General Graham's High Frontier proposal could advance U.S. military strategy

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High Frontier, A New National Strategy
by Lt. General Daniel O. Graham, USA (Ret.)
Washington, D.C.: Heritage Foundation
175 pages $15.00

High Frontier, A New National Strategy calls for a crash program to develop space-based advanced technology in order to achieve an effective defense against nuclear-tipped ballistic missiles which simultaneously opens up a new frontier for general economic growth.

What makes this report one of the most important military-strategy proposals of the 1980s is that it links development of effective defense capabilities with advances in science and technology which are realized through real economic growth. A primary reason for the current economic and strategic crisis is that those who have dominated U.S. defense policy for the past two decades have insisted on decoupling economic and military power. These "post-industrial" pundits, who formulated the utopian concepts of limited nuclear warfare and mutual assured destruction (MAD), have premised their approach on the false assumption that no effective defense against nuclear-tipped missiles could ever be developed. General Graham's *High Frontier* goes a long way toward refuting these "cabinet-warfare" concepts.

But at the same time, in an apparent attempt to achieve some sort of compromise with these utopian policy factions, General Graham has permitted two decisive flaws to permeate his presentation: 1) failure to address the question of nuclear energy development and advanced scientific research; and 2) a fundamental underestimation of Soviet capabilities in precisely these two key areas.

The GBMD perspective

General Graham and his collaborators stated three major objectives in their *High Frontier* study:

- "Nullify the present and growing threat to the U.S. and its allies which is posed by Soviet military power."
- "Replace the dangerous doctrine of Mutual Assured Destruction (MAD) with a strategy of Assured Survival."
- "Provide both security and incentive for realizing the enormous industrial and commercial potential of space."

All this would be attained with a five-year federal government outlay of $24 billion, a cost less than that currently being projected for procuring an assured second-strike nuclear-retaliatory capability such as represented by the MX missile multiple-shelter program.

The centerpiece in this High Frontier perspective is the realization of a Global Ballistic Missile Defense (GBMD) system. This would be preceded by the deployment of a short-range, point ABM defense of U.S. missile silos, supplemented by civil defense; a manned low-earth-orbit space station; a space-based solar-power system; a high-performance spaceplane; improved space transportation; and general R&D on space industrial systems.

The GBMD, based on existing conventional technology, would be deployed within five years. This would then be supplemented and superseded by more advanced and versatile ballistic missile intercept systems based on advanced infrared sensing devices and eventually by earth- and space-based anti-missile laser systems within 10 to 12 years.

The Global Ballistic Missile Defense (GBMD) system, which is based on existing technology and is to be deployed within five years, would consist of 432 "truck" satelites placed in space orbits covering the entire world. Each truck would carry 40 to 45 self-propelled rocket interceptors called carrier vehicles (CV). In the first-generation GBMD, the CVs would be capable of intercepting either land- or sea-launched ballistic missiles in their booster stage of flight. With the addition of advanced target pointing and tracking systems, such as the infrared telescope now being tested on the Space Shuttle, and increased speed, the CVs would be capable of intercepting individual warheads at any point in their trajectory.

According to General Graham, the GBMD system would be supplemented by ground- and space-based-directed energy weapons, such as high-power lasers, in the 1990s.

In order to achieve its military goals, *The High Frontier* calls for coupling industrialization of space and high-technology R&D as the cornerstone of its defense policy. For example, General Graham details a program for improving the existing Space Shuttle to the point that the cost of material placed in orbit is lowered to less than $100 per pound. This development would provide the essential infrastructural in-

centive for full-scale space industrialization, while making the deployment of the GMBD system both economic and feasible.

The most significant aspect of this economic coupling is that it replaces incremental military R&D and procurement with a high-technology-centered policy. In this way the "rules of the game" are transformed by forcing military capabilities into a new sphere in which existing force imbalances are overcome through making old systems obsolete.

But what at first appears to be a small compromise by the *High Frontier* study with the environmentalist and solar energy forces develops into a crucial flaw when General Graham puts forward the premise that the Soviet Union is technologically inferior to the United States. This leads toward the adoption of a "quick-fix" solution which undermines both the near-term and long-term goals of the High Frontier project.

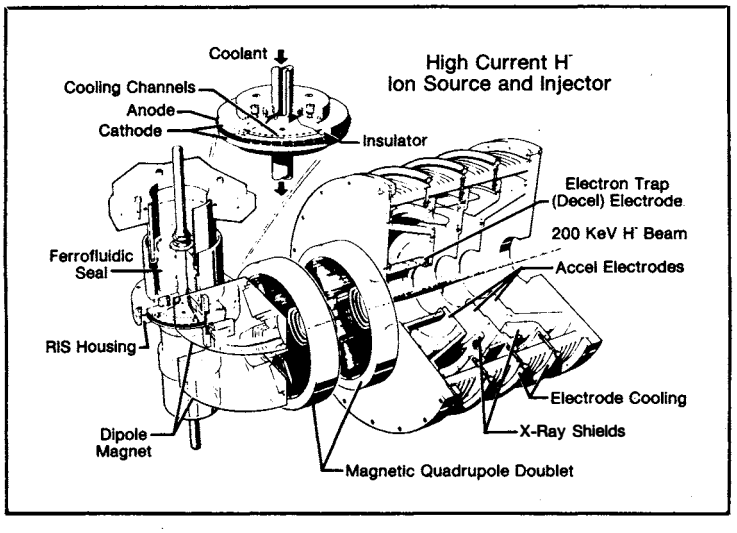
For example, orbiting solar power stations look good on paper; but from a military and economic standpoint only nuclear power and propulsion will work in fueling full-scale space industrialization. (Orbiting solar power stations make very large, soft targets from a defense standpoint.) Also, in terms of immediately realizing the economic "free energy" required for mounting the High Frontier project, nuclear energy here on earth is essential for reinvigorating U.S. industry. But most significantly, this little compromise undermines what should be the essential cutting edge of the High Frontier project—all-out development of advanced directed-energy weapons and technology.

In a soon-to-be-published report, Dr. Steven Bardwell of the Fusion Energy Foundation details a program for the near-term realization of an effective ABM system based on directed-energy weapons. The key to achieving this, as Bardwell specifies, is that directed-energy systems development must be pursued as part of a much broader science and technology program centered around fusion-energy R&D and advanced plasma-physics research. Furthermore, by applying the industrial spinoffs from such an effort as rapidly as possible and developing a crash program of nuclear fission-reactor construction, Dr. Bardwell shows that the United States can achieve the industrial base needed for both the move into space and technological superiority over the Soviet Union.

Ironically, the *High Frontier* study loses its most impelling argument by ignoring the fact that the U.S.S.R. has embedded its space-defense program in a much broader program of developing nuclear fission- and fusion-pulsed power technology—space-based fission reactors for both propulsion and energy supplies together with high-energy-dense plasma applications. By focusing on the "quick-fix" type of solution, *High Frontier* overlooks the fact that the Soviets are going for a complete scientific transformation of defense technology. In this way the Soviets will overcome in one giant leap the existing flaws in their military capabilities.

The Harrimanite factions in the U.S. Congress, typified by Sen. Edward Kennedy (D-Mass.), are currently deploying their full capabilities against any type of ABM system. Their strategy is based on keeping the pro-technology forces divided. Recently the House Armed Services Committee passed a resolution calling for delaying the DOD Triad laser-weapon demonstration project, which is based on existing chemical laser technology. The ostensible reason was to increase funding for the potentially more effective "short-wave-length" lasers which are currently at an experimental stage of development.

In this regard the *High Frontier* report provides an extremely useful framework from which to judge such policy decisions. The specific qualities of existing or near-term projections of particular laser weapons are of secondary or tertiary significance. The key question is how a particular defense policy is linked to actual industrial and economic development. Full-scale development of directed energy weapon prototypes will generate a scientific and technological framework in which both are more advanced systems and industrial spinoffs can be realized in the shortest period of time.



Aviation Week & Space Technology

At the Los Alamos federal laboratory, the Defense Advanced Research Projects Agency (DARPA) is developing a rotating ion source and injector which produces continuous-wave beams of negative hydrogen ions. The beams are used in neutral-particle-beam research, essential to developing beam weapons for antiballistic-missile defense.