

the modern calendar

*Thousands of years in the making
and still evolving in form, function.*

Today we take the calendar for granted. We can schedule an event years in advance and quickly agree on the exact day of the week the event will take place. But the calendar has evolved over thousands of years and took centuries to reach the precise formula that it represents today.

The earliest calendars were carved in bone or stone and date back to 28,000 BC. Man's observations of the cycles of the moon led to the development of what we now call a *month*, which equates to approximately 29.5 days. Man also closely observed the time it took for the earth to revolve around the sun, known as the solar year and consisting of approximately 365 days. Early calculations were not as precise as they are today. It was not until advances were made in mathematics, including the use of the *zero* and the *decimal place*, that scientists were able to calculate precise measurements that more accurately reflect the cycles of the earth and sun.

Another major difference between early calendars and today's commonly used calendar is that many ancient calendars were perpetual; they did not have a discrete beginning and end. Instead, they simply repeated themselves year after year, as in the ancient Maya calendar (above, left) and the Hindu calendar (left).



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Above: the dog represents the 10th day of the month on the Maya calendar. Each day of the month is represented by an animal and a number, as seen in the band (left).

Maya sun god. The sun was a popular symbol in early calendars worldwide.

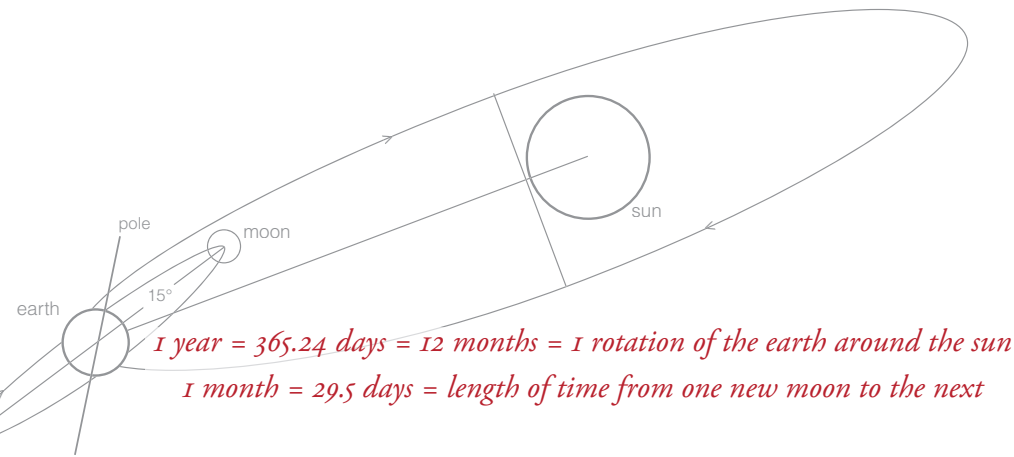
La Piedra del Sol—Sun Stone or Calendar Stone, Museo Nacional de Antropología, Mexico



www.loc.gov/exhibits/world

Symbol of a dog, representing one of 12 months in the Hindu calendar.

A page from the Hindu calendar, 1871-72, Library of Congress, US



Most of today's calendars have a set beginning date, such as "0 BE" on the Buddhist calendar (representing the death of Buddha) or "0 AD" on the Gregorian calendar (representing the years after the birth of Jesus). The Gregorian calendar has become the most widely used calendar worldwide and was driven by the Roman Catholic religion, which, until that time, found it difficult to predict the Easter holiday years in advance. Easter, which is known as a *moveable feast*, did not fall on the same date each year. By developing a more accurate calculation for the rotation of the earth around the sun, scientists at the time determined that the length of one year was 365 days, 5 hours, 49 minutes and 12 seconds. They also established the *leap year* every four years to make up for the slightly less than one-quarter extra day each year.

Despite the newly invented printing press, publishers of the first Gregorian calendar could not meet the overwhelming demand for this popular new tool. Modern printing methods have made paper calendars a worldwide commodity. Even among many of the poorest households, a wall calendar can usually be found.

The electronic calendar, featuring digital readouts of the days, months, and years, has been on the market since the early 1980s. But electronic versions of the calendar did not grow in demand until the invention of the personal digital assistant (PDA), which allows users to input events and then synchronize them with the electronic calendar on their desktop computer. These calendars rely on precise mathematical calculations to accurately formulate dates years in advance.



(Left) PDA with digital calendar, by Palm Computing, 1995.

(Below) Screen capture of 2006 Palm PDA digital calendar

Modern wall calendar



28,000 BC

Prehistoric people carve a lunar calendar in an animal bone near Dordogn, France

2,600

Mesopotamians develop the first written calendar

700

Babylonians have a 7-day week. The Roman year increases to 12 months with 365 days.

238

Leap year proclaimed in Egypt but rejected by priests

46

Known as the Year of Confusion because Julius Caesar adds 90 days to the Roman calendar to align it with the solar year.

525 AD

Dionysius Exiguus reworks the method of counting years to begin with the birth of Christ, or the Year of Our Lord (AD)

1582

Pope Gregory XIII replaces the Julian calendar with the Gregorian calendar

1955

An attempt to reform the calendar and adopt a world calendar fails

1997

PDAs, cell phones, and pagers begin to incorporate electronic calendars

4909

The Gregorian calendar will be 1 day ahead of the true solar year

References:

The Calendar by Patricia K. Kummer, Franklin Watts, New York

Mapping Time: The Calendar and Its History by E. G. Richards, Oxford University Press, Oxford

Calendar: Humanity's Epic Struggle to Determine a True and Accurate Year by David Ewing Duncan, Avon Books, New York

Illustration of earth and moon orbits redrawn from *Mapping Time*, fig 2.6

Digital-Analog Design Punch Cards is a set of research cards designed and produced by the students of DSGD 186, Digital Applications Methodology, a third-year graphic design course at San José State University, Fall 2006. The set, composed of 1+26 cards, is by no means complete. Each topic was chosen and researched by the students, based on a theme presented by the instructor Pino Trogu, with help from Mauro Panzeri. This is card number 04 and it was designed by **Amy Rhoads**.



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DSGD 186
Digital Applications
Methodology
School of Art and Design
San José State University
California, USA - October 2006
Digital-Analog Card No. 04
Printed by psPrint.com