

ASTRONOMY

Clouds Partially Veil Eclipse; Observers Win Against Odds

Astronomers on Coast Had Clear Skies, Some Far Inland Failed, While Central Groups Are Hopeful of Success

ECLIPSE observation results seem to summarize themselves broadly as: success toward the southeast, near the coast; failure at the farthest inland stations, at least partial success in between. It was the weather's doings. A great cloud mass stretched itself across Quebec and part of New England, blotting out the sun toward the west, reaching fingers of haze and broken cloud to annoy astronomers and other observers in the middle stations that clustered round Fryeburg, Maine, and Conway, N. H., but not reaching the area near Portland soon enough to get ahead of the racing shadow of the moon.

Doubtful Weather Tries Scientists

It was in the Fryeburg-Conway region that the doubtful weather conditions tried scientists the most sorely. Here the largest army of astronomers had assembled, bringing the heaviest celestial artillery. While parties farther east blessed their luck that gave them perfect observing and photographing conditions, and their disappointed colleagues some hundreds of miles westward could sit as philosophically as possible under a blanket of completely interdicting cloud, the Fryeburg-Conway parties had regular political weather—yes-and-no weather. So they could only go through their carefully-rehearsed program of photographing the sun and its spectrum, and hope that at least a part of the plates would be of real value to science.

Airplanes Spurned Clouds

Only the airplane parties, which could spurn the clouds and rise as high as gasoline-impelled wings could lift them, did not need to worry about the clouds. These reported complete success in their programs, astronomical, physical and meteorological. The only difficulty is, that the most important work at an eclipse is that done with the telescopic "big Berthas," and as yet there is no way known to fly one of these ten thousand feet off the ground and above the clouds.

All round, therefore, the total eclipse of August 31, 1932 is a partial success. Wherein it differs not at all from most of our more commonplace undertakings.

CONCORD

By **DR. CHARLES F. BROOKS**, Meteorologist, Blue Hill Observatory, Mass.

THE PARTLY cloudy and nearly calm weather was perfect for observing the effects of the total eclipse from the meteorologist's standpoint.

During the eclipse the temperature fell seven degrees Fahrenheit, and immediately after it the cloudiness increased from four to eight tenths.

The wind backed from south to east, blowing from the eclipse shadow.

Excellent temperature and humidity records were obtained from Dr. Irving Langmuir's airplane flight to an altitude of nine thousand feet. Pilot balloon observations were made here and at Limerick and Brunswick, Maine, showing wind direction and velocity to a height of four miles.

GRAY

By **L. B. ANDREWS**, With Harvard Eclipse Expedition

THE HARVARD eclipse expedition near Gray, Me., had completely clear weather during the whole eclipse. Our program was successfully completed.

CENTER CONWAY

By **PROF. FREDERICK SLOCUM**, Leader, Wesleyan University Eclipse Expedition

THE ECLIPSE party of the Van Vleck Observatory of Wesleyan University, which made its headquarters at Center Conway, N. H., carried out its complete program, exposing forty photographic plates. However, the sky was covered by clouds, so the results will not be very satisfactory.

The corona was visible to the naked eye and was apparently of the minimum type, although the equatorial wings

could not be followed to any great distance on account of the clouds. Several bright prominences were noted on both east and west limbs of the sun, more than were expected at the present time, because of the minimum activity of the sunspots.

The beginning of totality was accurately timed, and was apparently a few seconds later than the predicted time. The duration of totality was about one second less than predicted.

DOUGLAS HILL

By **DR. HARLAN T. STETSON**, Leader, Perkins Observatory Eclipse Expedition

ECLIPSE day at Douglas Hill dawned forbidding, but was satisfactorily clear, with cumulus clouds, until 3:15, when a heavy bank in the southwest completely obscured the sun and totality. Measures of changing illumination were made with a Macbeth illuminometer and with photronic cells.

Study of radio reception as affected by the screening of solar radiation by the moon will be made from returns as data from outlying stations are collected. Through the cooperation of Station WCSH, Portland, a laboratory truck with skilled observers was sent into the field to make intensity measure-



OLDEST TELESCOPE

Oldest telescope of the scores used to observe the eclipse, this 6-inch refractor was the largest American telescope for 30 years after it was brought from Paris to Connecticut Wesleyan University in 1836. Prof. Frederick Slocum, leader of the Wesleyan expedition is examining its modernized driving motor.

ments. Station WNAC, Boston, likewise cooperated.

By **PROF. J. J. NASSAU**, Leader, Warner and Swasey Eclipse Expedition

UNFORTUNATELY clouds prevented us from carrying out our photographic program during the total phase of the eclipse. During the partial phase we were able to get a series of eight photographs for determining the time of first contact. The photometric work was carried on as planned, but with results of doubtful value. From the radio program we expect definite results.

LOUISEVILLE

By **ANDREW THOMSON**, Physicist, Meteorological Service of Canada

PARTIES from the Royal Astronomical Society of Canada and the official expedition from France saw the total eclipse at Louiseville, P. Q., under perfect observing conditions. A heavy bank of cumulus clouds moved away from the sun's disc about ten minutes before totality. Another party only a mile away was unable to see any details of the total phase on account of heavy clouds.

Shadow bands were observed about fifteen seconds before totality. The bands were 8 to 12 inches wide with ill-defined edges and moved with a tremulous and fro motion. Some observers recognized the bands for an instant after totality when they also did not have a rapid translatory motion.

AIRPLANES

By **DR. IRVING LANGMUIR**, General Electric Company

OUR AIRPLANE flying at nine thousand feet had perfect conditions over clouds near Rochester, N. H. The planet Venus was visible four minutes before totality. The moon's shadow was seen three minutes before and after totality, with reddish glow from lighted atmosphere on the other side of the shadow. We carried a meteorograph for the Blue Hill Observatory, to get temperature and humidity changes.

CAPT. A. W. STEVENS of the Army Air Corps, flying for the National Geographic Society, and several other aviators obtained successful photographs of the eclipsed sun. Capt. Stevens also made a photograph of the moon's shadow on clouds.



AIMED AT ECLIPSED SUN

The 40-foot corona photographic telescope of the University of Michigan expedition located at Fryeburg, Maine. This apparatus, which was aimed at the eclipsed sun, has seen service at several previous eclipses.

FRYEBURG

By **DR. HEBER D. CURTIS** and **ROBERT R. McMATH**, Leaders, University of Michigan Eclipse Expedition

IN ADVANCE of the development of both plates and motion picture films exposed by the University of Michigan eclipse party, at Fryeburg, Me., it was impossible to predict results. However, the last thirty seconds of totality was partly relieved by thin clouds, and exposures should be of value. Shadow bands were noted as moving south, 72 degrees west.

WHEN Dr. Heber D. Curtis of the University of Michigan finished developing photographic plates of the eclipse he was delighted to find that his negatives were 75 per cent. perfect despite the film of cloud that veiled the sun during totality. The type of corona associated with minimum sunspots was clearly portrayed on his plates.

By **DR. J. H. MOORE**, Leader, Lick Observatory Eclipse Expedition

AT THE TIME of the total phase the sun was covered with thin clouds. The program was carried through by the Lick Observatory party, and we are hopeful that the results will not have been too seriously affected. They were carried out as planned.

The program consisted of direct photographs of the corona and spectroscopic observations of both the inner and outer portions of the corona. In addition, spectrograms were obtained of the sun's limb, recording the spectrum of the chromosphere at different levels. The

form of the corona was of the type characteristic of that obtained at the time of minimum sunspot numbers.

By **DR. S. A. KORFF** of the Mt. Wilson Observatory

OBSERVING from Fryeburg, Me., on behalf of Mt. Wilson Observatory, we obtained successful direct photographs and motion pictures of the corona.

ALFRED

ALTHOUGH the Japanese eclipse expedition observed from here with practically complete success, members of the party packing apparatus denied that any new gas in the sun had been discovered, as had been reported. Prof. M. Notsuki and O. Oikawa declared that their negatives were developed late Wednesday night, but that weeks and months must elapse before they can be interpreted. No announcements are to be expected until the party of three astronomers return to Japan.

Prof. K. Hirayama led the party.

LIMERICK

By **COMMANDER C. H. J. KEPPLER**, Leader, U. S. Naval Observatory Eclipse Expedition

FIRST CONTACT of moon with sun was obscured by clouds, which persisted for five minutes. All of the totality and fourth contact, when the moon left the sun, were clear except for thin cirrus clouds. Our entire program was completed. (Turn to page 170)

Something YOU HAVE MISSED

HAVE FAMOUS scientists ever told you about fascinating accomplishments in the particular fields in which they work? Wouldn't you like to sit in your home and, at the hour of your choice, listen to Dr. Millikan discuss the rise of physics, or Dr. Welch tell the story of the conquest of the tubercle bacillus? And if a point were not clear to you, wouldn't it be splendid to have that part of the talk repeated?

All these wishes may be yours—made possible by the cooperation of seven great scientists with Science Service in a pioneering venture. On subjects which fired their imaginations, each scientist made a five minute talk recorded on the new process Durium phonograph records.

In addition to the talks by Dr. Robert A. Millikan, Nobel prize winner and head of the California Institute of Technology, and Dr. William H. Welch of Johns Hopkins University, "Dean of American Medicine,"—Dr. John C. Merriam, authority on fossil animals of western America, president of the Carnegie Institution of Washington, speaks on "*The Record of the Rocks*;" Dr. Edwin G. Conklin, Princeton University biologist, one of the world's greatest authorities on life processes, on "*The Mystery of Life*;" Dr. Karl T. Compton, eminent physicist, president of the Massachusetts Institute of Technology, on "*Science and Engineering*;" Dr. Leo H. Baekeland, industrial chemist and one of America's industrial pioneers, inventor of bakelite, velox, etc., on "*Chemistry and Civilization*;" and Dr. William M. Mann, director of the National Zoological Park of the Smithsonian Institution, leading authority on animal life, on "*Our Animal Friends*."

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(Continued from page 161)

PARENT

By DR. J. JACKSON, Leader, Royal Observatory Eclipse Expedition

THE ECLIPSE unfortunately had to be observed at this point through clouds. These were not so thick at the beginning of totality as at its end. No results are expected from the slit spectrographs, but we may have some useful photographs taken with the long direct instruments.

MT. WASHINGTON

THE SCIENCE SERVICE eclipse expedition was enshrouded by clouds on the summit of Mount Washington during totality, although the morning had promised favorable weather, and eleven minutes before totality the crescent sun broke through the clouds.

Meteorological measurements were made.

CLOUDS

COMpletely clouded skies, preventing any observations of scientific value, were reported to Science Service by the leaders of the Leander McCormick Observatory party with headquarters at Magog, P. Q., McGill University Observatory, Montreal, Mt. Wilson Observatory at Lancaster, N. H., Franklin Institute at Conway, N. H. and the Toronto University expedition at St. Alexis des Monts, P. Q.

Science News Letter, September 10, 1932

ASTRONOMY

Cover Picture Pursued Over New England Hills

See Front Cover

BY CHASING a blue hole in the screen of cloud that covered part of New England, a party of eclipse observers which included Prof. John Q. Stewart, Princeton astronomer, successfully saw the corona in clear sky and obtained the NEWS LETTER's cover picture.

Originally they planned to view the eclipse from near his summer cottage at Randolph, but clouds caused Prof. Stewart and other eager eclipse observers to dash by motor to near Bethel, Maine. Three times Charles D. Hodges, Princeton graduate visiting Prof. Stewart, set up an eclipse camera, only to have the clouds catch up. Each time the party outraced the clouds.

Science News Letter, September 10, 1932