

Nuclear Rocket To Put Man on Mars Believed Long Way Off

By JOSEPH L. MYLER
 WASHINGTON (UPI) — The space experts say only atomic power can put men on Mars. If that is the case, the first manned expedition to search for life on the Red Planet appears to be at least 20 years away. Some years ago officials of the Atomic Energy Commission and the National Aeronautics and Space Administration (NASA) were hoping a nuclear rocket would be ready for testing in 1965. Now they talk of 1970 or 1972 as the first flight test date—and they concede this is an optimistic forecast. Even if this schedule is met, spaceworthy A-powered rockets won't be ready for deep space missions before the 1978-1983 period, the experts say.

As of last June 30 the AEC and NASA had spent \$430 million on Project Rover, the joint enterprise to develop an atom-powered rocket for exploration of the solar system beyond the moon. Through the current fiscal year, which started July 1, Rover spending is expected to add up to \$847.4 million. **Could Reach \$2 Billion** By the time the first nuclear rocket has proved itself in flight, the cost may reach \$2 billion, approximately what it took to develop the first atomic bomb. By that time, with luck, the first Americans will have landed on the moon and returned with samples. They will have made the round trip on chemical rocket power. **Chemical energy is good enough for moon trips.** But for flights as far as Mars and back, engineers want the fantastically greater power provided by the splitting atom. If the rockets were ready, 1973 would be a good year—for astronomical reasons—to try for Mars. Other less favorable opportunities will present themselves in 1975 and 1981. But the chances of having nuclear rockets at their disposal in the next 15 to 20 years are so uncertain that the space planners are now resigned to putting off manned trips to Mars until after 1981. Until Nov. 30, 1962, the nuclear rocket people were confident that they could fly a test model, if not by 1965, at least by 1966 or 1967. **Get Strange Results** But in a test of a flightless version of the atomic rocket engine in Nevada last November some strange things happened that the designers had not anticipated. The reactor core, as a result of unexpected vibrations, began to break up and spit out parts of itself in a short-lived exhibition of fancy fireworks. As a result, the whole business had to be redesigned, and it may be 1965 or early 1966 before further ground testing of a rocket reactor can be undertaken. After that will come the long and difficult task of putting the hardware together for a flight test in 1970 or 1972. It will take nearly a decade longer to perfect man-carrying atomic rockets. People familiar with other fields of atomic research and development are not surprised that Rover has run into trouble. The atom is by nature mean and dangerous. In the case of the nuclear

rocket, the engineers are demanding something that can operate reliably at extremes ranging from about 430 degrees below zero—the temperature of the liquid hydrogen propellant—to 6,000 degrees above zero, the temperature of the reactor fuel core. It must be able to make this transition in a matter of seconds, shut down for a brief coasting period, and then start up again in the near vacuum of space. The designers expect to test 40 to 50 flightless reactors before they are ready to build an actual rocket engine. So far they have ground-tested six reactors. If they have run into trouble already, they expect more trouble in the future. But they intend to keep plugging, because the long future of space exploration depends on their success. As of July 1, 1963, some 700 persons, exclusive of construction workers, were employed at the Nevada nuclear rocket test grounds. By Jan. 1, 1967, this number is expected to grow to 2,700. Old atomic hands in Congress hope the project won't run out of steam before it achieves results. They recall the old program to develop nuclear engines for aircraft which theoretically would be able to fly hundreds of times around the earth without refueling. By the time the nuclear air-

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Grange News

Gold Hill
 GOLD HILL — During the lecturer's hour at the Nov. 21 meeting of Gold Hill Grange, Mrs. Willie McLean presented a reading of the Pilgrim Fathers. She told the difference of the modern version of Thanksgiving as we think of it today as compared to that first Thanksgiving Day, when the Pilgrims almost starving, shared a handful of dried corn, berries and venison with the friendly Indians. A tableau was presented relative to Thanksgiving depicting the Four Freedoms. Freedom from Want was portrayed by Master Herman Kamping, his wife, and family; Freedom from Fear, by Ferd Jones, the doctor, and Allan Kamping, as the child, with Mr. and Mrs. Walter Scott, the parents; Freedom of Speech by Joe Thomas, and Freedom of Religion by Mr. and Mrs. Charles Stripling with their Bibles.

Mrs. Nora Wait, chaplain gave a Thanksgiving prayer. Those present participated in the program by telling for what they were thankful. The entertainment was concluded with a game "The Wish Bone Race." Refreshments were served in the dining room at which time songs of blessings were sung. Hosts were Mr. and Mrs. S. M. Christensen and Mr. and Mrs. Sam Jones. Arthur Gascon received the first and second degrees. There was only one officer absent. The next regular meeting of Gold Hill Grange will be Thursday, Dec. 5 at 8 p. m. During the recent Booster Night, little Jimmie Martin recited the 23rd Psalm from memory as his brother, Kenneth Martin portrayed the shepherd boy during a tableau, Mrs. McLean said.

Republicans Urge Civil Rights Bill

WASHINGTON (UPI) — Seven House Republicans today issued a plea for passage of the civil rights bill, saying it was needed to "conquer the forces of hate" loose in the nation. All members of the House Judiciary Committee, the Republicans said the bill was not a cure-all for the nation's "ills" but they said it would eliminate "many of the worst manifestations of racial prejudice." The GOP members issued their own argument to follow up on the main majority and minority reports on the bill published several weeks ago. The seven lawmakers were: William M. McCulloch, Ohio; John V. Lindsay, N.Y.; Clark MacGregor, Minn.; Charles McC. Mathias Jr., Md.; William T. Cahill, N.J.; James E. Bromwell, Iowa, and Garner E. Shriver, Kan. Their report came as backers of the civil rights bill were trying to force the Southern-led House Rules Committee to clear the measure for action. However, this was not expected to happen before early January.

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