

Letters

Space Exploration Issues

The U.S. civil space program is being scrutinized by two presidentially appointed commissions. One is focusing on the low-temperature properties of the O-rings in the solid boosters as the probable cause of the Challenger explosion Jan. 28 (AW&ST Feb. 17, p. 21). The other, mandated by Congress, is the National Commission on Space (AW&ST Mar. 24, p. 26). It is visualizing futuristic, cost-is-no-object scenarios for the activities of NASA over the next fifty years.

I am struck by the fact that no corresponding consideration is being given to controversial, here-and-now issues of central importance to NASA's activities during the upcoming ten to fifteen years. These issues include:

- Nearly all of the important scientific results in space and the civil, commercial and military applications of space technology have been achieved with unmanned satellites and planetary spacecraft; but over two-thirds of the NASA budget is devoted to development and operation of the shuttle fleet and, prospectively, a huge, permanently manned space station. Is such a distribution of emphasis in the national interest?

- The principal near-term use of the shuttle fleet is for the launching of communications and military satellites. Such launches have been conducted successfully and at much less cost for many years by unmanned, expendable launch vehicles, with minimal risk to human life. However, NASA has discontinued the purchase of well-developed expendable launch vehicles, such as Atlas, Delta, Scout and Titan, in order to capture all available payloads for the shuttle in an attempt to make it an

economically viable system. Despite that policy, the shuttle program continues to wallow in an economic Catch-22. The shuttle is trapped between its own high costs and the impracticality of spreading its overhead among a large annual number of launches on the one hand, and the existence of European competition, in the form of Ariane, and prospective Japanese expendable vehicles on the other. The Defense Dept. is returning to primary dependence on expendable launch vehicles in recognition of the fragility and high costs of the shuttle system. Should NASA follow suit?

- The vaunted advantages of human crews in space vehicles, derived from a romantic vision of human space flight, have not been subjected to critical assessment. Are they immune to discussion?

- Manufacturing in space is one of the principal justifications that has been cited by President Reagan and others of like mind for development of a space station or a system of space stations. Yet, the cost of such developments is wildly incommensurate with the present state of knowledge of useful in-orbit manufacturing methods of specialized pharmaceuticals, crystals, etc. The basic research on such possibilities is still embryonic and can, insofar as it is promising, be profitably pursued in a shuttle or in a much more modest space laboratory as exemplified by Skylab in the 1970s or by the recently launched Soviet Mir. Why is the U.S. rejecting such a measured approach?

- Even before the Challenger accident, well-founded scientific and utilitarian uses of space technology were suffering severely because of NASA's overriding emphasis on manned flight. New missions are now at a standstill for an indefinite period. Meanwhile, Soviet, European and Japanese programs are going forward and continuing to erode U.S. leadership in the truly important fields of space exploration and research. Isn't this a matter of national concern?

These issues are, in my view, more worthy of high-level attention than those adopted by the National Commission on Space.

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