ASTRONOMY

Sun-Spectrum Lengthened

Radiations of the sun up to 65 miles above the earth's surface, past the ozone, were photographed by equipment carried in V-2 rocket.

➤ RADIATIONS from the sun, never seen before, have been photographed.

Much may be learned about the sun, our primary source of energy, because of photographs taken of the sun's spectrum by a camera carried high into the air by the V-2 rocket fired on Oct. 10. About 40 of these spectrograms, made at increasing altitudes up to 65 miles above the surface of the earth, are being studied at the Naval Research Laboratory in Washington, D. C.

The new lines in the sun's spectrum are being identified and their intensities calculated. Scientists estimate that a full year will be needed actually to analyze the data.

The spectrograph used to extend the sun's spectrum was mounted on a rocket fired at the Army's White Sands Proving Grounds in New Mexico. The Naval Test Unit and Army Ordnance Department at White Sands worked together in conducting these experiments.

As the rocket rose, the spectrograph operated continuously, producing a series of photographs at various altitudes up to 65 miles. Rotation of the rocket turned the spectrograph away from the sun above that height, so spectrograms could not be made.

The sunlight that reaches the earth is filtered by the ozone in the atmosphere, most of which is concentrated near the earth. Only a small proportion of the shorter wavelengths, those lying on the X-ray side of the visible spectrum, ever reaches the ground surface.

Since life on the earth's surface would almost certainly be destroyed by these shorter wavelengths in the solar radiation, it is quite fortunate that they are stopped by the ozone layer. But the blacking out of the lower end of the spectrum is tantalizing to the scientist.

In the past much has been learned about the sun from careful studies of the sun's spectrum obtained at the earth's surface. Helium, for instance, was discovered in this manner on the sun before it was found on the earth. These new spectrograms may give new clues to the nature and quantities of the various elements composing the sun.

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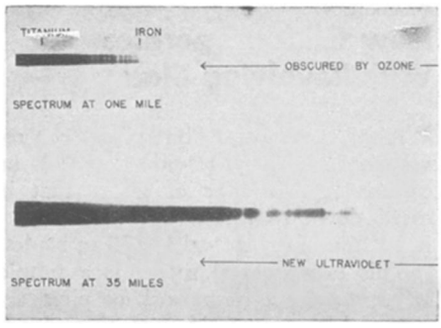

ABOVE THE OZONE—The sun's spectrum has been extended many Angstroms through photographs taken from the V-2 rocket. The spectrum of the sun taken 35 miles above the earth's surface is compared above with one photographed at one mile. Official U. S. Navy photo.

PSYCHIATRY

Democratizing Germans

➤ IF WE CAN teach the Germans that children are people, not puppets, and that presidents and other political rulers are also people, we shall have taken a big step toward weaning them from Nazism. That this can be accomplished was shown from results of the democratization program among German prisoners of war at Fort Getty, Rhode Island, reported to the National Committee for Mental Hygiene meeting in New York.

The prisoners in this first experiment of its kind learned to have more warmth in personal relationships. From that step, they came to a more human and less literal idea of public affairs, Dr. Richard M. Brickner, psychiatrist of New York, reported.

Before their indoctrination in democracy the typical prisoner took authoritarianism as a natural thing because he was used to it from childhood. The father was the tyrant who exercised authority for authority's sake and the son grew up anxious to be old enough to get even by bossing someone else. All the buried hostility toward fathers was vented upon this somebody else.

Talking to Germans about war guilt is like talking Sanskrit, Dr. Brickner said. They do not feel any guilt because the structure of German society is a hierarchy, where each man has a superior and an inferior. The weight of the guilt is distributed through the hierarchy which can absorb it like the beams of a building so it does not become too great for an individual to bear.

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GENERAL SCIENCE

Draft Almost Ruined War Science Projects

➤ THE MIRACLES of science that brought victory to America and her allies in the war came close to not happening at all, thanks to the almost incredible genius for "snafu" exercised under the misnamed Selective Service system. Local draft boards, blindly filling their quotas with all the men they could grab, regardless of their training and special values to the war effort, kept trying to send research men to camp to train as infantrymen. Top rank scientists in Washington had to spend hours and days of their valuable time fighting to get their helpers back again.

These disturbing facts are disclosed in *Scientists Against Time,* first official account of the work of the Office of Scientific Research and Development, by James Phinney Baxter 3rd, published by Little, Brown and Company.

Dr. Vannevar Bush, commander-in-chief of American research forces, wanted a National Service Act that would make the special training and talents of men available where they would do the country the most good. Instead, the Congress passed a Selective Service measure calculated to produce the most fox-hole diggers. That the OSRD was able to produce such war-winning devices as rockets, radar, amphibious vehicles, and finally the atom bomb can be credited to the persistence of scientific workers in the face of mismanagement.

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