

but is capable of sustaining longer coast periods and it can be assembled, checked out, and launched from orbit. This version incorporating three S-IVC stages could deliver a 200,000-pound payload to Mars. A two-stack version could deliver the same payload to Venus. These systems, used for planetary flyby missions, could obtain a sufficient quantity and quality of data to permit a decision to be made relative to manned planetary landing missions. If the data thus obtained supports the feasibility of a manned planetary landing, and if the decision is made to support such a program, the transition to nuclear stage hardware will have to be undertaken. Meanwhile, merely by modifying existing hardware, it will be possible to accommodate the required missions leading to a planetary landing decision.

These then are the near-term future decisions that must be made: goals for civilian and scientific utilization of space must be established during the next 10 years, there must be definitions of the follow-on lunar exploration missions, the sequence of transportation improvements must be established, and the requirements for manned planetary exploration must be defined.

Concurrent to the problem of defining the goals for the immediate and near-term future are the additional problems inherent to the long-term decisions that must also be considered. At present, it is not necessary to commit hardware or to define specific long-range programs, but there is a very real need to commit Government and industry to the task of acquiring the advanced technologies that will have to be available in the future. At Douglas we are firmly convinced that there are five major elements which we can identify as keys to the future of our space program (fig. 53). There is urgency and need to commit ourselves to the task of acquiring the advanced technologies that will contribute to realization of these long-term building block capabilities.

## LONG TERM BUILDING BLOCKS (5 TO 20 YEARS)

- LONG DURATION ORBITAL EXPERIENCE
- REUSABLE SPACECRAFT
- REUSABLE LAUNCH VEHICLES
- NUCLEAR STAGES
- SECONDARY POWER

FIGURE 53