

ASTRONOMY

Eclipse May Solve Riddle

► THE NEXT total eclipse of the sun, which occurs on Feb. 25, 1952, will last for slightly over three minutes at maximum and may furnish the proof needed to decide just how hot are various layers of the sun's envelope.

Astronomers using radio telescopes to listen to hisses from the sun and those minutely examining the sun's fanned-out light have gotten conflicting figures for the temperature of the sun's outer atmosphere, Dr. J. P. Hagen and Fred T. Haddock of the Naval Research Laboratory, and Dr. Walter Orr Roberts of the High Altitude Observatory of Boulder, Colo., told members of the International Scientific Radio Union and the Institute of Radio Engineers meeting in Ithaca, N. Y.

Both groups agree that the sun's tenuous corona, the outer envelope conspicuous at the time of a total solar eclipse, is about a million degrees Centigrade. The sun's spectrum shows that metals such as iron, nickel and silicon have been raised to such extremely high temperatures that they are stripped of about half their electrons. But one group finds the temperature of the chromosphere, situated just above the in-

tensely brilliant visible surface of the sun, three times that estimated by the other method.

Studies with radio telescopes indicate that the lower chromosphere is relatively cool, and that from there out to the tenuous corona the temperature rises rapidly. But optical data show great heat deep within the chromosphere, where the temperature reaches about 30,000 degrees Centigrade.

So the Naval Research Laboratory is planning an expedition to Khartoum, Anglo-Egyptian Sudan, to study the distribution of radio emission over the solar disk when the moon passes between us and the sun. They will take two radio telescopes with them. This eclipse expedition, third of its type, should be successful, rain or shine.

Simultaneously optical measurements of the sun will be made at Khartoum with a spectrograph made especially for this eclipse. With this instrument, the entire visible range of the spectrum will be photographed but in addition separate plates will record the red and violet ends of the spectrum in detail.

Science News Letter, October 20, 1951

GENERAL SCIENCE

Dispersal A-Bomb Answer

► EFFECTIVE DISPERSAL of American production plants could prove the decisive deterrent to an atomic bomb attack on the United States, the BULLETIN OF THE ATOMIC SCIENTISTS said editorially in its October issue.

"Apathy, scepticism, or outright opposition to all radical civil defense measures still prevails in Congress and the public mind," it was charged.

In a future war the whole country will be the battlefield, and everyone a direct target of attack, the statement argued.

"Civilian unpreparedness now invites attack not less than military disarmament,"

it was stated, "but realization of this is slow to come to a nation accustomed to identifying war with sending of troops to fight overseas."

In an article, Rep. Richard Bolling, D. Mo., warned:

"The forceful overthrow of the government of the United States is a very real and present possibility. It could happen this month or next or on any day that Congress is in session and the President and other top officials of government are at their desks.

"In one blinding flash, the American people could be deprived of their President and all of his legal successors in office."

Rep. Bolling urged dispersal of governmental offices to outlying suburbs of Washington.

Goodhue Livingston, Jr., planning commissioner of New York City, in another article, predicted that socialism would follow a concerted A-bomb attack on the United States unless adequate dispersal of industries cut down the cost of replacing our production plant. He pointed out that an overwhelming cost would have to be borne by the Federal government and stated that this would destroy free enterprise.

Science News Letter, October 20, 1951

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*See page 158, Feb. 1951 issue of *Mechanix Illustrated*, for spotting scope plans using this lens.

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