

two of whom are shown, along with an airman in the background, on this week's cover.

The seven award winners, their home towns and their awards are as follows: William R. Eason, Longview, Texas, Aerospace Power Award; Robert E. Fischer, Forest Hills, N. Y., Photography and Optics Award; Mike F. Gorski, Indianapolis, Ind., Atmospheric Physics Award; James S. McAleer, Mobile, Ala., Aerospace Propulsion Award; Jay Sarajian, Huntington Valley, Pa., Electronics Award; Robert E. Strom, New York, Electronic Computer Award, and Baylor B. Triplett, Albuquerque, N. Mex., Materials Research Award. The two winners on the cover are James S. McAleer (right) and Jay Sarajian (left).

Two other winners, Robert Himes, Dayton, Aerospace Dynamics Award, and Christopher G. Cherniak, Eau Gallie, Fla., Biosciences Award, were unable to join the group.

When weightless, there is no such thing as right side up. Airmen at Wright-Patterson Air Force Base found this out when they walked the ceiling of a C-131 under free-fall conditions.

In these experiments, the crews wore magnetic sandals made by bolting permanent magnets to aluminum soles. Most surprising to the researchers was the fact that wherever the feet are is automatically

"down." One of the men walking on the ceiling later reported he was startled to see the pilot sitting "upside down." He also saw the men on the floor as upside down.

Men react differently to weightlessness. Some have the feeling of floating, others experience a falling sensation.

Still, this does not mean man is entirely powerless to move while weightless. While suspended experimentally in "space," men were able to move along by "swimming" as if they were in water. A person can also roll over and over by pulling his knees up under his chin and rotating his extended arms.

Another problem of weightlessness is that of providing food in suitable forms for men in free fall. The best answers found so far have been bite-size tablets made from such foods as chocolate malted milk, and cubes of beef or chicken puree paste than can be inserted singly into the mouth. Astronaut Glenn will have a supply of similar foods with him on his orbital trip for his space "lunch."

Liquids are a greater problem in weightless space. They can now be carried in plastic squeeze containers resembling toothpaste tubes. An astronaut merely inserts the open end into his mouth and squeezes to get a drink of water or his soup course for dinner.

• Science News Letter, 81:90 February 10, 1962

ASTRONOMY

Rare Grouping of Planets

➤ A RARE GROUPING of planets that was seen by only a few persons, yet had many talking about it, occurred Feb. 5.

The grouping was actually not a conjunction of the sun, moon and five brightest planets, although many called it that. However, on that day Mercury, Venus, the earth, Mars, Jupiter and Saturn, as well as the sun and the moon, were all located within 16 degrees of each other in the sky. This covers a region a little more than five times the distance between the two "pointer" stars of the Big Dipper.

Since the planets were all quite close to the sun, they were not visible except to those few who were in the path of the total eclipse which took place Feb. 4 in the Eastern Hemisphere and Feb. 5 in the Western Hemisphere. The path of totality, only 60 to 100 miles wide, swept across the Pacific Ocean, mostly across open ocean, from Borneo, ending several hundred miles west of Lower California.

Dr. Edgar W. Woolard, director of the U.S. Naval Observatory's Nautical Almanac Office, Washington, D. C., said the compact grouping had "virtually zero" effect on tides. The planets, he said, "do not produce" tides on earth, so it makes no difference what position they are in relative to earth, whether closely grouped or scattered across the heavens. Only the sun and moon produce tidal effects on earth.

Although astrologers attached great importance to this grouping, astronomers regard astrology as no more than a superstition. At the time of the grouping, the planets were in the direction of the constel-

lation of Capricornus, the horned goat, although they were in the astrological sign of Aquarius.

Thousands of years ago, the signs of the zodiac coincided with the constellations. However, because of the precession of the equinoxes, they have moved apart. The astrologers ignore this shift, which is one of many reasons why astronomers reject their teachings.

A Belgian astronomer, Dr. Jean Meeus of Kesselberg Observatory, found that there are historical records of two similar groupings some centuries ago, in September, 1186, and February, 1524, but that others have occurred. He computed all instances during the years from 1000 A.D. to 2400 A.D.

Taking 30 degrees of longitude as the largest extent of a compact grouping, and including the sun and the moon, he found 14 occurrences during this period. Three of these will follow the Feb. 5 grouping, the next being on May 5 in 2000 A.D.

Of all 14 events, only the Feb. 5 one occurred or will occur at the time of a total solar eclipse. Then, for observers within the moon's shadow, the sky around the sun was dark enough for the planets to be seen, weather permitting.

A number of planetary configurations combined to make this possible, Dr. Meeus reported in *Sky and Telescope*, 22:320, 1961.

Although Mars' passage by the sun occurred on Dec. 14, the planet was only 13 degrees to the west on Feb. 5. Slow-moving Jupiter was passed by the sun on Feb. 8, while Saturn passed the sun on Jan. 22.

• Science News Letter, 81:91 February 10, 1962

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