provide a basis for making a preliminary judgment:

1) One of the primary reasons for having two national nuclear weapons labs is for them to criticize each other's work, to insure a higher quality of research. But these mutual reviews, especially in the case of highly classified weapons work, are written within a very limited context and are not meant for general circulation. The restricted nature of these "internal" critiques is not designed to hide anything, but to permit the greatest freedom of comment to the critic. Yet the limited nature of these internal critiques would make it possible for an interloper to take them out of context and construct a case for flaws in any major experiment.

2) It is well known that the first x-ray laser experiments were *far more successful* than the original theoretical projections. As a result, the upper limits for the x-ray laser beam brightness were not fully measured by the experimental diagnostics. It is most likely that this is also the "flaw" in the most recent x-ray laser tests; that is, *they have produced beams too powerful to measure with existing types of diagnostics.*

3) The ability to concentrate electromagnetic energy is determined by how short the wavelength of that energy is. (The theoretical power density varies inversely with the square of the wavelength.) The x-ray laser, having the shortest wavelength of any laser yet operated, means that it is producing a range of energy flux densities never before directly observed. Unclassified experiments with concentrated beams from ordinary optical lasers have produced highly non-linear and complex phenomena, whose interpretation is still a topic of heated debate. It would be expected that even more complex phenomena would be seen in the case of the x-ray laser.

upon the world by the fanatics of the Pentagon.

The facts completely demolish this line. First of all, as detailed in the accompanying box, the U.S.S.R. has been the world's leader in x-ray laser R&D, with an effort at least 10 times greater than that of the United States. Second, the successful operation of a laboratory-scale x-ray laser by Lawrence Livermore scientists in 1984, categorically demonstrates that it is possible to perfect x-ray lasers in complete secrecy. The only way that one could verify the status of Soviet—or for that matter U.S.—research on x-ray lasers, would be to have scientists working in collaboration with Soviet researchers in all of their laboratories. President Reagan has made such a proposal; but the Soviets, the *Los Angeles Times*, and *Science* have only responded with a deafening silence.

The importance of the x-ray laser

More significantly, the x-ray laser has the greatest potential of any device presently being researched for effectively defending against a massive, first-strike missile salvo. It is precisely this type of disarming, surprise first-strike capability that the Soviet Union has been building up to, with its growing force of land-based ICBMs. The x-ray laser threatens to undermine this capability in the very near future.

Two qualities of the x-ray laser give it this unique capacity:

1) **Firepower.** The x-ray laser is extraordinarily energy-

dense; the first x-ray laser weapon deployed will have the capability of destroying more than a score of offensive missiles. But even today, the scientific basis for far greater firepower potentials is being developed. *The basis for projecting the development of a single x-ray laser weapon with the firepower to destroy the entire Soviet missile fleet with a single shot already exists.*

2) **Mobility.** Weighing less than a few hundred pounds, shooting at the speed of light, and having the potential for firing ranges in excess of 100,000 miles, the x-ray laser is the most reliable and easiest missile defense system to deploy.

SDI chief scientist Dr. Gerald Yonas pointed this out to *Science* when he stated: "I don't know of anything that has the combination of lightweight power supply and speed of light kill. What else is there?"

One possible deployment would be to place x-ray lasers on top of small submarine- and aircraft-launched hypervelocity missiles deployed near Soviet missile fields. Less than 50 of the first prototype would have to be "popped up" to constitute a realistic counter to a Soviet first-strike salvo. Later models could achieve the same result with just a couple of x-ray lasers. And it would be virtually impossible to detect such a deployment of x-ray laser missile defense. Therefore, even just the threat of x-ray laser development must decrease the certainty of Soviet calculations for a successful first strike.

It is little wonder that Russia has pulled out all the stops to curtail and destroy the U.S. x-ray laser effort.

A COMBAT MANUAL for the WAR ON DRUGS

"We must have a formal declaration of war, against narco-terrorism as an entity, and fight it as necessary by the methods of war. It's a war we could fairly easily win, or at least establish major victories in the Caribbean area."

—Lyndon H. LaRouche

EIR's Special Report, "Soviet Unconventional Warfare: The Case of Guatemala," shows who is trying to turn Guatemala into the newest wholly-owned plantation of the international drug mafia—and how to stop them. The dope pushers have a six-month timetable for smashing the resistance of the Guatemalan military. Yet the U.S. State Department has maintained the Carter administration's boycott of aid for the Guatemalan anti-drug effort, on grounds of "human rights violations."

Also available are a slide show and a 25-minute videotape, including on-the-scene action shots, and interviews with military officials in the United States and Guatemala.

- Special Report, *Soviet Unconventional Warfare: The Case of Guatemala*. Order #85016. **\$150.**
- Complete package on Guatemala's war on drugs: Special Report, slide show, and videotape. **\$500.**
- Two Special Reports for antidrug fighters, at a discount price: *Soviet Unconventional Warfare: The Case of Guatemala* and *Narco-terrorism in Ibero-America*. The latter report, issued in 1984, exposes the drug-pushers of Colombia and Peru, with a ground-breaking analysis of the role of gnostic cults in narco-terrorism. **Two for \$250.**

Order from your regional **EIR** representative or from: **EIR News Service, P.O. Box 17390, Washington, D.C. 20041-0390.**