



FYI

Eclipses Through History

"On the day of the new moon, in the month of Hiyar, the sun was put to shame, and went down in the daytime, with Mars in attendance."

This is one of the earliest written records of an eclipse of the sun, on May 3 of 1375 BC, found in the city of Ugarit in Mesopotamia.

People in the Babylonian and Mayan civilizations customarily observed the heavens, considering what they saw to be a natural part of life. The motions and repeating cycles of the sun, moon, and stars were of critical interest to them as they planned the sowing and gathering of their food supply and as they marked religious and cultural events in their calendar. The systematic and long-term observations were handed down from generation to generation. The accumulation of data over many decades, even centuries, allowed for the discovery of complex relationships among the motions of the sun, moon, and Earth.



Figure 4-13: Eclipses in ancient times often struck fear into the hearts of observers.

Ancient cultures were far more in tune with the rhythms of the cosmos — the motions of the sun, moon, planets, and stars — than we are today. They told time by the daily passing of the sun, or used the time between full moons to gauge longer periods of time. The rising and setting of certain stars marked the beginning or passing of seasons. The skies were orderly and dependable, except when an eclipse occurred. When that happened, chaos reigned, and our ancestors prayed to their deities and begged for the moon or the sun to be returned to the sky.

Eclipses have influenced history, and even today there are those who still attach ancient superstitions to an eclipse. But in our modern technological world, we understand what causes solar and lunar eclipses. And although they may seem like magic shows of shadow and light — disappearing acts by the sun and moon — we know today how the “magic” works.

The diameters of the moon and sun and the distances that they are from Earth happen to make them almost exactly the same angular size in the sky. This fact makes solar eclipses fit nearly perfectly—as the moon passes between the sun and Earth, the disk of the moon just covers the disk of the sun.

Over a thousand individual eclipse records exist from different parts of the ancient and medieval worlds. Sightings of eclipses were recorded by Babylonians in 1375 B.C., by Greeks in 1200 B.C. (in Homer's *Odyssey*), by Koreans in the first century B.C., by Japanese in A.D. 628. Ancient people, beginning with the Babylonians, were able to predict the occurrence of eclipses because the pattern of their appearance can be calculated from many years of direct observation passed down from generation to generation. Knowing when eclipses would occur brought leaders of these nations much respect; their subjects were in awe of such knowledge and power. Failure to predict eclipses, however, could result in severe punishment. When Chinese court astronomers His and Ho failed to predict an upcoming eclipse for their emperor in 686 B.C., they paid for their error with their heads!

Checking In

1. What importance did the observations of the heavens have for ancient cultures, and why?
2. Describe how what we understand about eclipses today has been built upon the work of ancient astronomers.

