

# High-energy beam weapons and French military policy options

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*In December 1982 and again in February 1983, the author had the opportunity for extensive discussions on beam weapons technology and the strategic and tactical consequences of the development of such technologies, with scientists and military personnel in France and, to a more limited extent, in West Germany. This article, to appear shortly in the French edition of Fusion magazine, the journal of the Fusion Energy Foundation, is an attempt to answer some of the questions posed to him on the military-strategic consequences for Western Europe, and France in particular, of the development and deployment of beam weapons for Ballistic Missile Defense (BMD). The article is printed here by permission of Fusion.*

According to U.S. intelligence officials, the Soviet Union two years ago tested a high-energy laser which successfully downed a ballistic missile. In 1981, reports—now amply confirmed—appeared in the United States open (unclassified) literature that an X-ray lasing device developed by Lawrence Livermore Laboratory in California had been tested successfully, providing proof of principle of this potentially most important Ballistic Missile Defense (BMD) technology. To some observers these may be distant and insignificant signals of a future weapons technology that may never become reality. However, at a time when the United States is spending \$300 million and possibly up to \$500 million on high-technology laser, particle-beam, and related technologies necessary for BMD applications, and when by conservative estimates Soviet spending in this area is 3 to 5 times as high (some U.S. weapon scientists have indicated as much as 10), it would be foolish, to say the least, not to take into account in one's medium- and long-term strategic planning the impact of new directed energy-based BMD systems.

The first, limited, ground-based such systems, bouncing a laser pulse off of an orbiting mirror several hundred kilometers high onto a target several thousand kilometers away, could become deployable as early as five to seven years from now. Their mission would be to defend against accidental launch of a small number of ICBMs, or "third country" launch—a missile attack by someone other than the United States or the U.S.S.R. Space-based systems capable of providing a reliable area defense of the United States or the Soviet Union against full-scale ballistic missile attack with thousands of launches could become reality in the middle to

late 1990s.

How does the advent of the type of BMD systems just sketched affect the French military-strategic posture and what would be an adequate French/European response? The following considerations are intended to outline a mode of attack on these questions and some preliminary answers. They should also serve to open the necessary public debate on BMD.

## I. Effects on French strategy

As reaffirmed to this writer in recent discussions with high-ranking present and former French military officials, French deterrence strategy against attack by the Soviet Union is based on two fundamental premises:

1) The deterrence value of the independent French nuclear forces against a limited Soviet conventional/nuclear attack in Europe. Clearly this depends on the assured capability of the French "dissuasion force" to penetrate Soviet defenses.

2) The reliability of the U.S. nuclear umbrella as deterrence against full-scale nuclear strategic attack, that is, the premise that, while the United States may or may not respond to a limited Soviet attack on Western Europe, in the case of a full-scale nuclear attack, the U.S. second-strike potential will be sufficient to inflict unacceptable damage on the U.S.S.R. and thus suffice to deter such an attack in the first place.

In this context, it should be pointed out that the present French nuclear strategic posture was designed by General de Gaulle at a time—in the early 1960s—when Soviet ability to respond to U.S. attacks with a devastating second strike on the United States did not exist, and the Soviet Union took Western Europe "nuclear hostage" as the second best thing.

The *force de frappe* was developed in response to this circumstance and in order to escape from the dilemma of complete French subservience to Soviet or U.S. policy goals. The patent asymmetry of the U.S. response to the Soviet threat to Berlin in 1961, when Washington backed down, and in Cuba in 1962, when the Soviet threat to the continental United States was repulsed, will have confirmed for de Gaulle the need for an independent French nuclear capability. However, contrary to frequently published U.S. as well as some French opinion, de Gaulle at no point regarded the French nuclear force as a substitute for the U.S. strategic nuclear umbrella, only as an indispensable complement.

The historical strategic context of the development of the *force de frappe* is stressed here because there exists the acute danger that rather than being viewed as an instrument of strategic policy, subject to changes in its makeup, mission, and overall significance, the *force de frappe* takes on the status of a sacred and venerated institution of the republic whose quintessential nature must not be disturbed at any cost. De Gaulle would have been the first to discern and warn against such a development. To put it bluntly: The development and likely relative near-term (five to seven years) deployment by the United States and the U.S.S.R. of directed energy beam BMD systems will undermine the two main pillars of French strategy and cast the present French nuclear force's in the role of a "nuclear Maginot Line," outflanked by a revolutionary new technology, and as pathetically irrelevant to the defense of France as its famous predecessor.

Reviewing the fate of the two principal premises of present French strategy listed above, successful Soviet deployment of even a limited laser or particle beam BMD capability would severely reduce the ability of the French dissuasion force to penetrate Soviet defenses and thus all but eliminate its deterrence value. A serious asymmetry in Soviet-French deterrence capability would ensue, leaving France with no option but falling back on total dependence on the U.S. strategic arsenal. Successful U.S. and Soviet deployment of full-scope BMD systems covering their territories, of course, would leave France totally vulnerable and with no retaliatory capability. In addition, under these circumstances, or even assuming that U.S. BMD could be extended to Western Europe, we would—in case of a Soviet attack—be "back to the cavalry", that is, a situation in which the relative strengths of conventional forces would be decisive.

## II. French strategic options

This writer has found that, at present, only a small minority among the French military and military-scientific establishment are willing to admit or face the possibility of, in the case of a limited system, the strong relative near-term probability of the development and deployment of anti-ballistic missile defenses by both superpowers. The suspicion here is that this is a case of denying that something is possible because it is considered highly undesirable. Other only marginally more astute responses met with included pointing to the 1972 ABM treaty as outlawing ballistic missile defense or a proposed rush into conventional buildup. Such responses are as inadequate as they are unimaginative.

The desirability of replacing the doctrine of Mutually Assured Destruction (MAD), which ever more clearly converges on actual assured destruction of Europe, the U.S.S.R., and the United States, by assured defense, shall not be reargued here (see page 18). In any case, real French strategic options exist which will make France a partner and beneficiary in the development of BMD systems and make the future of the country more secure than under present arrangements. These options shall now be put forward in the form of these

which are not intended to be the last word, but the opening round in the necessary strategy debate.

1) France now possesses the production facilities, technology, and qualified scientific manpower to make significant contribution to the development of directed energy beam weapon systems, including BMD applications. French capabilities in this area are broadly defined by the intersection of capabilities in the nuclear energy, aerospace, high-technology arms production, and controlled thermonuclear fusion sectors.

2) Significantly stepped-up French research and development efforts in the field of directed energy beam applications, including BMD, are justified and necessary as a minimal precondition for a) informed intelligence estimates, and b) a strategic say in future weapons development and deployment discussions. France must promptly enter into negotiations with West Germany on the one hand for a coordinated European effort, and with the United States on the other to map out most promising and mutually advantageous areas of collaboration.

3) Initial scaled-up R&D efforts should be directed toward a) participation in the development of a first generation, limited (point defense) high-energy ground-based laser BMD system; first missions of such a system would include defense against accidental ballistic missile launch and point defense of land-based ICBMs and IRBMs; and b) development of directed energy weapons for tactical applications, including anti-aircraft, ship defense, and anti-tank uses. Tactical defensive applications will acquire added significance as the move toward full-scope BMD simultaneously refocuses attention on the conventional battlefield.

4) A second-generation limited ground-based BMD system could not only secure missile silos against disarming first strike attack, but begin to defend a limited number (possibly hundreds) of additional high-value targets. Such development would begin to secure Western Europe—including West Germany—against Soviet attack and define a highly desirable alternative to Pershing II-type missiles as a counter to the Soviet SS-20 threat.

5) Along with participation in short- to medium-term efforts for limited BMD, France must enter into negotiations with the United States to define collaboration in the development of full-scope BMD. French scientific capabilities in the nuclear weapons and laser applications fields can usefully complement U.S. capabilities.

6) French-German collaboration in tactical battlefield applications as well as BMD applications of directed energy systems will have profound positive economic and political consequences. The economic benefits must be detailed elsewhere. Politically, providing West Germany with the opportunity to participate and have an active say in the development and deployment of a strategic weapons system crucial to its defense will go a long way toward undercutting present growing pacifist sentiment. A politically dependable and militarily defendable Germany is a crucial element of French security.