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The Race for 'Star Wars' Weapons

The United States and Soviet Union are engaged in a deadly race to develop "Star Wars" weapons, like laser beams and man-made lightning bolts. The top-secret plans call for mounting them aboard future space-ships.

Indeed, the space shuttle Columbia may be the forerunner of future Galactica-like battleships that may cruise in space. But if the United States is ahead in developing a reusable spaceship, the Kremlin's scientists may have the edge in other crucial areas of research.

Now that the Soviet Union has apparently caught up in the sophistication of its strategic missiles, the Reagan administration is likely to decide that the United States should concentrate on keeping ahead in the field of laser technology. One intelligence expert who attended a secret laser briefing called it "the hottest briefing in town."

What makes these "directed energy" weapons so hot is that they are expected to make strategic missiles obsolete within the next 20 years. Laser beams can be thwarted by clouds and other atmospheric disturbances, but a similar ray gun called a "particle beam weapon" would be virtually unstoppable. Both super-powers are trying to perfect them.

"The Soviets have had a research program under way since 1970 aimed

at developing lasers with weapons applications," reports a top-secret Central Intelligence Agency document. The CIA identified several possible Soviet laser ranges and one probable — at Golovino, about 100 miles east of Moscow. "It is similar in length and layout to U.S. high-energy laser test ranges," the CIA explained, adding:

"Similar U.S. programs suggest that the kinds of tests most likely... performed at these sites are those most suitable for ground or air-based defense, including air-to-air combat, although the results would also be useful for programs concerning anti-ballistic missile, anti-satellite or laser-guided munitions."

Who's ahead? An assessment of the U.S.-Soviet balance in laser and other directed-energy weapons is contained in a highly classified study conducted last year by the Arms Control and Disarmament Agency. It was shown to my associate Dale Van Atta.

"Overall, the U.S. and U.S.S.R. high energy laser (HEL) programs are roughly equal at the present time," the secret report says, "although the U.S. is believed to have an advantage in the pointing, tracking, optics and control technologies..."

The Russians "appear to be ahead in short pulse lasers and electrical discharge lasers, which could be useful... for military applications in the atmosphere."

As for the awesome particle-beam weapons, the report says the Soviet Union is believed to have had a research and development effort under way for possibly 20 years.

Charged particle beam devices, or CPBs, represent "a new phase in the historical development of technology," the study reports. When perfected, these controlled "lightning bolts" can solve a wide range of scientific and industrial problems, the report states.

But it adds ominously: "Soviet work [on CPBs] is strong in exactly those areas needed for weapons application — whereas U.S. work to date has not been pointed toward military applications."

The report continues: "It is believed that the Soviets are ahead of the U.S. in many other critical PBW technologies... and that the present Soviet level of effort should permit them to continue to advance in these technology areas at a rapid rate."