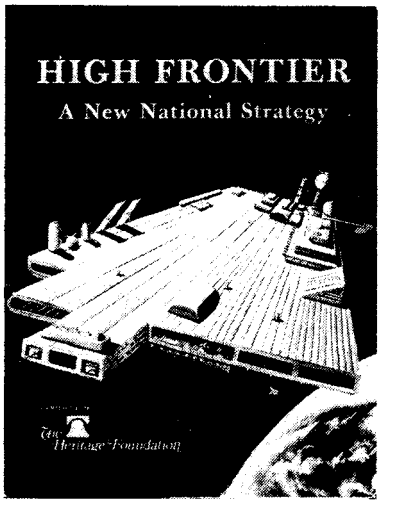


# Gen. Graham's 'High Frontier' of obsolescence

by Robert Gallagher

"High Frontier" is a revival of a 25-year old design for a space-based anti-ballistic missile defense, the Defense Advanced Research Projects Agency's (DARPA) 1958-64 Project Defender program, which proposed satellites armed with small rockets that would kill intercontinental ballistic missiles (ICBMs) with sprays of small pellets.

Unlike weapons using laser or particle beams, High Frontier's space rockets would not be able to travel fast enough to reliably intercept ballistic missiles in their boost phase. Thus a real defense of U.S. industry and population would be impossible in case of war—as High Frontier admits. The doctrine of deterrence or Mutually Assured Destruction (MAD), which Gen. Graham purports to oppose, would thus in fact be retained.

High Frontier space rockets would lumber so slowly that only 50 percent of their intercepts could occur during the critical boost phase of the trajectory of their ballistic missile targets. After the boost phase, which lasts only 200 seconds, the missile begins to disperse its multiple warheads, multiplying the number of targets. The missile's rocket engines turn off, making detection and tracking with High Frontier technology more difficult. Graham admits that his system would be vulnerable to Soviet ground-based or space-based directed-energy weapons.

The High Frontier Global Ballistic Missile Defense (GBMD) system would consist of hundreds of satellite "trucks," each armed with 40-45 small rockets, in circular orbit 300 nautical miles above the earth. Because of the long flight time to target, the trucks would have to guide the armed carrier vehicles to their intercept points. In a hypothetical engagement, a rocket would approach an ICBM and release its warhead that would home in on the target and spray pellets at the ICBM. This approach originated and was first tested against Titan I boosters under Project Defender.

High Frontier's proposal for point defense of silos by firings of swarms of 10,000 ten- to fifteen-inch-long projectiles is also drawn from the obsolete Project Defender system.

Counterposed to Graham's High Frontier are the proposals circulated separately by Lyndon H. LaRouche, Jr. and Dr. Edward Teller, for development of anti-ballistic missile (ABM) systems based on directed-energy beam technologies. LaRouche stated that effective nuclear defense must be based on directed-energy technologies in order to confer the advantage in war-fighting upon the defense, over offensive ballistic missiles. Directed-energy beams have this advantage, since they deliver their destructive power at the speed of light. If a beam weapon system can "see" its missile target, the target is dead.

Yet General Graham opposes these beam technologies, and has argued for negligible funding for their research and development. He admits in the foreword to *High Frontier: A New National Strategy* that his proposal "*may not be the best technical option available to us* [emphasis in original]." He states that he knew directed-energy beam weapons were both technically possible and superior, and opted against them anyway: "Although I was convinced that spaceborne defenses, perhaps using beam weapon technology (lasers, etc.) are feasible, I was unable to conceptualize a system which could stand up to doubters." Another High Frontier official explained that they chose to abandon directed energy technologies because "there was no consensus in the scientific community that lasers could provide the basis of a system to deploy in six to seven years."

Working with the Heritage Foundation, Graham reduced his support of directed-energy weapons to a proposal for a meagre funding increase of $100 million a year for a limited research and development program. But within less than a year of the February 1981 issuance of the High Frontier proposal, President Reagan had already increased the defense directed energy technologies budget by more than that amount, though funding remains far below the "crash program" required to build these systems rapidly.