

AERONAUTICS

Flight to Moon 90% Reality

Present knowledge is almost enough to make unmanned flights a reality. The ICBM is one big step toward space conquest.

► MAN COULD undertake 90% of his space travel dreams for unmanned flights with the techniques already under development, an Air Force general told a special symposium on space travel in San Diego.

The prediction was made by Maj. Gen. Bernard A. Schriever, commander, Western Development Division of Headquarters of the Air Research and Development Command, who discussed the intercontinental ballistic missile (ICBM) as a step toward space conquest.

In one of the first official discussions of the heretofore ultra-secret Government work on the ICBM, Gen. Schriever said that the same guidance system that enables the warhead of a ballistic missile, already tested successfully in the X-17, to reach its target within a permissible accuracy would also be sufficiently accurate to hit a target much smaller than the size of the moon, even at that increased range.

In predicting that the work being done on the ICBM will have important follow projects, the Air Force commander predicted, "I would be willing to venture a guess that 90% of the unmanned follow-on projects that one could visualize for the future could be undertaken with propulsive guidance, and structural techniques, presently under development in the Air Force Ballistic Missile program."

Gen. Schriever also looked ahead to say that it will not be too difficult to carry the program a step further and build surface-to-surface missiles designed to carry mail or freight.

He cautioned that there is still much to be overcome before the advent of manned flights in space. He also warned that "in the long haul our safety as a nation may depend on our achieving 'space superiority.'"

Several decades from now, Gen. Schriever said, the important battles may not be sea battles or air battles, but space battles.

Concluding on an optimistic note in man's battle to conquer outer space, Gen. Schriever noted that in the next 20 years we may be able to "fill nearly all of the gaps in our knowledge which are now holding back the design of manned spacecraft."

Leading military, industrial and university experts in astronautics and related sciences attending the first space travel symposium to be held in the United States, which is jointly sponsored by the Air Force and Convair Division of General Dynamics Corporation, have seriously considered space travel and the problems to be met before it becomes a reality.

Not long ago it was mainly children and

science fiction fans who accepted interplanetary travel without question. Now within a year, man will take a really big step toward the planets by hurling a man-made moonlet to circle the earth at fringes of the earth's atmosphere. This will be followed by others of the same, basket-ball size.

The next step, most scientists agree, is bigger and better small satellites. They will be launched higher and will carry more equipment. Of particular value would be a television camera so that earth-bound observers could see the planet and its cloud cover from outer space and the stars in outer space now hidden by the earth's atmosphere.

Whether the first rocket to be sent upward into space will circle the moon or Mars is a matter of debate among scientists. At the present time, however, it is only a theoretical argument, since even the most enthusiastic space advocates know the many problems, including that of navigation, to be solved before then.

One of these is the effect of space on man. No one knows whether man could survive beyond the protective blanket of the earth's atmosphere which cuts off much of the sun's radiation and powerful cosmic rays

that might be dangerous to him. Withstanding the forces of high acceleration needed to lift and maneuver an interplanetary ship is another problem, as are possible collisions with meteors and the weightlessness encountered without the force of gravity or centrifugal forces.

The Russians are known to be working on problems involved in space travel, and some scientists believe they are ahead of the U. S. in this field. The Soviet Union has also said its scientists will launch earth-circling satellites during the International Geophysical Year, but has not yet released any further details.

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BIOLOGY

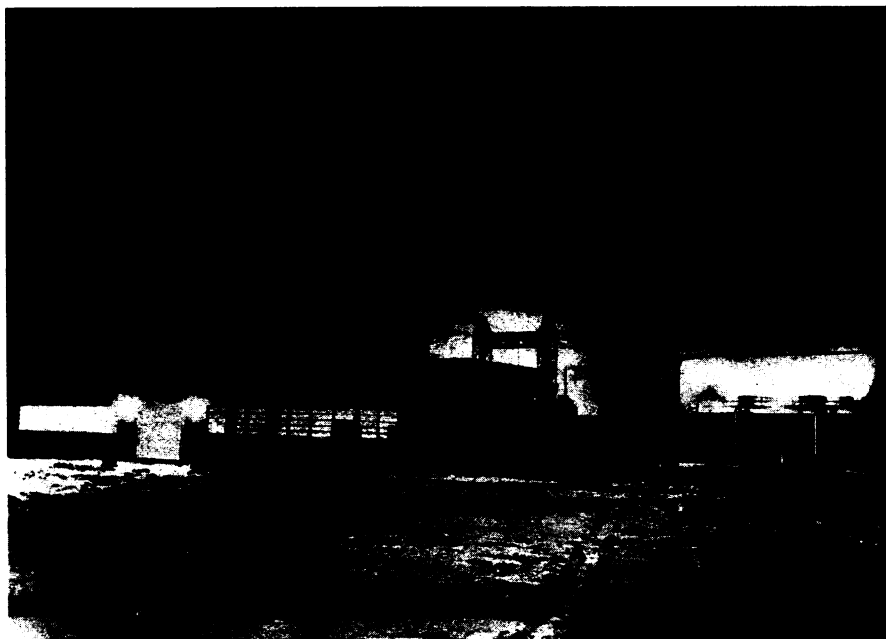
Old Squaw Duck In North Dakota

AN OLD squaw duck, never before reported in North Dakota, has been bagged.

Richard McKennett of Williston, 12-year-old nimrod, duck hunting near Appam, N. D., shot a duck that was unfamiliar to him. He placed it in the family freezer until he got a chance to turn it over to the local game warden, Trig Olsen. Mr. Olsen delivered it to Chuck Schroeder, waterfowl biologist, for positive identification.

Mr. Schroeder was surprised to find that it was an old squaw duck, common to the Atlantic and Pacific Coasts and the Great Lakes region during winter months. Old squaws are native to the far northern parts of Canada and Alaska.

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FIRST COMPLETED—The night operation of the experimental boiling water reactor, called EBWR for short, of the Argonne National Laboratory is shown at full power. It is the first of four Atomic Energy Commission power reactors to be completed (See SNL, Feb. 16, p. 109).