

ASTRONOMY

Ultraviolet Window Admits One Wavelength to the Earth

American Astronomical Society Learns That These Rays Are Harmless; New Star's History Is Now Reported

ULTRAVIOLET LIGHT, at apparently full solar force, pours on to the earth without let or hindrance at one particular wavelength band, yet works no more mischief on us than do the other ultraviolet wavelengths that are partly curtailed off by gases in the earth's atmosphere, particularly the thin layer of ozone high above our heads.

This ultraviolet window, as it has been termed, has been studied by Dr. Orren Mohler of the Cook Observatory, Wynnewood, Pa., who reported at the meeting of the American Astronomical Society, in session as part of the Harvard Centenary Conference.

The ultraviolet radiation that thus breaks through a gap in the earth's defenses lies in the band between 2,000 and 2,300 Angstrom units—well out toward the shorter wavelength end of the invisible spectrum. Dr. Mohler conducted his studies with a special instrument called a photoelectric Geiger-Mueller counter working near sea level. A previous investigation had been made in Switzerland by a party of scientists who climbed up a lofty mountain to break through the ozone. Dr. Mohler's results, which yielded more complete data than those obtained by the Swiss party, have shown that such laborious effort and considerable expense are not necessary for the study of ultraviolet radiation.

New Star's History

Particulars regarding the "new" star, Nova Lacertae, which burst into celestial prominence last June 18, were reported for the first time, by astronomers who have spent the intervening weeks in their careful study.

The explosive outburst of this star threw off four distinct shells of glowing gases. Two of them travelled outward at a rate of 3,500 kilometers a second, and two others reached a maximum of well over 2,000 kilometers a second. The distance of the star is 2,600 light years. The parts of the star that give off visible light have temperatures of from seven to ten thousand degrees Centigrade, while its ultraviolet radiation in-

dicates an extreme temperature of 64,500 degrees.

Among the astronomers reporting on the nova were Drs. N. T. Borrovnikoff and J. A. Hynek of Perkins Observatory. Dr. D. B. McLaughlin of Michigan University, Dr. R. K. Marshall of the Mount Wilson Observatory and Drs. J. A. Pearce, C. S. Beals, R. M. Petrie and Andrew McKellar of the Dominion Astrophysical Observatory of Victoria, B.C.

Movie of Solar Events

Before the annual dinner meeting of the American Astronomical Society, motion pictures constituting the first continuous record of events on the sun were shown by Dr. Heber D. Curtis of the University of Michigan. These films, which were made in the new solar tower of the McMath-Hulbert Observatory at Lake Angelus, Mich., show such magnificent fireworks as vast solar flames leaping out more than one hundred thousand miles from the sun's surface at velocities of a hundred miles a second. "Roman candle" spurts 300 miles through the 1,000 miles long, and tremendous arches of luminous gases "playing leapfrog" with each other.

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ETHNOLOGY

Diary of Artist Becomes Good Scientific Document

A BALTIMORE artist, Frank Mayer, who roved among Indians of Minnesota back in 1851, has left to science an important record of Indian life in those days.

His three-volume diary, kept for his own reading, is pronounced one of the most valuable records written about American Indians, by no less an authority than Dr. Clark Wissler, anthropologist of the American Museum of Natural History. The yellowed pages came through the great Baltimore fire of 1904, and emerged charred and much damaged. Now, in the American Museum,

anthropologists have succeeded in deciphering the day-by-day account in one of the volumes.

When young Mayer journeyed west of the Alleghenies to sketch the people and the country, he found Minnesota Indians living in wild and unsettled territory. From pages so far deciphered, Dr. Wissler says:

"The author's description of daily life and the songs and dances of these people is extremely well told, as are the recordings of the songs which are translated phonetically."

Dr. Wissler finds especially interesting, an account in which Mayer told of peeping through a hole in an Indian tipi and observing mysterious ways of an Indian doctor of the Dacotah tribe treating an aged patient.

The diary, quoted here with some omissions, records the scene: "Grouped around a smouldering fire, their forms and features rendered indistinct by the light of a candle which they had borrowed from the neighboring house, the octogenarian mother-in-law of my host covered by a blanket. Her daughter, one of the handsomest of the Sioux women, was her attendant and sat at her side. Gray Leg (the doctor) sat opposite, smoking and chatting. A rattle made of a gourd with a few beads within and bowl apparently containing water was near him.

"He divested himself of his blanket and laid his pipe by his fan which served him in the heat of the day to remove flies and stir the sultry atmosphere, and taking the rattle in his hand, he began his incantations. Approaching the patient by degrees while singing his song, all the time using the rattle to a certain extent in harmony with the measure and sentiment of his song, now fast, now slow, now shaking it and now giving it a rotary motion. Standing up, he pronounced a short speech addressed to the intruding spirit and continued his rattling.

"The doctor applied his mouth and then his ear to the patient's ear and temple and, as though endeavoring to scare away the animal within, he imitated the bark and grunt of a dog or some animal in pursuit."

Whether this treatment was going to succeed, Mayer did not learn, for the patient was removed to more comfortable quarters at the interpreter's house.

So far as Dr. Wissler can learn, Mayer's diary has received scientific publication only when a portion appeared in a paper of the Minnesota Historical Society.

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