

a 250-foot tower at North Truro, Cape Cod, Mass., as guests of H. M. Aldrich. Dr. Margaret Harwood, director, will lead the party consisting of Miss Marjorie Williams, Mrs. Francis W. Davis, Miss Merle E. Turner, Albert E. Brock, Edgar F. Sanborn, Jr., Gerald M. Reed, Jr. and Nathan C. Davis.

This only scientific expedition to be located on Cape Cod will make photographs of the corona designed to study photometrically the light of the corona, using a 4-inch photographic telescope. Visual observations will be made with another telescope.

Science News Letter, August 20, 1932

RADIO-ASTRONOMY

Sunspots May Interfere With Radio Observations

MAGNETIC storms may interfere with the radio observations of the total eclipse of the sun on August 31. This is predicted by A. M. Skellett of the Bell Telephone Laboratories, New York City.

Measurements of radio transmissions planned by numerous investigators during the eclipse will be related to the magnetic character of the day, Mr. Skellett pointed out. The state of the ionized regions of the atmosphere bears about the same relation to radio experiments as does the weather to the visual observations of the astronomers.

"On the basis of the 27-day recurrence tendency, it is probable that the earth's magnetic field and radio transmission will be disturbed moderately and possibly severely, the maximum disturbance occurring a day or so before the eclipse," Mr. Skellett predicted. "The date of the eclipse falls in a sequence of magnetic disturbances which have been active for at least three revolutions of the sun which has approximately a 27-day period.

"The latest storm of this sequence on August 1 or 2 has been of moderate intensity. A large sun-spot surrounded by bright hydrogen flocculi crossed the central meridian of the sun on August 2. On this basis a storm would be expected to begin on August 28 or 29 and might last until after the eclipse. Since the radio phenomena are different on days when magnetic storms occur from those on days without disturbance it is important that experiments to be carried out during the eclipse be planned with this possibility in mind."

Science News Letter, August 20, 1932

RADIO-ASTRONOMY

Bureau of Standards To Study Radio During Eclipse

With Apparatus on Both Sides of Path Scientists Will Hear Broadcasting Stations and Study Kennelly-Heaviside Layer

SCIENTISTS of the U. S. Bureau of Standards will make extensive studies of the radio effect of the eclipse of the sun on Wednesday, August 31.

From a field location either in north-eastern Maine or eastern Nova Scotia and simultaneously from the permanent laboratories at Washington, physicists and radio engineers under the direction of Dr. J. H. Dellinger will record the effects of the eclipse on the field intensities of received radio waves and on the height of the ionized or Kennelly-Heaviside layer.

The Washington location is expected to be very satisfactory for studies of changes in the ionized layer due to the optical eclipse as it is nine-tenths total at the earth's surface and somewhat nearer totality in the ionized layer above Washington.

The purpose of the observation in Maine or Nova Scotia is to test for the existence of effects in the ionized layer due to neutral corpuscles shot off from the sun. Professor S. Chapman, British physicist, has presented considerable evidence to show that the ionization of the lower part of the ionized layer, called the E-region, is probably produced by these corpuscles. (*SNL*, July 30, p. 75; Aug. 13, p. 95). Because the velocity of the corpuscles is much less than that of light, and because of the motions of the moon and earth during passage of the corpuscles from the moon to the earth, the corpuscular eclipse should occur two to two and one-half hours earlier than the solar eclipse, and farther to the northeast. These differences, particularly the difference in time, allow the effects of ultraviolet light and neutral corpuscles to be separated.

To Measure Ionized Layers

Three members of the Bureau of Standards staff will take to Maine or Nova Scotia two small pulse-signal transmitters, and an automatic recorder and a cathode ray oscillograph for measuring ionized layer heights. They will also observe the critical frequencies and heights of both the E and F regions of

the ionized layer. In order to help interpret the records obtained during the eclipse, observations will be made for several days preceding and following the eclipse.

Records of field intensities of received waves from broadcasting stations, and possibly from a high-frequency station, will be made both at Washington and on the eclipse expedition.

Dr. Dellinger explained that this type of work differs from the visual and some other observations in that it will not be prevented by clouds; and that there is reasonable certainty that successful work will be done.

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ASTRONOMY

Lights Out During Eclipse, Astronomers Ask

COOPERATION by amateur observers at the total eclipse of the sun over New England and Canada on Aug. 31 is requested by the astronomers, in order that any unwitting interference with the professional observations may be avoided. The eclipse committee of the American Astronomical Society, of which Dr. Frederick Slocum, of the Van Vleck Observatory at Middletown, Conn., is chairman, has requested laymen in the path of totality to avoid doing anything that might so interfere.

Tourists driving automobiles are requested to park their cars some time before the total eclipse, which comes about 3.30 P. M., Eastern Standard Time. Even though it will become dark enough to see the stars, they are requested not to turn on automobile lights. The glare from a single pair of head lights would ruin the view of all the observers in range. Similarly, town and city officials and residents of houses within the path, are requested not to turn on lights on streets or in buildings. The darkness will last less than two minutes even where longest, so all ordinary traffic and other activities can be suspended during totality.

Though dozens of groups of profes-

sional astronomers will be stationed along the path in eastern Canada and New England, the chances for clear weather are approximately the same all the way from the St. Lawrence to the Atlantic Coast. The eclipse will not be seen any better from one of the professional stations than from a point some distance away. The astronomers will be very busy for some time before the eclipse, making final adjustments, and during the eclipse they will give it their undivided attention. Even after it is over, they will still be busy, developing photographs, and taking down their apparatus. Consequently, most of the parties will have very little time to entertain visitors.

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ASTRONOMY

New Comet Visible Through Binoculars

WITH THE AID of binoculars a comet is visible in the northeastern evening sky. It is Peltier-Whipple comet, named after the two Americans who discovered it a few days ago. It is one of the brightest comets of recent years but will probably not become visible without slight aid in the form of a small telescope or good field glasses.

At present it is in the constellation of Perseus not far from the bright star Algol. It is moving rapidly northward several degrees a day and slightly eastward. It has a tail one degree long, or twice the diameter of the full moon.

An orbit computed by Dr. Fred L. Whipple of Harvard College Observatory, one of the discoverers, shows that the comet is about fifty million miles from the earth and that it will come closest to the sun at its perihelion near the end of August. The astronomers can not identify the comet with any previously observed and it is therefore considered a new one.

The Peltier-Whipple comet is magnitude 7 or 8. The comet was discovered by two American astronomers independently but so nearly at the same time that it will bear their names jointly. Leslie C. Peltier, an amateur of Delphos, Ohio, who has comets discovered in 1925 and 1930 to his credit, is one discoverer, while Dr. F. L. Whipple of the Harvard College Observatory also found it on a Harvard photograph.

The discovery was confirmed by Dr. H. M. Jeffers of Lick Observatory, California, and by an observation in Europe.

Science News Letter, August 20, 1932

ANTHROPOLOGY

New Evidence Unearthed That Man Lived in Ice Age America

Science Service Investigators Study Folsom Type Dart Point Newly Found With Bison Bones in Nebraska Quarry

THAT ANCIENT man hunted strange bison in the Ice Age of ancient America, thousands of years before the accepted coming of Indians to America, receives further support through the investigation of discovery made in Nebraska by C. Bertrand Schultz, geology student of the University of Nebraska.

Science Service was notified of Mr. Schultz's discovery of a dart point associated with fossil bison in the Scott's Bluff quarry and authorized Dr. Earl H. Bell, anthropologist, and Dr. Edwin H. Barbour, geologist, of the University of Nebraska to investigate under the Science Service plan for archaeological and anthropological investigations.

By DR. EARL H. BELL, University of Nebraska

THE DISCOVERY of a Folsom type dart point associated with fossil bison in a quarry near Scott's Bluff, Nebraska, was reported on August 4.

In 1929 from Custer County, Nebraska, and 1931 in Hall County, Nebraska, Mr. Schultz had reported similar finds. Unfortunately, though due to no fault of Mr. Schultz, these were not immediately investigated.

On August 5, Dr. Edwin H. Barbour, chairman of the department of geology, University of Nebraska, and I set out for Scott's Bluff to investigate this last discovery on behalf of Science Service.

Upon our arrival we found that Mr. Schultz and his party had done everything possible to keep the point in situ. It was discovered by the accidental caving off of the face of the bank which left the point protruding about half out. A support was built from below, but the crumbly nature of the matrix allowed it to slide out. The remaining mould, however, made positive its original position.

The point was surrounded by bison bones and pointed toward the face of the bank. It rested not more than three inches above the Brule clay.

The artifact was about one foot back from the original edge of the bank and

one and one-half feet below the original surface. It was completely surrounded by bones, laid nearly horizontal and pointed outward.

The point is two and three-fourths inches long and has a maximum width of one inch. The size and leaf-like shape indicate a dart rather than arrow point. The chipping is moderately good. It lacks the longitudinal groove but in general closely corresponds to one of the types found in the Folsom bison quarries in New Mexico.

The fossil bed in which the point was found is situated about three hundred yards north of Signal Butte and on the north bank of Spring Creek. Scott's Bluff, Nebraska, is about twenty-two miles northeast of the site. The exposed fossil layer is three feet thick, more than twenty feet long and was opened about six feet back for the face. The layer rested directly on the Brule clay, and is in an old river channel composed of water-worn pebbles of Brule, commonly seen in channel deposits of western Nebraska. Above the channel material is an over-burden of about fifteen feet of fine sandy material.

The layer is exceedingly rich in fossil bison bones, a large proportion of which are articulated. The bones distinctly differ from those of the modern bison and approach *Bison texanus* in form.

Fossil Seeds Significant

In evaluating this find as proof of Pleistocene man in America we are forced to consider two elements. In the first place: Is the stratum Pleistocene? In an unglaciated area such as western Nebraska, the stratigraphy must be largely determined by fossils. Dr. Barbour carefully studied the total situation, and besides the fossil bison he discovered freshwater and land snails, and pelecypod shells such as are commonly found in the western loess. In addition to these were the fossil hackberry seeds, *Celtis besseyi*, which are common in western Nebraska from the Pliocene upward into the Pleistocene. Dr. Barbour considered these very significant.