

HOW THE ANCIENTS RECORDED TIME

The indication of time has long been one of the most important factors in the history of the world. Even the primitive peoples had crude methods of telling time, usually by the sun, and one of the first implements used for the purpose was a vertical pole stuck in the ground to establish the noon mark. Representative types of early time-keeping apparatus and mechanisms from various countries are to be seen in the United States National Museum, also permanent and portable sun-dials, hour-glasses, time candles, and lamps, a large series of watches and watch movements, and clocks, including a water clock of the 17th century.

Among the sun-dials, which are perhaps the best known of the early time indicators, is a model of one used by the Montagnais Indians of Canada, consisting of a pole set vertically, the shadow of which was marked in the snow by each hunting party to indicate the time of its arrival to the Indians who followed, thus making the passage of time calculable. Other interesting specimens are brass and ivory pocket sun-dials of the 15th and 16th centuries. There is also a ring dial, which, when held vertically, permits the sun to shine through a small hole on one side of the rim and register the hour on a scale on the opposite side. Vertical and horizontal dials from many countries and latitudes, dating from the 15th to the 20th centuries, are represented.

One of the most primitive time recording devices employed by the Chinese and Japanese, was a knotted wick about two feet in length, which smouldered without breaking into flame, and indicated the passage of an hour by the time consumed in burning between two knots. King Alfred is credited with having established a system whereby twelve-inch wax candles were divided into equal distances; relatively a third of an hour being required to burn an inch. A candle of this type, but only ten inches in length, is exhibited in the museum collection.

Phillippe II. of Spain is supposed to have used an oil lamp for indicating time, the decrease in the amount of oil being shown by graduations on the glass reservoir. It was designed especially for night use; the graduations started at the top, with the mark XIII, passed down to XII, and then from I to VIII, covering the period of winter darkness. A similar lamp is in the National Museum exhibit, classified as a pewter time-indicating lamp, marked for the hours nine to six, and was collected in 1900 in Nuremburg by Dr. Samuel P. Langley, late secretary of the Smithsonian Institution.

Sand glasses are represented by seven specimens of various types indicating three minutes, one-quarter hour, one-half hour, and one hour, and one German set of four-hour glasses probably of the 14th century. The hour-glass is said to be the invention of Luitprand, a monk of Chartres, who, near the end of the 8th century, revived the art of glass-blowing. These instruments are still popular with many clergymen, and it is understood that one is in daily use in the British House of Commons.

Clocks operated by water power date back as far as 300 B.C. in Egypt, and although their history is somewhat vague, it is believed that the earliest ones indicated 'hours' of uneven length, while those evolved during the 17th century and later were simpler and showed even periods. Clocks of this description and of this period are known as clepsydras; one with an alarm attachment was collected for the museum by Dr. Langley in Paris. It consists of a hollow drum, partly filled with water, suspended from an oblong frame by two cords, the lower ends of which are wrapped about the shaft of the drum. When the cord is wound about the shaft, the drum is at the top of the frame, and if released would descend rapidly, unwinding the cord as it goes, were its speed not regulated by the action of the water which flows slowly through a series of seven compartments within the drum, causing a drag or counter-balance to the act of gravity. The ends of the

shaft act as indexes pointing to the hours marked on the frame.

The date of the introduction of clocks worked by weights is not definitely known. But it is supposed that they did not appear until the 13th or 14th century and that John Megestein of Cologne invented the escapement. The museum displays a number of these clocks, including a ship's clock which rings 'bells' in seagoing style.

Portable timepieces appeared shortly after 1500 as the invention of Peter Helein of Nuremburg, who employed a long ribbon steel prong to drive the mechanism of his watches.

The museum collection of watches and movements numbers several hundred, and illustrates the development of the mechanical part of the watch, making it possible to compare the work of many early watch-makers of the United States and other countries.

Mr. E. G. Theodore, Deputy-Leader of the Queensland Labor Party and Treasurer and Minister for Works in the new Ministry, belongs to a well-known and highly-respected Catholic family, and his success so early in life is a signal triumph for the Catholic community.

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