

SPACE

Slow Moon Landing Safer

► A PIONEER in the aerospace age, Dr. Theodore Von Karman, believes the rendezvous approach of joining spacecraft in space is less risky than the direct shot to the moon and planets.

He told SCIENCE SERVICE that by sending parts of spaceships or small spacecraft up to be joined into a larger one it will be possible to make "soft" slow speed landings on the moon. A fast hard direct landing on the moon or planets would be far more hazardous than a slower soft landing.

Other advantages of the rendezvous approach include going from one spaceship to another, and learning more about the moon's surface when orbiting the moon before landing. Theories on the surface conditions on the moon now suggest the possible presence of a dust layer from a few inches to more than a hundred feet in which man and craft might be buried.

Dr. Von Karman, in Los Angeles to attend the summer meeting of the Institute of the Aerospace Sciences, is presently the chairman of the North Atlantic Treaty Organization Advisory Group for Aeronautical Research and Development (AGARD) in Paris.

Dr. Von Karman said space cooperation between Russia and the United States is very important in the field of meteorology. Cooperation with USSR on ground meteorology has existed for many years.

The aerospace scientist also commented on the idea presented at the meeting of sending men on one-way trips to the moon. He said he definitely does not believe such a mission should be carried out. Two Bell Aerosystems Company scientists, presenting

the technical requirements of such a mission, stated that the state of the art is now advanced enough to send a man to the moon and keep him alive there until such a time that he can be brought back.

The scientists stated that the rocket to send a man on such a mission would need less power than those with return capability. A lunar mission capsule, weighing 2,190 pounds, and a series of cargo vehicles with 910 pounds of payload and the necessary life support, communications and power supply systems would be used by the astronaut to build a lunar base. The scientists said they believe this type of mission would give a two-and-a-half-year advantage over similar missions with return capability.

The merger of the Institute of Aerospace Sciences and the American Rocket Society, under discussion for several years, is being completed, Dr. Von Karman told SCIENCE SERVICE. He said the two organizations would unite under a new name not yet chosen and that the merger would mean great progress for both.

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TECHNOLOGY

Charge Out of Life May Be From Ions

► FEELING sluggish lately? You may be getting a charge out of life.

Charged air particles may significantly affect an astronaut in space or others under stress by increasing their efficiency or causing sluggishness, SCIENCE SERVICE was told.

Positive air ions, such as those produced

by fluorescent lights, increase the activity and ability of persons under mental or physical stress, while negative ions tend to have an opposite effect, Dr. Allan H. Frey, General Electric Company's Advanced Electronic Center, Ithaca, N.Y., explained at the American Society of Agricultural Engineers' meeting in Washington, D. C.

For two years Dr. Frey and his associates have been experimenting with human "guinea pigs" to learn how charged particles affect their reactions.

They found that humans are affected by ions only when they are subjected to stress, such as a pilot or astronaut or a person under test conditions.

Positive and negative ions were "pumped" into a room containing "grounded" humans. After being subjected to stresses, the subjects were examined for physical or mental effects caused by the charged particles.

For each type of stress tried, those subjects receiving positive ions increased their capabilities and productivity, those who were neutral stayed nearly constant, while those subjected to negative ions decreased.

Negative air ions have been used for several years to heal wounds and other infections. They have been studied for effectiveness against cancer and a number of other maladies, and in many cases put to use in man.

Dr. Frey's experiments indicate that the positive charges are the valuable ones, and widely-used negative air ions are perhaps harmful. If this positive effect proves great enough, positive ions could conceivably be pumped into an airplane cabin, space capsule or factory to increase the effectiveness of man under stress.

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SPACE

Chick Trip to Moon Proposed Before Man

► A MEMBER of the barnyard set may be the first visitor to the moon.

Scientists have developed germ-free chicks that could be used to detect the presence of lunar microscopic life long before man steps on the moon's surface. Dr. Joseph Pensack of American Cyanamid Company said that any potentially dangerous organism from outer space could then be studied without being introduced into our atmosphere.

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TECHNOLOGY

"Gas Laser" for Space Tracking Radars

► A PENCIL-THIN beam of invisible infrared light from what is called a "gas laser," shown to the left, will replace radio waves in space tracking radars. Sperry Rand made this new application of laser principle which makes possible a burning ray. Waves forty-millionths of an inch (11,530 angstroms) long are used. Instead of rubies or glass or other materials, a little bulb filled with mixed helium and neon gases accomplishes the "Light Amplification by Stimulated Emission of Radiation," hence the name laser.

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LASER FOR SPACE—A gas-filled electronic device that will greatly sharpen the accuracy of a new space tracking radar is fired up by an engineer at Sperry Rand's Electronic Tube Division laboratories in Great Neck, N.Y. Called a helium-neon laser, the tube fires from either end an intense and narrow beam of invisible infrared light.