ment planners and some scientists, it is cited as a remedy for much of what ails French research; union officials tend to look upon it as a polite term for squeezing people out of jobs. However defined, mobility is shaping up as one of the key issues in the management of French research, and it is generally agreed that a great deal hinges on the government's ability to deal with this problem. In turn, the promotion of mobility is related to problems that extend far beyond the scientific community. It is not romantic affection for a particular patch of soil that makes people reluctant to move. Rather, there is still a desperate housing shortage in France, and being forced to move to a new location can turn out to be an extremely difficult experience. Also, since scientific salaries in France are relatively low, it is not uncommon for wives to work, and, as the head of one research group put it, "You know that if you tell a man that he has to leave, you're probably, in effect, telling him that his wife has to find a new job and that they have to find a new place to live. It's much easier to let him stay, even if you don't like his work."

While the closing years of the De Gaulle regime rang with concern over the "American challenge," it is the new government, free to come down from the concept of science and technology as instruments of national prestige, that is taking important steps to enlarge the economic payoff from the approximately $2.5 billion that government and industry currently spend on research and development. Thus, one of the first steps of the Pompidou government was to amalgamate the previously separate Ministry of Science and Ministry of Industry into a new Ministry for Industrial and Scientific Development. At the head of this was placed a member of that professional breed not particularly loved by scientists—an economist, François-Xavier Ortoli, who, at age 45, is an outstanding example of the apolitical, upward-moving technocrats who are becoming increasingly important in the governments of all industrialized nations. Despite his relative youth, Ortoli has served, during various administrations, as Minister of Finance, Minister of Public Works, Minister of Education, and Secretary to the Cabinet, and also, for 2 years, as head of the highly influential *Plan*, which prepares 5-year voluntary designs for national economic development. He is known to be efficient, industrious, and capa-

Task Force Presents Space Options

A presidential task force, headed by Vice President Spiro Agnew, last week said it "rejected a crash program" for a manned landing on Mars "for obvious budget reasons," but budget estimates indicate that two of the three possible timetables recommended by the task force do resemble an all-out Apollo-style effort. The task force, which set as a goal a manned Mars mission during this century, offered three options: accelerated programs with a manned Mars landing in 1983, or in 1986, or a more leisurely program with a manned Mars landing scheduled for some time after 1990. The task force also recommended a greater emphasis on NASA's science applications programs and recommended that unmanned planetary exploration be undertaken. The task force's report was presented to President Nixon, who is expected to make his recommendations soon to Congress on the future goals of the space program. Nixon has indicated that he is pleased with the task force's recommendations, and that he does not favor a crash program to put men on Mars.

At a White House press conference, Agnew indicated that selection of one of the three options would probably be highly dependent on budgetary and national priority considerations. The report stresses flexibility in the manned space program and states that "exploration of the planets should not assume overriding priority and cause sacrifice of other important activities in times of severe budget constraints." In presenting these options the task force indicated that many precursor activities (including detailed biomedical and physiological flights, unmanned reconnaissance of the planets, creation of reliable life-support systems, and a nuclear propulsion capability) would be required before any manned Mars mission could be attempted.

The U.S. is at present spending about $3.8 billion a year on civilian space programs and about $2 billion on military space programs. The first option, providing for a manned Mars landing in 1983, is the most expensive and accelerated of the proposals; the civilian space budget would rise next year to $4.2 billion, increase to $6.8 billion in fiscal 1974, and reach $9.4 billion in fiscal 1980. Administration officials estimate the total cost of the program through 1986 to be about $134 billion in current dollars. The decision on a Mars landing would be made in 1974. The second option, leading to a manned Mars landing in 1986, would allow space budgets to be contained below $7 billion annually until early 1980's, when they would reach peak expenditures of $8 billion annually. The decision on the Mars landing would be made in 1978. Administration officials estimate the total cost of this program through 1986 to be about $97 billion. The third option would defer a decision on Mars until after 1990 and cost significantly less in the first 11 years.

The report endorsed an integrated program that would provide an all-around capability for all types of space missions (*Science*, 5 September 1968). It said that orbiting space station modules and a space transportation system would be the "cornerstones" for any of the space program options. The space station modules, to be occupied by 50 to 100 men, would be available in the mid-1970's and would be a basic element of future manned activities in earth orbit and in expeditions to the moon and to the planets. A reusable space shuttle, a nuclear-powered rocket engine, and a space tug would also be needed. The report also calls for a balanced program of unmanned space missions with broad scientific applications. It recommends "progressively more sophisticated missions" to the near planets as well as multiple flyby missions to the outer planets, which would take advantage of a line-up of the outer planets in the late 1970's. It also recommends the application of space technology to human and environmental problems on earth, including air and ocean traffic control, worldwide navigation systems, environmental monitoring, weather and pollution prediction, surveys of earth resources, and communications.—MARTI MUELLER