

## SPACE

## Explains Glowing Particles

The glowing particles seen by Astronaut Glenn at each sunrise while he orbited the earth is believed by a NASA scientist to be snow crystals, Tove Neville reports.

► THE MYSTERIOUS glowing particles seen by Astronaut John H. Glenn Jr. may turn out to be snow crystals.

This at least is the opinion of Dr. John O'Keefe, assistant chief of the theoretical division at Goddard Space Flight Center, Greenbelt, Md.

Dr. O'Keefe told SCIENCE SERVICE that after talking to the astronaut he is certain the particles, which looked like fireflies, were associated with the capsule itself and not with any phenomenon in space.

Astronaut Glenn had reported that the particles moved along with the capsule at about the same speed. Dr. O'Keefe said that if capsule and particles were not related, they would move at very different speeds from each other.

The only possibility of the particles not originating from the capsule would be that Lt. Col. Glenn did not estimate the correct speed of the particles. However, Glenn had a very good look at the particles when he saw them in the capsule's shadow, at which time he determined their size to be from pinhead-size to three-eighths of an inch. At least some of the particles came very close to the capsule, Dr. O'Keefe said.

He believes they originate from the tens of pounds of water vapor coming out of the spacecraft's exhaust jets. This vapor contains finely divided solid particles, or mist. In time these particles would grow larger, provided the water vapor remains around the capsule.

Some of the water vapor condenses; the small particles get smaller, the large ones

larger. Some of the particles are charged and so is the water vapor, but with an opposite sign. This charge holds gas and particles together around the capsule.

Dr. O'Keefe said he had first thought the particles might be paint from the capsule because he understood the particles were very small. However, after talking to the astronaut, he realized the particles were too large to have been paint.

Dr. O'Keefe also commented on the luminous haze the astronaut saw above the horizon. Col. Glenn said the haze had a brownish color. This could mean that it is associated with red auroras, Dr. O'Keefe said. It is also possible the haze is related to the airglow phenomenon, a softly luminous light, seen at night, whose origin is not yet entirely explained by astronomers.

Another important observation by the astronaut was that of the setting sun. Astronaut Glenn said the sun looked quite normal until the very last moment before it disappeared. At this point, the sun seemed to spread out sidewise and flatten out until it was estimated to be only about one-tenth as high as wide.

Dr. O'Keefe explained that it was not until the last bit of the sun had disappeared behind the upper atmosphere that the astronaut observed it as flattening. Glenn was actually seeing the sun around the curve of the earth, since the atmosphere bends the sun's light rays. The phenomenon of the flattening sun can be observed from earth, but only to a slight degree.

• Science News Letter, 81:151 March 10, 1962

In response to an inquiry from SCIENCE SERVICE, a National Aeronautics and Space Administration psychologist said they had no information that cosmonaut Titov was hypnotized during his trip. He said it had been reported that Titov "told himself to go to sleep" as a method of inducing sleep. However, this is much different from hypnosis.

He also said that the space agency does not plan to use hypnosis on the U. S. astronauts. Besides there is really no need to use hypnosis on an astronaut. He functions better the clearer his mind is.

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## SPACE

## Experts Analyze Data Of Astronaut's Flight

► WITH THE SUCCESSFUL launch of Astronaut John H. Glenn Jr., a team of "hot-shot" space specialists working under National Aeronautics and Space Administration's Norman Smith began analyzing data from the United States manned ride into space and history.

From launch to recovery and every step of the way in between, these experts gathered every bit of data that accumulated on the vast electronic network set up to monitor the ride. It is their responsibility to digest and organize all the information into a full coordinated report that will help pave the way for the next large step into space. It takes about 10 days for this job to be completed.

Each of the 30 men works independently on his particular specialty.

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**GIANT BALLOONS** are actually transportable radar antennas developed by Westinghouse Corporation for the U.S. Air Force. Use of such antennas in space is under study.

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## Cosmonauts Hypnotized?

► RUSSIA may have trained the cosmonauts to go into hypnotic trance, like Indian yogis, to be able to stand the rigors of space travel. Yogis are practitioners of the mental discipline Yoga that requires concentrating attention exclusively on one object and trying to identify their consciousness with the object.

Dr. Hallack McCord, instructor of psychology at Colorado University, Boulder, reported this as one of his findings resulting from a poll of medical and psychological hypnotists throughout the world. The poll is part of a survey on possible uses of hypnosis in space medicine.

He said information from India indicated that Russia may have persuaded two yogis to go to the U.S.S.R. to teach the cosmonauts how to go into trances. He said there are indications that cosmonaut Gherman Titov was in a trance at

least for part of his space trip of more than 17 orbits around the earth.

The poll taken by Dr. McCord showed that experts questioned believe hypnosis would both help the space traveler to adjust better to his trip and make him more efficient at his job. For this reason it is likely that future cosmonauts will be hypnotized when going into space, he said.

Suggestions from the survey for the use of hypnosis in space medicine included: hallucinating the presence of a friend, thus reducing both loneliness and boredom; distorting the cosmonaut's time sense so that days will seem like mere hours; possibly increasing the individual's ability to withstand the effects of gravitational change; increasing the ability to do mathematics and other mental work; and training the flier to recall details of his mission in slow motion thus enhancing his memory.