

# Radio Experimenters Will Observe Eclipse With Interest

## In Path of Totality Moon Will Block Flow of Atoms From Sun, Affecting Strength of Radio Signals

**R**ADIO as well as astronomy will benefit from observations of the total eclipse of August 31. Scores of astronomers will be within the narrow path of the moon's optical shadow that cuts across Canada and New England on the eclipse afternoon, and they will have a little more than a minute and a half for observations. Radio experimenters will observe a newly recognized sort of eclipse, a "corpuscular eclipse," caused by the moon interfering with a flow of atoms driven forth from the sun by the pressure of light. Instead of using telescopes, cameras or eyes, such as will be used to record the visible eclipse, the radio observers will measure for several hours the signal strength of radio transmissions.

Since the rise of radio the existence of layers of air in the earth's upper atmosphere that reflect radio waves and allow them to travel long distances has been recognized. Called Kennelly-Heavyside after the American and the Englishman who discovered it, the ionized or conducting layer was first recognized to exist about 60 miles up. It is born of radiation from the sun, as is proved by the changes that it undergoes with the cutting off of the sun's light at night and the coming of light in the morning. Until recently, the Kennelly-Heavyside layer was not suspected of being twins, but research in England and in this country has proved that there are really two layers, the original layer at an altitude of 60 miles and another layer at 120 miles.

There are two theories about the origin of the layers and the coming eclipse may render a decision between them. One is that ultraviolet light from the sun is responsible for both layers. The other view is that the lower layer, as Prof. S. Chapman of the Imperial College of Science and Technology, London, holds, may be caused by neutral particles streaming from the sun. Prof. E. V. Appleton of King's College, London, suggested that these two theories may be tested at the August 31 eclipse and they are enlisting the aid of observers in all parts of America and Europe.

If the streaming of neutral atoms or corpuscles from the sun at the rate of a

thousand miles per second causes interference with radio transmission by affecting the ionized layers, this "corpuscular eclipse" will be observed east of the path of optical total eclipse and the shadow of the moon in the rain of corpuscles will not even fall upon some of the hundred-mile-wide path that will be darkened by the optical eclipse. The center of the radio or corpuscular eclipse will pass through Spitzbergen, Greenland and mid-Atlantic and it will cut a swath of about 1,600 miles compared

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the eclipse may be recorded in the remote contingency of cloudy weather at lower altitude combined with clear weather on Mt. Washington.

A special camera of 30-inch focal length will be used for the direct photographs. The party will include Watson Davis, managing editor of Science Service, Paul Brockett, assistant secretary of the National Academy of Sciences, and William Brockett.

### YORK HARBOR

**H**OWARD RUSSELL BUTLER, artist who has traveled to Oregon, California and Connecticut to paint past total eclipses of the sun, will have the Aug. 31 eclipse sit for him at his studio at York Harbor, Me. He will have 93 seconds in which to paint its portrait.

### MONTREAL and PARENT

**T**HE ROYAL OBSERVATORY at Greenwich, England, will send an expedition to Parent, P. Q., Canada. Imperial College, London, will also be represented by an expedition that will observe from Montreal.

**P**ROF. D. W. MOREHOUSE of Drake University, Des Moines, will observe from Montreal where he will cooperate with a British expedition.

### WHITEFIELD

**T**HE Seagrave Observatory, Providence, R. I., expedition will observe from Whitefield, N. H.

with the hundred miles for the visible total eclipse. The radio eclipse will happen some two hours earlier than the visible eclipse because the corpuscles travel slower than light.

England is within the area of corpuscular eclipse and Profs. Appleton and Chapman are recruiting observers both there and in the United States. Radio amateurs who have a simple detector milliammeter as a part of their short wave sets can participate. In Canada, the Canadian National Research Council, McGill University and commercial communication companies are cooperating in sending expeditions to observe the "radio eclipse" from Canada and Newfoundland.

After the eclipse, thanks to the discovery of the radio eclipse, we may be more positive as to what happens to radio waves only a few miles above our heads every day and night.

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### BARTLETT

**A**STRONOMERS from the Tokio Imperial Observatory will observe from Bartlett, N. H.

### JAPANESE-RUSSIAN

**A**PARTY from the National Observatory, Poulkovo, Russia, under direction of Prof. A. Belopolsky and a party from the Kwasan Observatory of the Kyoto Imperial University, under direction of Prof. Issei Yamamoto, will observe the eclipse, the American Astronomical Society has been informed, but the exact locations of their observing stations is not now known.

### AMATEURS

**O**BSERVATION of the eclipse by amateurs is being organized by the Amateur Astronomers Association. Observers who desire to affiliate themselves with this group are invited to communicate with Dr. Clyde Fisher at American Museum of Natural History, New York.

### BROADCASTING

**R**ADIO broadcasts will carry descriptions of the eclipse to those outside the path of totality who will be able to see only the partial phases.

The Columbia Broadcasting System will broadcast from Conway, N. H. James Stokley, astronomical writer for Science Service, in charge of the Franklin Institute eclipse party, and an announcer will describe the eclipse.

The National Broadcasting Company will broadcast from Norway, Me.

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