

# THE GREAT SOLAR ECLIPSE.

## City Scenes—Account of the Phenomena.

The eclipse of the sun, predicted by the astronomers and the Press, took place promptly according to the announcement which had been made, over the whole country, on Saturday last. There was unusual excitement among the people on the occasion, and the greatest desire was manifested to view the celestial phenomenon by young and old. The street gamins drove a thriving business, selling pieces of colored glass, which occupation, for a time, took the place of blacking boots and vending the evening papers. The house-tops had thousands of eager sky-gazers watching the progress of the lunar transit, and other thousands congregated in the Central Park for the purpose of getting an unobstructed view of the exhibition. Owing to the fact, however, that, during a very great portion of the eclipsed period, both the heavenly bodies were obscured from the vision by the prevalence of thick, heavy clouds, the most interesting parts of the spectacle—the "totality," so far as it existed in this latitude, and the appearance of the sun when the moon was just on the point of leaving its disc—were not observable. As it was, however, the exhibition amply gratified the curiosity of the spectators, and has doubtless led many to study, with a greater degree of interest than heretofore, the movements of celestial bodies. The progress of the eclipse was noted at the Central Park Observatory, and observations were taken from the roof of the Astor House by Professor TITACHTER. Besides these notations of the event, several gentlemen having lenses and other apparatus for tracing the lunar transit in its various stages, made accurate calculations of the affair. The report made by Professor TITACHTER will best describe the phenomenon in a brief way. The eclipse was a large partial one in New York, though total over a line extending from a point 20 miles northwest of Fort Union, which is situated at the junction of the Missouri and Yellowstone Rivers, to a point near Fayetteville, Cumberland County, N. C. During most of the eclipse the sun was much obscured by cumulus clouds, which, at or near the period of the greatest obscuration of the eclipse, changed into the cirro-stratus. The planet Venus was obscured by clouds. At the instant of internal contact of the moon with the sun's edge, the sun was obscured by clouds. It occurred at some time after 5:12 P. M., and before 5:15. At 5:12 there was no contact, at 5:15 the moon had already impinged nearly one-fourth part of its disc on the sun. At 5:30 the moon reached a spot of 10,000 miles in diameter on the sun's surface; spot one-half covered at 5:30' 30"; spot covered at 5:30' 45". Thermometer at 5:02, 71°; at 5:42, 70°. At 5:25 a degree of darkness is observable. At 5:55 air very chilly. Thermometer 71°. Atmosphere very unsteady, preventing observation on the mountains at the moon's edge. Spot on apparent western limb of the sun covered at 6:11. At 6:15 thermometer 69°. At 6:25 the spot of 10,000 miles in diameter made its reappearance. At 6:25 a flock of thirty birds were seen in the comet-keeper flying to the South. The moon left the sun after 7 P. M., and before 7:01, at the precise instant of external contact, stratus clouds obscured the moon's edge, which also appeared very tremulous through the wavy atmosphere. The sun set at 7:05, St. Paul's Church clock time.

### The Spectacle at Springfield, Ill.—Photographs by the Hundred—Scientific Observations Elsewhere.

CHICAGO, Sunday, Aug. 8.

The eclipse at Springfield, Ill., was a startling phenomenon. The sky was perfectly clear. Professor PEACE, of Harvard, had charge of the observatories, which were made near the city reservoir. A hundred photographs of the eclipse were taken by Mr. BLACK, of Boston. When the total obscuration took place, the heavens and the earth presented a scene of awful sublimity. A brilliant amber-colored corona appeared around the sun and moon, shooting rays of light outward in all directions, when the whole horizon was illuminated with a light of the same color. Planets Mercury and Venus, and a number of fixed stars, were distinctly visible, but no planet orb between Mercury and the sun were discovered. A brilliant rose-colored flame, or protuberance, was noticed on the western limb of the sun during the period of total obscuration. The phenomenon known as "Bailey's Beads," was also distinctly witnessed. This phenomenon, Professor PEACE thinks, is occasioned by the refraction of light. He is also satisfied that the corona or halo at the time of the total obscuration, was occasioned by the sun's atmosphere.

At Milton observations were made by Professor G. W. HOBAN, of Dudley Observatory, Albany, N. Y.; DAVID MURRAY, of Rutgers College, New-Brunswick, N. J., and others. The instruments made use of were the ordinary telescopes. One of them, however, was provided with means for accurately measuring the diversions of the protuberances on the sun, and the corona or surrounding halo. A chronograph was employed to note accurately the time of the different phenomena. The time was obtained by telegraphic communication with Dudley Observatory at Albany, N. Y. At 10 minutes and 15 seconds past 4 o'clock, the eclipse commenced, the moon's first contact with the sun occurring when the former was 19° south of the solar equator. On the west side of the thermometer, which a few moments before had risen to 100° began to fall rapidly. At 11 minutes and 17 seconds past 5, the sun became totally obscured. The darkness was equal to that of a moonlight night, and the temperature was 42 degrees cooler than one hour before. The eclipse ended at 9 minutes and 22 seconds past 6 o'clock. In the observations taken, the phenomenon corresponded precisely with the computations previously made. Six spots were visible on the surface of the sun before the eclipse, two of which were very prominent and the others much less. The cusps on the moon had a ragged and blurred appearance. As the eclipse progressed toward totality the form of the moon became visible. Near the cusps of the phenomenon of totality Bailey's Beads were seen distinctly by all the observers extending through an arc of at least fifty degrees. The moment the eclipse became total the flame-like protuberances were seen with wonderful distinctness, one very large on the lower limb of the sun, and three nearly as large on the upper limb, while at least seven or eight of them in all were visible. The one on the right hand or lower limb had somewhat the appearance of a full-ribbed ship with sails set. In its part nearest the moon were two or three jet black spots. To the naked eye it seemed as though there were openings in the moon, two on the east side, and one on the southwest side. Just after the total eclipse, through the openings, the lurid glow of the sun was distinctly visible. The corona was not, as generally described in books, &c., a halo of light surrounding the moon; but was distinctly seen in the shape of a five-pointed prong on the lower, and two prongs on the upper circumference of the moon. These points presented a radiant appearance. The generally received theory regarding this corona, that it is the atmosphere of the sun, does not seem to be sustained by observations made at this point. It is conjectured that the corona is in some way caused by the phenomenon of light passing through the atmosphere. Although research was made, no planetary bodies were observed between Mercury and the sun. During the totality phase, Mercury, Venus, Regulus, Mars, Saturn, Denobala, and other stars were visible. The temperature in the shade at the beginning of the eclipse was 77°, during totality 45°, and at the end of the eclipse it had risen to 70°. At 5:49, in the sun, on the grass, the thermometer was at 100°. A few minutes after 4 o'clock it rose to 102°, while during the total eclipse it fell to 60°, but subsequently rose to 80°.

### Total Eclipse at Wilmington, N. C.—Stars Visible on by Night.

WILMINGTON, N. C., Saturday, Aug. 7.

The weather is clear and pleasant; wind, E. N. E. Thermometer 72°.

The streets and house-tops were crowded with people to witness the eclipse of the sun this morning. The following observations were

taken from the top of the Dawson Bank buildings, Washington time being the standard: The time of the greatest obscuration was at 6:04 o'clock. The duration of the total phase was one minute thirty seconds. The time of the beginning of the total phase was 6:5. The end of the total phase was 6:6½. The beginning of the eclipse penumbra was 5:5. The end of the eclipse penumbra was 6:51. This was the grandest spectacle ever beheld here. During the total obscuration the stars shone almost as bright as at night. The fowls went to roost three-quarters of hour earlier than usual. Business was almost suspended in the city, so great was the impression produced.

### Scientific Observations at Shelbyville, Ky.—Important Discoveries.

LOUISVILLE, Ky., Saturday, Aug. 7.

The Courier-Journal has the following special telegrams from Shelbyville, Ky., giving an account of scientific observations made there to-day:

The observations here to-day were very satisfactory, and in many respects gratifying. The following persons comprised the Joint Board of Observation for Shelbyville: Professor JOSEPH WINN, of Harvard University, in charge of observations of phenomena, assisted by ALBAN CLARK, Professor of Cambridge; Assistant GEO. W. DEAN, of the Coast Survey, in charge of observations of precision, assisted by F. BLAKE, Jr., of the Coast Survey; J. A. WIPPLE, of Boston, assisted by GEO. CLARK, and J. PENBERGAST, had charge of the photographs; Professor G. M. SEARL, of New-York, devoted himself to observations of general phenomena, and, during the total phase, was to search for inter-mercurial planets. Sub-Assistant T. H. AONEW also devoted himself to observations of general phenomena, and had charge of the observatory arrangements, being assisted by R. E. SHARROD, of Louisville. The meteorological observations were made by Professor BERMOUR, of Louisville, and ROBERT LEWIS, of Shelbyville. Among the amateurs present were Mr. BOWDITCH, of Boston, son of the celebrated astronomer.

One of the most important discoveries made by Professor WINN, at the spectroscopic, was eleven bright lines in the spectrum of the protuberances of the sun, only five having heretofore been determined. He also observed a shower of meteors between the earth and moon. The party are jubilant over the success. Photographs of the sun were taken at different times during the partial obscuration. The beautiful red flames or solar protuberances were visible to the naked eye. "Bailey's Beads," as well as the dark and dismal shadows of the moon sailing away through the air, were noted by a party of amateurs stationed on the top of Shelby College. The sky was perfectly clear and everything seemed to propitiate the success of the observations. There were ten or twelve mounted instruments in use on the occasion, the principal one of which was the Shelbyville College telescope, which was handled by Professor WINN, assisted by ALBAN G. CLARK, of Cambridge, Mass. This is a fine instrument, costing \$4,000. It once ranked third in the United States. Arcturus, Vega, Venus and Mercury were visible to the naked eye during the total phase. Mr. SEARL, whose duty it was to search for inter-mercurial planets, did not succeed in finding any, reporting nothing fainter than Regulus near the sun. When the sunlight commenced to become dim a large number of citizens rushed to the College grounds, the headquarters of the observers. Some minutes before the total phase the usual phenomena of distraction among birds of the air and cattle occurred. Six minutes before totality a deathly shen hue overspread the countenances of all present, and for a while the faint-hearted were terrified. The scene during the totality was an awful one, and when the sunlight appeared again a shout of exultation went up from the great crowd in the college grounds.

### Observations at Des Moines, Iowa.

DES MOINES, Iowa, Saturday, Aug. 7.

An unclouded sky allowed the many observers gathered here, to witness the eclipse with great distinctness, a slight haze only interfering to prevent satisfactory search for the planets supposed to exist inside the orbit of Mercury. According to Professor J. H. BAKFORD's observations the first contact occurred at three hours, forty-three minutes, forty-three seconds. The commencement of the total obscuration was four hours, forty-five minutes, thirty seconds. The end of the totality was four hours, forty-eight minutes, twenty-two seconds. The last contact was five hours, forty-five minutes, eleven seconds. These points of time are from six to twenty-two seconds later than calculated, according to Washington; E. P. HEMAS and Professor HILLYARD observing it. Another point noted was a discrepancy between the calculation and observation of the corona. It was nearly rhomboidal in form, and very distinct and extended, at some points half a degree beyond the edge of the sun's disc. The rose-colored protuberances appeared to the number of five or six, the greatest being on the sun's southwestern quarter. Professor HARKNESS' observations of the protuberances in the spectroscopic showed a different spectra for each. But a single band was thrown by the corona. Professor EASTMAN's observations of the thermometer showed a fall of 13° in the temperature during the progress of the eclipse. The total observation lasted two minutes and fifty-two and a half seconds. Venus and Mercury were distinctly visible to the naked eye. The darkness exceeded that of the night. The most interesting feature in the aspect of the sun was the protuberances or beads. The largest one, already mentioned, was semi-circular in shape, with a finger extending, say one-eighth part of the sun's diameter, directly downward as one looked. Another right limb was shaped much like two horns of an antelope. The greatest length of the corona was in the direction of the ellipse.

### Scenes in Washington.

WASHINGTON, D. C., Saturday, Aug. 7.

With a view to observing the eclipse, a large number of ladies and gentlemen were gathered on the dome of the Capitol, among others the Assistant Secretary of the Treasury and members of the Press. The planet Venus was seen during the period of the greatest obscuration from this point. At the Naval Observatory, in the outskirts of the city, the government astronomers were employed in making observations, and will present a report in a few days. The weather was very favorable and the event passed off exactly as it was announced, and without, so far as accident be observed here, the slightest celestial accident.

### The View in San Francisco.

SAN FRANCISCO, Saturday, Aug. 7.

The solar eclipse commenced in this city precisely at the moment predicted by the astronomers, and at 9 o'clock P. M. the obscuration reached the maximum, and the sunlight was reduced as in partially cloudy weather. The air was chilly, the wind did not blow as strongly as usual at that time of the day. The sky was cloudless.

### The Eclipse at Fortress Monroe, Va.

FORTRESS MONROE, Saturday, Aug. 8.

The eclipse commenced here at about 5 o'clock, and lasted nearly an hour. About two-thirds of the surface of the sun was covered.

### The Sight in West Virginia.

GREEN BRICK, WHITE SULPHUR SPRINGS, }  
West Va., Sunday, Aug. 8. }

The eclipse yesterday caused the thermometer suddenly to fall with great rapidity, and the weather turned so cold that frost was visible this morning.

### The Consequent Cold Spell.

LEWISTON, Me., Saturday, Aug. 7.

The weather is the coldest in this part of the State experienced at this season for many years, with a slight frost on low lands.

CONCORD, N. H., Saturday, Aug. 7.

There was a slight fall of snow yesterday on Mount Washington, and ice formed during the night.

MONTREAL, Saturday, Aug. 7.

Snow fell yesterday in the country fifteen miles back of the city.