extremely high exhaust velocity, the mass expelled is low and expulsion can be continued for a very long time. Such particle beam generators that can be loaded on board satellites have been developed for space warfare in the former USSR (at the von Ardenne laboratory in Soukhoumi, Georgia) and the United States, especially at the Argonne National Laboratory. At present, of course, these beams are much less powerful than what would be necessary here, but they are already of interest as low-power engines once out of the proximity of planets. The U.S. probe "Deep Space 1", which should narrowly miss asteroid 1992 KD on July 29, 1999, was equipped with an engine of this type.

Other methods of space propulsion are being studied very actively: nuclear propulsion using fission ("NERVA," "ORION," and "DAEDALUS" projects) and, more recently, fusion, which would offer respective gains of one and over two orders of magnitude in comparison with the best engines at present. Beyond this, the use of power stored in the form of antimatter - which has become credible since CERN [European Council for Nuclear Research] created an antihydrogen atom and demonstrated the means for storing it - will offer gains even one hundred times greater.

This is why a growing number of research centers are doing work on this subject: the Jet Propulsion Laboratory, Lawrence Livermore Laboratory, the Air Force Astronautical Laboratory (Edwards Air Force Base), where antigravitation is also being studied, according to the June 10, 1996 issue of *Jane's Defence Weekly*. The latter topic is reportedly also being pursued in Great Britain and in the CIS [Commonwealth of Independent States].

8.1.1.3 Use of Planetary or Stellar Impulse

Closer to our current technologies, even though, strictly speaking, it does not have to do with propulsion, the Jet Propulsion Laboratory imagined, in 1961, that a spacecraft slingshotting off the potential [gravity] wells of suitably selected planets could attain higher and higher speeds without expending any energy. This method is now routinely used for missions to the remote planets in our [solar] system. One can then envision that by using "reflections," not only by planets but also by stars, as Dyson proposed in 1963, considerable speeds could be attained (limited only by escape velocities) and interstellar distances could be crossed using relatively little energy at the price, of course, of the time necessary for the departure and arrival slingshots

This method would lead to interstellar voyage lengths probably figuring in thousands of years, thus with an order of magnitude greater than lengths anticipated for the envisioned antimatter propulsion.

8.1.1.4 Conclusion Regarding Travel

To sum up, for travel both in the atmosphere and in space, we can formulate reasonable hypotheses on flight without any apparent means of lift in the first case and on the crossing of great distances, up to an interstellar scale, in the second.

8.1.2 The Shutting Off of Land Vehicle Engines

To explain this phenomenon, which has been reported frequently abroad, it is necessary to consider a remote action. [Since] no beams of light appear to be associated with these engine , immobilizations we can imagine radio-frequency radiation, such as microwaves,