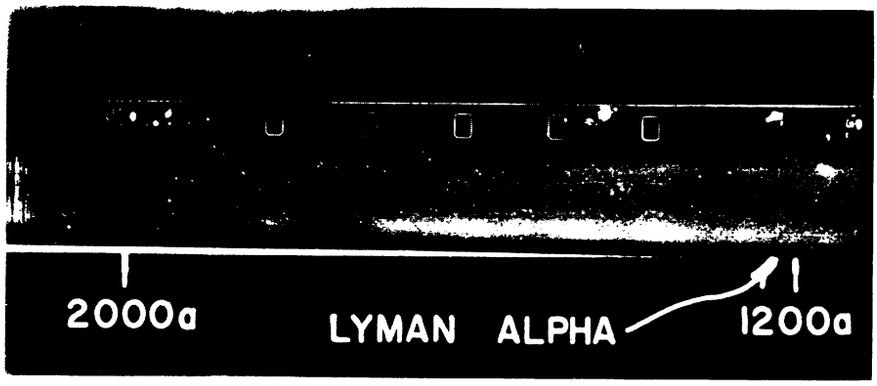


LYMAN HYDROGEN LINE—A picture of the spectrum of the far ultraviolet region of the sun's light. The light fell upon an aluminum-surfaced concave grating ruled with 15,240 lines per inch.

PHYSICS

Out-of-World Sun Photo

Make successful photograph of far ultraviolet region of sun's spectrum showing the Lyman hydrogen line. Spectrogram was made from rocket nearly 50 miles above the earth.

➤ ONE MORE step out of this world has been taken by photographing the Lyman series of spectroscopic lines of hydrogen in the sun.

At the meeting of the American Physical Society in Rochester, N. Y., Dr. William A. Rense of the University of Colorado reported on the intensity of this hydrogen line as photographed from a rocket nearly 50 miles above the earth's surface.

Fortunately, on the day of the rocket flight, solar activity was greater than usual, and radiation from hydrogen in the sun was unusually strong. Although hydrogen has long been known to exist in the sun, this is the first time that the Lyman series of hydrogen lines, which lie far in the ultraviolet portion of the sun's spectrum, have been photographed successfully.

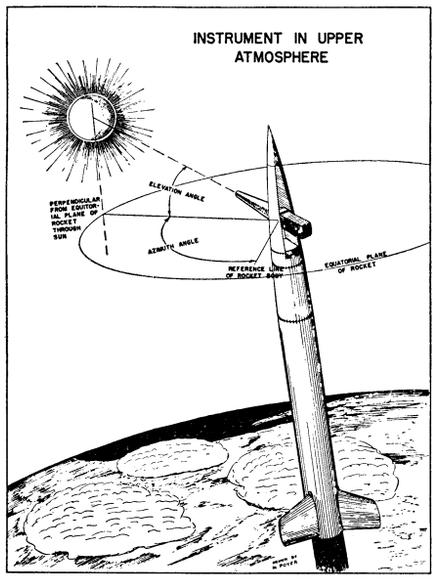
The ozone layer high in the earth's atmosphere to a great extent screens out the ultraviolet light from the sun, including that part of the spectrum where the Lyman series is found.

Successful photographs of these lines outside of the laboratory can only be obtained by getting the photographic plate above the ozone layer and holding it still long enough to get a clear picture.

The University of Colorado scientists accomplished this with their new apparatus in a rocket fired from Holloman Research and Development Center, New Mexico, on Dec. 12, 1952.

The spectographs were secured under the direction of Dr. W. B. Pietenpol, head of the University of Colorado's physics department. Wavelength of the Lyman line was computed to be about 1,215 Angstrom units.

A biaxial pointing mechanism was developed at the University of Colorado. The nose cone is made so it is free to rotate about the rocket axis. In response to solar radiation an array of photocells gives its information to a servomechanism, an elaborate electronic response network, and it catches the sun to give zero azimuth angle.



ROCKET IN FLIGHT—An artist's sketch of an Aerobee rocket showing how a "sun follower" operates to keep instrument correctly aligned to catch the sun's light.

The instrument proper is enclosed in the rocket body, as it could not withstand the huge aerodynamic forces as the rocket moves with enormous velocity through the atmosphere. At a predetermined time, when the rocket is high above most of the atmosphere, the stream-lined doors are jettisoned.

Then, in response to other photocells, a servodevice brings out the instrument to point at the sun with zero elevation angle. This is the first instrument of its kind to have been perfected.

Science News Letter, July 4, 1953

STATISTICS

Americans Marry Earlier Than Other West Nations

➤ ALMOST HALF of American men aged 20 to 24 and four-fifths of those aged 25 to 29 are or have been married, statisticians of the Metropolitan Life Insurance Company in New York point out.

More than two-thirds of American girls in the 20- to 24-year-old group and almost nine-tenths of those in the 25 to 29 age group are or have been married. At ages 15 to 19, almost 17% of "our girls" have married.

"Currently, prospects of early marriage are brighter in the United States than in any of the other Western countries for which data are available," the statisticians state.

Science News Letter, July 4, 1953

CHEMISTRY

Find Linoleic Acid Aids Radiation Protection

➤ WHETHER OR not you become a radiation casualty during an A-bomb attack may depend upon the delicate balance of a chemical in your body.

This is indicated in studies by Dr. James Mead and Barbara Polister of the University of California at Los Angeles Atomic Energy Project.

The chemical is linoleic acid, one of the most common of the fatty acids in the human body. It is found in every living tissue and is essential for growth and repair of tissue damage.

The study has suggested that a certain level of linoleic acid is necessary to protect animals from radiation damage. Amounts of the fatty acid above this level, however, seem to contribute to the destruction of vitamins and certain other essential tissue constituents during radiation exposure.

Last year it was reported by Dr. Mead that linoleic acid may produce a chain reaction when radiation strikes the body. His latest research indicates that vitamin destruction may be one of the links in the fatal chain, but that the reaction depends on the level of the key fatty acid in the body.

Science News Letter, July 4, 1953