

- 2) **Advanced Development:** projects to develop new technologies, eventually leading to prototype demonstrations.
- a) *Hypervelocity Launcher Project (Electromagnetic Railgun):* the demonstration of a ground-based electromagnetic launcher is scheduled for the late 1980's. This "anti-missile gatling gun" will be designed to propel miniature projectiles to very high velocities and at very high rates of fire.
  - b) *Novel Concepts Project:* other kinetic energy weapon concepts that may offer advantages over existing concepts are being examined and tested. For instance, the GEDI concept involves the use of lasers to propel small projectiles to the very high velocities needed to destroy missile or warhead by impact alone.
- 3) **Systems Demonstrations:** involve projected demonstrations of a number of prototype, or pre-prototype, interceptors:
- a) *High-Altitude Endo-Atmospheric Defence Interceptor (HEDI):* HEDI, a large, long-range, ground-based rocket interceptor equipped with a heat-seeking, explosive warhead, is scheduled to be demonstrated by the end of the decade. It is designed to intercept re-entry vehicles (RVs) as soon as they enter the atmosphere. However, if an opponent deployed manoeuvring re-entry vehicles (MARVs), HEDI would require a nuclear warhead to ensure destruction of the target.
  - b) *Exo-Atmospheric Re-entry Vehicle Interception System (ERIS):* ERIS, scheduled for demonstration at the end of the decade, is a follow-on to the Homing Overlay Experiment (HOE). It will be equipped with a heat-seeking, hit-to-kill projectile which will intercept its target outside the atmosphere. In order to reduce the cost of defence relative to offense, development of a much smaller kill vehicle is required; this miniaturization will represent a major technological challenge.
  - c) *SLBM Boost Phase Engagements:* this project will demonstrate a sea-based or air-based system for intercepting submarine-launched ballistic missiles (SLBMs) during the boost phase.
  - d) *Space-Based Hypervelocity Launcher Development:* demonstration of a space-based electromagnetic launcher is scheduled for the early 1990's. The system, using hypervelocity miniature projectiles, will be applicable to both boost phase and mid-course phase defence.