The High Frontier ABM defense would not get off the ground

by Robert Gallagher

General Daniel Graham's High Frontier proposal for a space-based anti-ballistic missile (ABM) system is based on obsolete technology and a 25-year-old design.

High Frontier is a revival of the Defense Advanced Research Projects Agency's (DARPA) 1958-64 Project Defender program for a space-based ABM system composed of satellites armed with small rockets that would achieve kills of intercontinental ballistic missiles (ICBMs) with sprays of small pellets. In general, High Frontier's space rockets cannot travel fast enough to intercept ballistic missiles in their boost phase.

What is the significance of the promotion of an ABM system based on obsolete technology? Such a system can only bolster the doctrine of Mutually Assured Destruction (MAD) or deterrence, what General Graham intended to overthrow. The High Frontier proposal states that its purpose is to make a planned Soviet first strike on U.S. Minuteman and other ballistic missile silos "uncertain of success." Direct defense of U.S. industry and population is not its purpose. The regime of MAD and deterrence remains. Only a technology at least an order of magnitude in advance of ballistic missiles themselves can protect cities and overthrow the era of mutual thermonuclear terror.

Almost simultaneously with the release of Graham's proposal, Lyndon H. LaRouche Jr., chairman of the advisory board of the National Democratic Policy Committee and a director of the Fusion Energy Foundation (FEF), and Dr. Edward Teller separately proposed development of ABM systems based on directed-energy beam technologies. Dr. Teller made the recent breakthroughs in development of nuclear-explosive-pumped lasers, such as the x-ray laser, the technological basis for such a system. Mr. LaRouche stated as a matter of principle 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 from the fact that they deliver their destructive power at the speed of light. If a beam weapon system can "see" its missile target, the target is dead.

But General Graham proposed a system based on the same technology level as that used to build the ICBMs of the 1960s. The convergence of the Teller and LaRouche proposals provided the basis for President Reagan's historic March 23 call for "the scientists of this country, those who gave us nuclear weapons . . . to give us the means of rendering these nuclear weapons impotent and obsolete." This has absolutely nothing to do with High Frontier.

General Graham 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 originally preferred to base his system on directed-energy technologies, but was talked out of this conception by others:

> Early in 1981, I wrote an article titled "Toward a New U.S. Strategy: Bold Strokes Rather than Increments," which was published in the Spring issue of *Strategic Review*. This article laid out the basic concept of a spaceborne defense which would nullify the MAD [Mutually Assured Destruction] doctrine.
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> 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 told this writer that they chose to abandon directed-energy technologies for their near-term ABM design because "there was no consensus in the scientific community that lasers could provide the basis of a system to deploy in 6 to 7 years." This is the crux of the matter.

There was no consensus in the U.S. scientific community on the Manhattan project, the H-bomb program, the Air Force rocket program, the Apollo Project, etc. None of these projects would ever have gotten off the ground if that was the criterion. Gen. Graham knows that directed-energy technology would come with a "Manhattan Project" approach. But the general took his cue from a bunch of spineless

and timid academics.

At this time, Gen. Graham made the fatal error of working with the Heritage Foundation, rather than the Fusion Energy Foundation (FEF), in drawing up a plan for the ABM system he sought. The Heritage Foundation reduced Graham's commitment to directed-energy to a proposal within High Frontier for a meagre funding increase by $100 million a year for a limited research and development program. 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.

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. Following the boost phase, which lasts only 200 seconds, the missile's rocket engines turn off making detection and tracking with High Frontier technology more difficult. Soon into the post-boost phase, the missile bus begins to disperse its multiple warheads, multiplying the number of targets.

Graham also notes that his system would be completely vulnerable to Soviet ground-based or space-based directed-energy weapons. His solution to this vulnerability problem is to launch a U.S. missile attack in the event of a Soviet attack on U.S. satellites:

> In these circumstances, launch on warning or launch under attack become both credible and feasible options for the U.S.

The first-phase of the original High Frontier Global Ballistic Missile Defense (GBMD) system would consist of 432 satellites, or "trucks," armed with 40 to 45 small rocket "carrier vehicles" each, in circular orbit 300 nautical miles above the earth., for deployment in five years. The second phase—in ten years—is an additional, but upgraded layer of the first system.

Because of the long flight time to target, the trucks must guide the armed carrier vehicles to their intercept points. In a hypothetical engagement, a carrier vehicle would approach an ICBM in its boost or post-boost phase and release its "kill vehicle," which, High Frontier personnel report, would home on the target and release a spray of pellets at the ICBM skin, a mechanism of proven destructiveness. The HF document states:

> Kill is by non-nuclear impact at very high relative velocities similar to the intercepts planned with the Air Force's antisatellite miniature vehicle (MV) program and the Army's homing interceptor (HIT) vehicle.

These programs originated with Project Defender.

A memo written by a former official of the Project Defender staff and made available to *EIR* includes this discussion of tests of the proposed kill mechanism for the Project's Space Patrol Active Defense (SPAD):

> Between August, 1959 and July, 1960, DARPA and DDR&E (Director of Defense Research and Engineering) planners completely reoriented their thinking away from previously preferred in-space nuclear intercept concepts and cast their reference system in terms of a non-nuclear impact-kill interceptor. . . .
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> Pellet configurations and densities for use with both the spider-web warhead and with a second class of "shotgun cloud" warheads associated with a different class of on-orbit interceptors were tested against simulated Titan I second stages and Atlas sustainer stages and resulted in firm conclusions about pellet materials, densities, and packaging techniques.
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> Sensor and fire-control problems were viewed as considerable but solvable. . . . Infrared detectors, signal to noise and signal processing requirements for the infrared sensors looking at hot-burning ICBM targets were all viewed as solvable or off the shelf. . . .

High Frontier is Project Defender. Its proposal for point defense of silos by firings of swarms of 10,000 ten to fifteen inch-long projectiles is also drawn from the latter system, which may have been inspiring in its heyday 20 years ago, but is simply not the technology required for the 1980s.

A section of the High Frontier report titled "Intercept Geometry" documents this in describing a hypothetical "intercept of an SS-18 missile at the end of its boost from Tyuratam (a Soviet missile site) by a truck located over Saudi Arabia. Interception is indicated at about 350 seconds from truck deployment, corresponding to carrier vehicle deployment about 53 seconds prior to actual missile launch, when the truck is about 950 nautical miles ground range from the missile launch point. If the truck were to move along its trajectory for 50 seconds it could deploy carrier vehicles for final [ICBM] stage intercept in response to direct viewing of the missile launch."

According to a former member of the High Frontier staff, this elliptical paragraph means that a truck over Saudi Arabia could not intercept a missile fired from Tyuratum in the boost phase.

In public appearances, General Graham has been a vocal and somewhat effective opponent of Robert McNamara's doctrine of Mutually Assured Destruction. Literally one-half of the High Frontier film is devoted to an attack on MAD. He has been instrumental in inspiring Americans to overthrow that genocidal doctrine. He has pointed out the need for America to expand its space program and that the civilian economy can benefit from space industrialization. But his ABM proposal is absurd and he knows it. Now that the President has endorsed the strategy and technology that General Graham *originally* endorsed in 1981, Gen. Graham should dump the Heritage Foundation baggage and get on board.