

negotiate a ban on atmospheric testing.

Putting the genie back in the bottle

The treaty also prevented development of peaceful nuclear explosives that held the promise of a technology that could dig canals, reservoirs, and harbors; divert rivers for irrigation and power generation; and mine mineral resources throughout the developing sector with its tremendous earth-moving power.

The treaty was attacked by Dr. John Foster, director of Lawrence Livermore Laboratory; former Atomic Energy Commission Chairman Lewis Strauss; Gen. Thomas Power, commander of the Strategic Air Command; former Chief of Naval Operations Adm. (ret.) Arleigh Burke; former chairman of the Joint Chiefs of Staff A. F. Gen. (ret.) Nathan Twining; and many others. Former President Dwight Eisenhower, threatened by President John Kennedy with a scandal involving a former aide, formally supported the treaty but implied that the treaty was incompatible with U.S. national

sovereignty.

Support for the treaty in the United States came from the mentors of today's opponents of the Strategic Defense Initiative: Secretary of Defense Robert S. McNamara; Assistant for National Security Affairs McGeorge Bundy; Assistant for Science and Technology Jerome Wiesner; Wiesner's predecessor in the Eisenhower administration, James Killian; Averill Harriman; Sen. Hubert Humphrey, who played the role of Senate echo-chamber for MacMillan's proposals; and many others of the Anglo-American genocide lobby.

'A step toward war'

Dr. Teller explained the dangers of ratifying the treaty and its inherent regressive character in his testimony before the Senate Foreign Relations Committee during hearings on the treaty in 1963.

The reason that I am worried about this treaty is because I believe that this treaty is a step not toward

Abrahamson: Soviets ahead on x-ray laser

by Charles B. Stevens

For the first time ever, a U.S. defense official has presented hard evidence that the Soviet Union is significantly ahead of the United States in development of hydrogen-bomb-powered x-ray lasers. This occurred March 25, when the director of President Reagan's Strategic Defense Initiative (SDI) missile defense program, Lt. Gen. James A. Abrahamson, testified to the Senate Armed Services subcommittee that the Soviets conducted an x-ray laser technology test in 1982 "that we will not be able to do until 1987." The unprecedented public release of these intelligence data considerably enhances the ominous estimate presented by Dr. Edward Teller to the Las Vegas "Lasers '85" conference last December, that the U.S.S.R. has already begun deploying hydrogen-bomb-powered x-ray lasers.

In the light of recent U.S. experiments, which appear to confirm previous Russian theoretical projections, the potential firepower of the hydrogen-bomb-pumped x-ray laser is truly awesome: According to leading experts, a single x-ray laser bomb, lofted into space on a single missile, could generate up to 100,000 high-energy x-ray laser beams, enough firepower to destroy the entire Soviet

ballistic missile fleet and its full complement of warheads and decoys many times over.

In this context, the unprecedented release of hard evidence by Lieutenant-General Abrahamson, to the effect that the Soviets are as much as five years ahead of the United States in x-ray laser development, means that any proposal for a moratorium on U.S. nuclear underground testing is at minimum a proposal for unilateral disarmament of the West. It is therefore quite understandable that Soviet Party chairman Mikhail Gorbachov has made a complete nuclear test ban (for the United States, that is) the top priority of his government. But what motivates the U.S. Eastern Establishment's endorsement of Gorbachov's moratorium offensive: advanced senility or plain treason?

Thus, the mere possibility of the United States deploying defensive x-ray laser modules threatens to undermine the existing Soviet first-strike strategy. It is therefore small wonder that Gorbachov has made the U.S. nuclear x-ray laser program his top target. The question is why any informed American, like House Armed Services Committee chairman Les Aspin (D-Wisc.), would back up Gorbachov's attack on the U.S. x-ray laser program?

Despite Gorbachov's efforts to impose a nuclear test moratorium on the United States, and, therefore, probably ensure a Soviet monopoly on nuclear x-ray laser technology, President Reagan has vowed to maintain the underground testing as essential to U.S. national security. According to the April issue of *Air Force* magazine, the U.S. Department of Energy fiscal 1987 budget request of \$8.2

peace but rather a step away from safety, possibly a step toward war. . . .

The treaty will permit the Russians and us, and anybody else, to develop nuclear explosives underground. This will permit us to perfect not every kind of an aggressive weapon, but very important kinds of aggressive weapons. This treaty, therefore, will not have the direct effect of slowing down the development of aggressive weapons. What it will do is to prohibit us from acquiring the knowledge about effects of weapons, those effects which are of vital importance in ballistic missile defense. . . .

These times has been a time of extremely rapid development, and it has been a time full of surprises. At no turn did we know what the next step will bring. At no time could most of us predict the future. Yet what we are now trying to do is essentially to predict the future, and when some of the best and most outstanding people contradict each other, they do so be-

cause the future is necessarily uncertain. . . . In 1958, none of us believed in any serious way that missile defense is a realistic possibility. . . . I believed that missile defense was hopeless. I am now convinced that I was wrong. . . .

Secretary McNamara has told you that if you don't have enough knowledge about the hardening of our missile sites we will make up for it by building more missiles, by spacing these missiles farther apart, by making them harder. . . . What Secretary McNamara is telling you is that he is willing to substitute brawn for brain, to spend more and more money for defense. This is what has been rightly called an arms race. To acquire more knowledge, to acquire more knowledge in order to know how to defend ourselves, this, I would suggest, is not quite properly called an arms race. This treaty will not prevent the arms race. It will stimulate it. This treaty is not directed against the arms race. This treaty is directed against knowledge. . . .

billion for "Atomic Energy Defense Activities," under which nuclear testing is carried out, represents a \$1 billion increase over that for fiscal 1986. *Air Force* magazine indicates that much of this increase is for developing nuclear-driven directed energy weapons such as x-ray lasers.

Plasma focusing

The most crucial breakthrough in x-ray laser technology occurred when it was demonstrated in underground tests in March 1985 that magnetic plasmas could be used to focus and aim nuclear-bomb-generated x-ray laser beams. A plasma consists of an ionized gas. It can be contained by a magnetic field. In the March 1985 and the more recent Goldstone underground tests, carried out under the direction of the California-based Lawrence Livermore National Laboratory, it was found that hydrogen-bomb-produced x-ray laser beams self-focus as they pass through the magnetic plasma. The focused x-ray laser beam is 1 trillion times brighter than the hydrogen bomb itself. Because of the short wavelength of x-ray electromagnetic radiation, which permits focusing to extreme power densities, the laser beam output can be divided up into tens of thousands of lethal pulses, each capable of being directed to a separate target.

The same plasma focusing also provides the means to electromagnetically aim and point the individual beams. This is far more practical than having to aim and point each separate x-ray laser rod mechanically. Overall, the result is that one x-ray laser bomb could have the firepower to destroy the entire Soviet ballistic missile fleet, if it were

used in a simultaneous launch. This could be done at any phase of the missiles' trajectories.

For example, in the five minutes of the vulnerable boost phase, the 100,000 x-ray laser beams could be shot over ranges of 10,000 miles. In the longer midcourse, during which the warheads and decoys drift through space, each of the x-ray laser beams still has the wallop to destroy the hardened shells of the re-entry nose cones. With 100,000 beams per bomb, it would be possible to destroy all targets, including decoys over ranges of several thousand miles.

Military implications

The nuclear x-ray laser threatens to have a far greater adverse impact on Soviet military capabilities and plans, than on those of the United States. The currently superior Soviet order-of-battle, which has resulted from the most massive military build-up in history over the past two decades, is predicated on a first-strike surprise strategy in which a rapid-fire series of massive missile salvos destroys U.S. nuclear capabilities before they can be launched. Even the deployment of a handful of x-ray laser modules on, say, submarine missiles based in the Arctic—a deployment which would be virtually impossible to detect—could be sufficient to turn the tables on the Soviet preemptive strike strategy. The huge firepower potential of the x-ray laser is most effectively employed against massive missile salvos, in the same way that grapeshot and machine guns are most effective against massed infantry charges.