

THE FIRST LUNAR EXPEDITION

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Pravda correspondent V. Smirnov asked academician A. P. Vinogradov, Vice-President of the Academy of Sciences of the USSR to comment on the landing of the first men on the Moon.

---- How would you evaluate the achievement of the crew of "Apollo-11"? What new problems can now be solved in comparison to previous manned flights to the Moon?

---- As a result of the flight of the American spacecraft "Apollo-11" two men, Neil Armstrong and Edwin Aldrin, first set foot on the surface of the Moon and we evaluate the flight very highly. The spacecraft and its numerous systems passed a serious test. We cannot help but admire the courage and endurance of the astronauts who bravely faced the unknown. They were the first to land on the surface of our natural satellite in a lunar spacecraft. A no less complex and new problem was that of the ascent of the lunar module from the Moon and the docking with the spacecraft which remained in orbit.

I would like to take this opportunity to congratulate the astronauts on their outstanding achievement and to wish them a safe return to Earth.

---- If you watched the television broadcast from the Moon when the astronauts stepped out onto the Lunar surface, what were your first impressions?

---- Yes, I watched the television broadcasts. For hundreds of years men have dreamed of flights to the planets, and of the day when man would first set foot on the Moon. And here we are witnesses to the fulfillment of that dream. Thanks to television one could watch as Armstrong set foot on the Moon. We could observe the two astronauts walking around on the lunar soil.

Many outstanding science-fiction writers have attempted to draw similar pictures. Recently I took part in the work of a commission of the Academy of Sciences of the USSR which reviewed proposals for naming various formations on the far side of the Moon. Among almost 500 new names, mainly in honor of scientists from various countries and astronauts, are the names of several science-fiction writers including Jules Verne and H. G. Wells. The commission decided to commemorate their names in the names of lunar formations. In this way we could pay tribute to the great dreams of mankind. But, as always, the truth is more exciting than fiction...

During the television broadcast I noticed that the "feet" of the lunar module did not sink into the soil. This indicates that the lunar soil is quite hard and firm. However, we expected this. Soviet and American unmanned spacecraft, which made soft landings on the Moon, provided an earlier opportunity to conclude that the lunar surface was solid.

--- The astronauts gathered samples of lunar rock and must return them to Earth. What does science expect to learn as a result of studying these rocks?

---- First of all, scientists can determine the characteristics and composition of the samples. Then they can compare the lunar rock with typical terrestrial rocks and also with meteoric material. In this way, they can understand how the rocks which lie on the Lunar surface were formed. They are either volcanic or some other kind of rock. Indications of the meteoric or volcanic origin of the material are easy to diagnose from the chemical composition.

We have an important opportunity to detect organic material of abiogenetic origin, i.e., arising from the carbon or other elements by interaction with cosmic radiation or ultraviolet solar radiation. Scientists are very interested in the determination of the natural radioactivity of the samples (uranium, thorium, potassium-40) and induced radiation, i.e., that formed by the influence of nuclear reaction by cosmic radiation.

Finally, a determination of the absolute and radiational age of the lunar rocks. The absolute age is the time elapsed since the moment when the Lunar core solidified. The radiational age helps to determine how long these rocks have been on the lunar surface.

All these data can cast new light on the origin of the Moon which has particularly great value for an understanding of how the planets in the solar system were formed.

In addition, the astronauts succeeded in setting up on the Moon scientific instruments to observe the lunar surface; in particular, a seismograph. It will probably help answer the question of tremors in the Moon's core. If these tremors can be detected then we can assume that tectonic and volcanic processes on the Moon have not abated, but are continuing. This would promise far-reaching conclusions. But we will have to wait a little while for these conclusions.

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