

Ancients Predicted Eclipses With Extreme Accuracy

**This Year's Event Foretold in Work Published
Half a Century Ago; First Prediction Made in 585 B. C.**

AN INVARIABLE source of amazement to the layman is the astronomer's ability to predict eclipses of the sun and the moon years and even centuries in advance. The total solar eclipse which will be seen the last day of August, for example, was predicted with great precision in a work published in Vienna nearly half a century ago. If they desired, astronomers of today could calculate the data for the eclipse that will be seen in the United States on August 12, 2045, set up the instruments with which to observe it, and leave them, confident that their successors in that remote day would have to make only slight adjustments to use them.

But while such great accuracy is a modern achievement, even the ancient astronomers of Greece were able to make a pretty good job of eclipse prediction. At a still earlier date the Chinese were able to make rather rough eclipse predictions. There is a famous story, which may be apochryphal, that one of the Chinese emperors of some 2000 B. C. had two imperial astronomers, named Hi and Ho, whose duty it was to predict eclipses.

Dragon Devoured Sun

They were supposed to be due to a dragon devouring the sun, so if sufficient warning was given, all the natives made horrible noises, to scare the beast, and to cause him to disgorge. But at one eclipse, according to the story, Mr. Hi and Mr. Ho had looked too long on the wine when it was red, and had failed to make the prediction before the sun actually started to disappear. The fireworks, the drums, the gongs and the other noise makers were quickly brought into action, and the eclipse passed safely. But the two astronomers were promptly beheaded for their neglect. It has been said that no astronomer ever since has been drunk at eclipse time.

Thales of Miletus, the father of Greek astronomy, was probably the first man to predict the actual path of an eclipse. This is believed to have been on May 28, 585 B. C., and it happened during a battle between the Lydians and

the Medes. They were frightened into a truce, which eventually resulted in peace between them.

Eclipses Repeat

This prediction was possible because of the period called a "saros," in which eclipses repeat. After a lapse of 223 lunar months, or 18 years 11 days, an eclipse will occur again, but about a third of the distance around the earth to the west, and a little farther north, or farther south, depending on the direction the moon is travelling at eclipse time. After three saroses, or 54 years and

one month, an eclipse returns to practically the same longitude on the earth, but farther north or south. Probably Thales had heard of an eclipse in April, 639 B. C. not far away, and so predicted its repetition.

Taking the eclipse of August 31, this year, we find that its predecessor was on August 21, 1914, visible in Europe and Asia and crossing the Caspian Sea. Before it was one on August 9, 1896, seen from Japan. This, in turn, was preceded by a very famous one on July 28, 1878, which was seen from the western United States. The great astronomer, Prof. Samuel Pierpont Langley, observed this from Pikes Peak, 14,400 feet high. In the beautifully clear air, he saw the corona extend for 12 solar diameters, more than ten million miles, to one side. Now, as the eclipse is repeated this year, it crosses another mountain peak, Mt. Washington, 6,288 feet, third highest east of the Rockies. Perhaps from this point of vantage more important observations may be made.

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Eclipses of the Past and Future in the United States

Year	Month	Day	Where visible
1778	June	24	Texas to Pennsylvania.
1806	June	16	California to New York.
1834	November	30	Montana to South Carolina.
1869	August	7	North Dakota to North Carolina.
1878	July	29	Montana to Florida.
1900	May	28	Texas to Georgia.
1918	June	8	Washington to Florida.
1923	September	10	Southern California.
1925	January	24	Northeastern states.
1930	April	28	California, Nevada (very brief).
1932	August	31	Canada, New England.
1963	July	20	Vermont, New Hampshire and Maine.
1970	March	7	Florida.
1979	February	26	Washington, Montana.
2017	August	21	California to North Carolina.
2022	April	30	Texas to Pennsylvania.
2045	August	12	California to Florida.