

**GEOPHYSICS**

**Earth Has Crown Of Invisible Light**

➤ **EARTH WEARS** a crown of invisible light.

It is an envelope of extremely faint luminous gas which apparently completely surrounds the globe at altitudes between about 180 and 600 miles. The invisible light can be seen only with special instruments.

The crown has now been demonstrated, Dr. Herbert Friedman of the Naval Research Laboratory, Washington, said, to be composed of hydrogen gas whose atoms scatter solar radiation in the so-called Lyman-alpha spectrum, a part of the invisible ultraviolet. It is not yet known whether this hydrogen comes from the earth's surface or is gathered from space, Dr. Friedman told a conference sponsored by the Office of Naval Research at the U.S. Naval Academy in Annapolis, Md.

As is the case of the solar corona relative to the sun's surface, Dr. Friedman said, the temperature of this gaseous envelope of the earth is very high when compared to the surface temperature, somewhere between 1,470 degrees and 3,810 degrees Fahrenheit. Investigations indicate that above an altitude of about 60 miles the hydrogen content of the atmosphere is about three million million atoms per square centimeter column reaching to the top of the atmosphere. This is very nearly a vacuum by surface standards.

In some of the latest rocket experiments, Dr. Friedman reported, records of the short wave ultraviolet radiations have been obtained over an altitude range from 210 to 730 miles. The test shows that the overhead brightness decreases quite rapidly with altitude, the intensity at 600 miles being about 80% of that at 180 miles.

This tends to indicate an earthly origin for the hydrogen. However, Dr. Friedman said, whether this terrestrially scattered component is a major fraction of the Lyman-alpha spectrum observed at night only can be ascertained by conducting experiments at still higher altitudes. One such experiment is planned for a future deep space probe with a Lyman-alpha telescope to scan the vicinity of the earth.

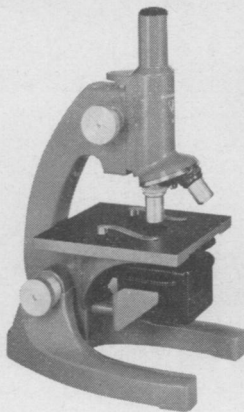
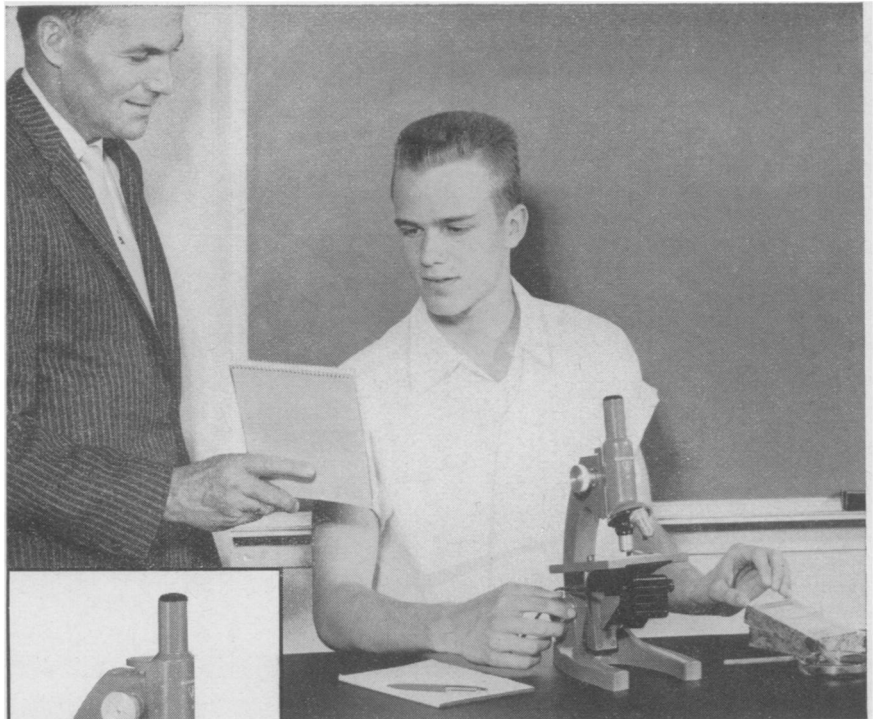
• Science News Letter, 79:303 May 13, 1961

**Questions**

**ASTRONAUTICS**—How large is the parachute on the Mercury space capsule? p. 290.

**BIOLOGY**—In what type of protein was a new amino acid found? p. 294.

*Photographs:* Cover, Lockheed Missiles and Space Division; p. 290, National Aeronautics and Space Administration; p. 291, North American Aviation, Inc.; p. 293, National Society for Crippled Children and Adults; p. 295, Oliver Corporation; p. 298, U. S. Forest Service; p. 304, Leslie Creations, Inc.



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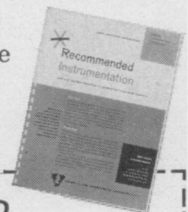
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