

SPACE

Goldwater vs. Moon Shot

Senator Barry Goldwater criticizes the civilian moon-shot program as useless towards development of the military space weapons system he advocates—By Walter Wingo

► WOULD SENATOR BARRY GOLDWATER, if elected President, scuttle the project to put Americans on the moon?

The question arose in many minds when the Arizona Senator, in accepting the Republican Presidential nomination, stated that there are goals "far more meaningful than a moon shot."

Senator Goldwater has never held much stock in the National Aeronautics and Space Administration's all-out effort to put men on the moon in this decade.

On the other hand he has strongly backed efforts to put men in space as soon as possible for military purposes.

"I think that eventually getting to the moon is a desirable thing," Senator Goldwater has said, "but I think we are playing a very dangerous game if we try to get there before we develop any military uses for space."

The Senator, a major general in the Air Force Reserves, said he has encountered little enthusiasm in the Pentagon for developing military uses of space. He compares this with the attitude of those who doubted the potential of bombers before World War II.

Senator Goldwater has long complained that whereas the "moon-struck Administration" has launched dozens of satellites, achieving magnificent feats in space exploration and communications, it has not developed a single military space weapons system.

He takes issue with the contention that civilian space programs, such as the Apollo moon project, are providing the military with much it can use.

For one thing, he says, our main civilian effort is directed toward techniques for linking spacecraft orbiting around the moon. But our main need for a military program would require earth orbit techniques.

The civilian program also fails to emphasize the extremely fast reaction times—in maintenance, launching, tracking and re-entry—that would be needed in military space equipment.

Further, he argues, the civilian manned systems are on a "single-mission track"—a voyage to the moon. A military program, he says, would require a "multi-mission track."

The moon-shot controversy could become a hot campaign issue. President Johnson has

staunchly backed the Apollo mission since his days as a Senator.

When asked once how he felt about the program of sending a man to the moon, Senator Goldwater replied: "If I could pick the man, I would be all for it."

The civilian program, the Senator complains, demands very little maneuvering in space, whereas military spacecraft would demand great flexibility.

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SPACE TECHNOLOGY

Plan Space Laboratory

► MAN MAY NOT be living on the moon by 1969, but he may be 200 miles above the earth on a space station equipped with parking facilities and running water.

The Manned Orbital Research Laboratory (MORL) could be used to study man's ability to live in space for long periods of time at relatively low cost.

MORL, which six astronauts would call home for about 18 months, is a necessary step toward achieving interplanetary space travel, researchers pointed out at the annual meeting of the American Institute of Aeronautics and Astronautics in Washington, D. C.

This version of MORL, presented in a paper by E. W. Bonnett, K. G. Englar and J. C. Moule, all of the Missile and Space Systems Division, Douglas Aircraft Company, Santa Monica, Calif., envisions a laboratory 21½ feet in diameter, to be launched, unmanned, atop a Saturn IB launch vehicle.

A two-man Gemini ferry vehicle would then rendezvous with the space laboratory and begin initial operation of the laboratory functions.

In a week's time the six-man crew would have the MORL in full operation as additional manned landings would be made on

AERONAUTICS

Helicopter With Jet Engine Given Wings

► A RESEARCH HELICOPTER, which has already had jets added to it, will soon sprout wings like a conventional airplane.

The UH-2 helicopter, produced by Kaman Aircraft Corporation, Bloomfield, Conn., is being given wings under a contract from the U. S. Army Transportation Research Command, Fort Eustis, Va.

The purpose is to gain information about fast, maneuverable, vertical take-off aircraft.

The helicopter, augmented with its General Electric J-85 jet engine, has repeatedly achieved speeds over 200 miles per hour. Possible speed is estimated at over 250 miles per hour.

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the space station. The crew would receive supplies periodically from the earth during the mission in space.

All visiting vehicles would be "parked" alongside the laboratory and would be available for returning to earth at any time. The laboratory could house five visiting vehicles simultaneously.

A docking hangar, located in the nose of the laboratory, would permit transfer of crew and cargo in a pressurized atmosphere. The hangar could also be used for maintenance and repair of the ferry spacecraft.

A centrifuge, a machine used to simulate gravitational effects, would be a major experimental tool of this MORL. It would weigh 300 pounds and would be capable of holding two men to evaluate the effects of periodic exposure to gravity forces.

The centrifuge would form a natural division of the laboratory into two tiers. The upper tier would be the living and recreation area, while the lower tier would be the operational and experimental area.

Solar cells in the MORL would provide electrical power.

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