down the travel time to distant planets or during voyages far out of the solar system. While NASA and the Air Force are developing the thrust components of these nuclear electric propulsion systems, the development of their power sources, of course, comes under our SNAP Program.

On earth we human beings feel we are a pretty hardy breed, but, in terms of the other environments of the solar system, we are indeed fragile creatures. In terms of temperature, atmosphere, and our total chemical needs, we are bound to the surface of this planet. If we leave it, we must take a portion of our world with us, or we perish. Food, water, light, a certain range of temperature, protection from radiation, and communication with our fellow humans—all these are essential to our survival, and all these require an auxiliary supply of energy in addition to that needed for space propulsion. Therefore how far we stray from this planet, how long we stay away, and what we accomplish wherever we go will depend to a large degree on the amount of energy we can take with us and the ways in which we can put that energy to use.

Space nuclear auxiliary power (SNAP)

A primary aim of our SNAP program is to provide long-lived reliable electric power systems for those manned and unmanned spacecraft that will be entering the strange and hostile environment of space and remaining there for long periods of time—weeks, months, possibly years.

In addition to the need for these special sources of energy to support our deep-space scientific probes and manned missions, there is still another area of our space program with substantial energy requirements. I refer mainly to communications satellites, navigational satellites, and weather satellites, all of which have much to do with our future global comfort and progress. In all these areas—manned and unmanned space exploration and earth satellites—our SNAP program will solve many of our energy problems in space for some time to come.

At present we have two general categories of SNAP systems. The first is based on generating electricity from the heat naturally created by decaying radioisotopes. The second uses the heat from fission reactors to produce electricity. Currently both systems use thermo-