

## ASTRONAUTICS

# Pick First Space Men

Exceptional intelligence and physical fitness qualify seven test pilots for making the United States' first space flight when the time comes.

## See Front Cover

► A COMBINATION of exceptional intelligence and physical fitness has earned each of the seven Project Mercury Astronauts the chance to be the first United States man in space.

Although only one can be first, each of the six remaining men will later circle the earth in a space capsule.

Each man has a minimum I.Q. of 130, Brig. Gen. Donald D. Flickinger, surgeon and assistant deputy commander for research, Air Research and Development Command, said.

In addition, each man is a physical "Mr. America." Three are Air Force, three are Navy and one is a Marine pilot. Each has had 1,500 hours of flying time. They range in age from 32 to 37, and all are married and family men.

The men are married, probably, because they are all good looking, personable, intelligent young Americans that one would expect to be married at their ages, Dr. W. Randolph Lovelace II, director of the Lovelace Foundation for Medical Education and Research, Albuquerque, N. M., explained.

The men have undergone tests to determine their ability to survive emotional and physical stresses and combinations of these. Each of the volunteers is over the age of

30 because it takes years to acquire the technical knowledge in astronomy, navigation and the basic sciences plus experience required for this first manned space flight, Capt. Norman Lee Barr, director of the Astronautical Division, Navy Bureau of Medicine and Surgery, said.

The space man's physical examination was by no means limited to such familiar measurements as those of pulse, blood pressure, chest X-ray, hearing and vision.

His intestines, sinuses, spine, stomach, esophagus, teeth and heart were also X-rayed. Moving pictures were taken of his heart. All sorts of laboratory tests were made on his blood, urine and excrement. Eyes, ears, heart, nerves and muscles were subjected to a large number of new tests and measurements.

Of prime importance in the selection process was the way the space candidate endured the kinds of stress he might encounter.

He was put on a tilt table and tipped up at queer angles for 25 minutes. He was taken to a simulated altitude of 65,000 feet in a partial pressure suit and kept there for an hour while measurements were made of his heart and breathing.

He was put in a dark, soundproof room for three hours to test how he would adapt to the hushed loneliness of outer space. He was subjected in a centrifuge to multiple

g's such as he might encounter in a space blast-off. He was put in a heat chamber at a temperature of 130 degrees Fahrenheit to see what would happen if atmospheric friction should heat the space capsule to hellish extents. Measurements were also made of his reactions to rotation, vibration, noise (especially to high frequency tones) and to plunging his feet suddenly into a tub of ice.

The candidate's personality and emotional soundness were evaluated by means of standard personality and psychological tests. Special aptitudes were tested with engineering, mechanical comprehension, mathematical reasoning and other special tests.

There was no passing or failing mark set for these tests. Rather, the evaluation of each man was based upon comparison of his performance with that of the others.

The first man will orbit the earth two or three times for a total of three to four and one-half hours. This will not occur until at least 1961, when chances for a safe return will be virtually certain.

The Project Mercury Astronauts shown on the cover of this week's SCIENCE NEWS LETTER are Lt. Cmdr. Walter M. Schirra, USN; Lt. Cmdr. Alan B. Shepard Jr., USN; Capt. Virgil I. Grissom, USAF; Capt. Donald K. Slayton, USAF; Lt. Col. John H. Glenn Jr., USMC; Lt. Malcolm S. Carpenter, USN; and Capt. Leroy G. Cooper Jr., USAF. Headquarters for their training will be at NASA Space Flight Activity, Langley Field, Va.

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## PSYCHOLOGY

### Mice Used to Study Stress Faced by Space Crews

► MICE HAVE been kept "in solitary" to study the "terror of loneliness" that space crews will have to face.

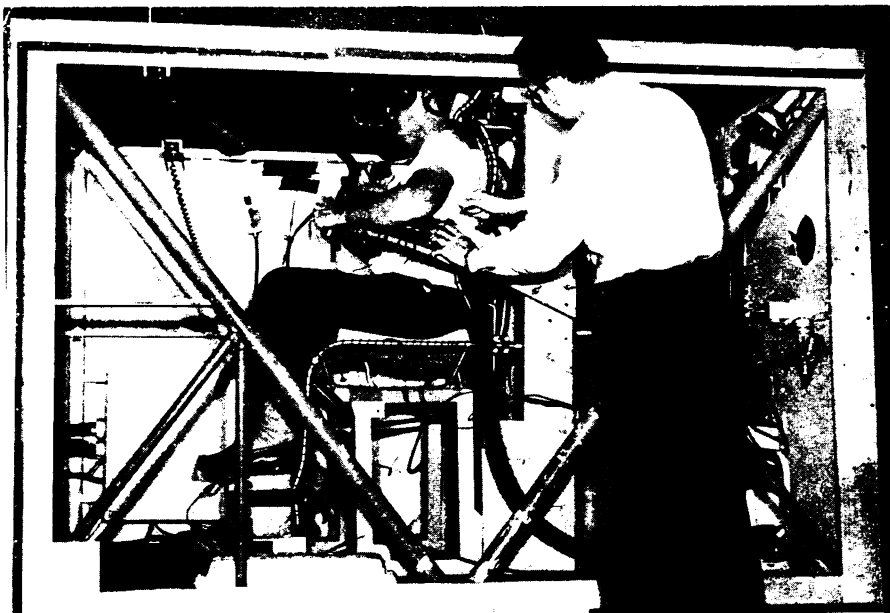
After several days the animals become very agitated and neurotic, Dr. T. C. Barnes of Hahnemann Medical College reported to the Eastern Psychological Association meeting in Atlantic City.

The tranquilizer drugs may help to counteract the damaging effects of solitude, but they do produce drowsiness. Thorazine suppressed 70% of the neurotic behavior in the mice, 90% of the convulsive movement and made 20% of the mice sleepy. Miltown suppressed only 11% of the neurotic behavior in mice, 42% of the epileptic behavior and caused sedation in 50%.

Three kinds of isolation that produce neurosis or psychosis in humans were described by Dr. Barnes. In the first kind there is a reduction of all kinds of signals to the senses, as when the individual is immersed in water at body temperature in a dark and soundproof tank. This kind of solitary confinement produces temporary psychosis in 36 hours.

In another type, all meaning is taken out of seeing and hearing by having the individual wear translucent goggles and by masking the sounds with noise. In the third kind there is an imposed structuring of the signals to the senses, as there is with a polio patient in an iron lung.

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**GRAVITY FORCES**—Marine Corps Lt. Col. John H. Glenn Jr. prepares to take a test to measure his abilities to cope with multiple gravity forces. He is attended by Dr. Evan Lindberg of the Wright Air Development Center, where the test was conducted in the Wright centrifuge.