the scientific world. The great importance of these observations and studies are not apparent to and cannot usually be impressed on the minds of the unscientific reader. Astronomers have been enabled not only to predict the eclipses of the future, but, turning the eye back into the far receding ages of history, fix the landmarks of great events, as well as important astronomical problems, with the most unerring accuracy. Thus the date of the capture of Lars Sea by the Persians, mentioned in XENOPHON'S Anabasis as occurring during an eclipse, has been fixed at 556 B. C., and many other dates in the same history have been calculated from that as a basis. In the same way the end of the war between the Medes and Lydians, as related by HERODOTUS, has been calculated as having occurred in 584 B. C., the eclipse of that year being the one which was the means of bringing about the peace.

Important points in Egyptian chronology, which would otherwise have remained obscure, have been settled by reference to the eclipses, which were recorded in imperishable hieroglyphs by that nation of acute observers.

The earliest eclipse of which we have any record is that alluded to in the Chinese history, called Chow King, the age of which is not known. Cyclic characters accompany the account, from which calculations have been made. Mr. R. W. ROTHMAN, in an interesting paper read before the Royal Astronomical Society in 1837, fixes the date as Oct. 13, 2128 B. C. The eclipse which occasioned such alarm to the Athenians under PERICLES, as mentioned by PLUTARCH, that they were about to abandon the expedition against the Lacedamonians, has been calculated as occurring in 430 B. C., thereby fixing an important date in ancient history. The date of Agathocles—as the eclipse is called, which happened when Agathocles was blockaded by the Carthaginians in Syracuse—the astronomer AIRY places on Aug. 14, 309 B. C. Other eclipses are mentioned by classical authors and later chroniclers. One party decided the battle of Stiklasbad in early Scandinavian history.

The following table displays the times of beginning and ending at the places mentioned:

	Eclipse begins.	Eclipse ends.
Portland, Me	5:19	sunset
Concord, N. H	5:19	sunset
Montpelier, Vt	5:12	sunset
Boston, Mass	5:24	sunset
Providence, R. I	5:22	sunset
Hartford, Conn	5:15	sunset
New-Haven, Conn	5:16	sunset
New-York City	5:19	sunset
Buffalo, N. Y	6:47	6:44
Ogdensburgh, N. Y	4:58	sunset
Albany, N. Y	5:08	7:03
Utica, N. Y	5:01	6:57
Trenton, N. J	5:09	7:01
Philadelphia, Penn	5:07	6:59
Pittsburg, Penn	4:44	6:42
Harrisburg, Penn	5:01	6:53
Wilmington, Del	5:06	6:58
Cincinnati, Ohio	4:29	6:26
Detroit, Mich	4:29	6:30
Indianapolis, Ind	4:19	6:18
Chicago, Ill	4:10	6:12
Springfield, Ill	4:04	6:04
Jefferson City, Mo	3:54	5:53
Lawrence, Kan	3:38	5:42
Omaha City, Neb	3:34	5:38
St. Paul, Minn	3:35	5:46
Des Moines, Iowa	3:43	5:46
Milwaukee, Wis	4:06	6:08
Wheeling, W. Va	4:45	6:41
Washington, D. C	5:01	sunset
Baltimore, Md	5:03	sunset
Louisville, Ky	4:26	6:24
St. Louis, Mo	4:08	6:01

The places which are nearest the central line have the total phase of longer duration than those which are more distant from the centre.

THE GREAT SOLAR ECLIPSE.

Where it Begins and Ends—The Hours of Duration—Where Visible—The Phenomena Accompanying It.

An eclipse of the sun, total in parts of the United States, but only partial in the latitude of New-York, takes place on Saturday next, Aug. 7, beginning 12:5 o'clock in the afternoon, and lasting until nine seconds past 7 o'clock, or until sunset. At the greatest magnitude of the eclipse, ten and a half digits, or five-sixths of the sun, will be obscured by the interposition of the moon between it and the earth. The shadow of the moon thus thrown on the earth will produce a degree of darkness somewhat greater than that which is usual a few minutes after sunset, or what is generally known as twilight. If a storm should prevail at the time of the eclipse, the darkness would be equal to that of night.

It must not be supposed that the darkness which the eclipse will occasion will be the only unusual and interesting phenomenon resulting therefrom. If the day is bright and the heavens not obscured with dark clouds, the usual grand phenomena known to scientific men as the Corona, Bailey's Beads, &c., &c., will be observable.

The Corona is a halo which surrounds the disc of the moon,—generally a ring of pale whitish light, but sometimes appearing in a variety of forms, sometimes streaming in long, wavy feelers, sometimes showing brushes of light, or pointed somewhat as a star, sometimes of a violet or a reddish hue. It appears three or four seconds before the totality, and continues about as long after the first uncovering of the sun. It is seen with the naked eye, and is probably an effect of the sun's atmosphere.

"Bailey's Beads" appear when the narrow crescent of the sun, as reduced by the moon just before the sun is completely covered, is broken up into a string of brilliant points or beads of light. It is described as a spectacle of surpassing beauty, and compared to a necklace of intensely brilliant diamonds. When the eastern edge of the sun (for an eclipse always begins on the western edge) is all but reached, these mountains sometimes appear to shoot forward, and the peaks reaching the edge of the disc leave open spaces of light between them, and the string of beads is formed. The effect is probably due in great measure to irradiation. The beads were observed, though not for the first time, by BAILEY in 1836. They were first alluded to by HALLEY, in 1715.

The feature of an eclipse to which most interest has been attached of late years is the appearance of protuberances beyond the disc of the moon when the sun is covered. They are seen on the western limb as soon as the total phase begins, and appear nearer its close on the eastern limb. They are generally of a rose color, of various shapes, the commonest being that of mountain peaks and curved sickle shapes. They commonly project from the moon's disc, but have been observed separated from the edge, as if floating around the moon. They are sometimes of a deep red hue and of great height, one of them, as measured during the eclipse of 1860, being 44,000 miles high from the sun's surface. The nature of these red projections was not settled definitely until last year, when the English astronomical party sent to India discovered, by the aid of the spectroscope—an instrument in which different sorts of light are examined after being refracted by a prism—that they were gaseous flames, composed mostly, if not exclusively, of hydrogen. It had occurred to the French astronomer, M. JANSSEN, who was watching the same eclipse for the French Government, to observe, if possible, these projections of the sun when not under an eclipse. On the day after the eclipse, therefore, M. JANSSEN directed the slit of the spectroscope on the edge of the sun, where he had the day before observed a large prominence, and to his great joy perceived a spectrum corresponding to the one before obtained. For many days he watched the projections, living, as he said, in a perpetual eclipse. He was even able to follow them in toward the sun, and to find them prolonged in the bright disc of the sun. He arranged his instrument so as to watch them uninterruptedly, and to measure them; and he describes it as inconceivably grand to watch these immense bodies, "many hundred times larger than the earth, completely shifting and changing forms in the space of a few minutes."

All these phenomena may not be visible to the eyes of the multitude who, with smoked glasses, will watch the eclipse, but they will doubtless be observed and fully recorded by the numerous parties of astronomers who are to watch it, with the aid of the latest improved scientific instruments at various points on the central line of the eclipse. Several parties will be stationed at Des Moines, Iowa; one at Burlington, Iowa; one at Springfield, Ill.; another at Shelbyville, Ky., and others in North Carolina and East Tennessee. Each party will have the finest of spectroscopes, and in view of late developments their observations will be of the most interesting character to

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