

lay the pain and a sedative to permit rest. Then they inject into his veins a solution of magnesium sulphate, more commonly known as epsom salts. It is the latter treatment that is credited with relieving the abdominal cramps and the other severe symptoms that follow the spider's bite.

An intoxicated man has a poor chance of recovery once the black widow has injected her poison into him. Nor should

any person who has been bitten by this spider be given a drink containing alcohol.

Infants or very small children may not recover from this spider's bite, these Fresno doctors believe, because the amount of poison from the bite is large in comparison with their small bodies and the victims go rapidly into convulsions.

*Science News Letter, May 25, 1935*

HOROLOGY

## Clock Made by Tutenkhamon Found in London Antique Shop

DISPLAYING a clock made by the royal hands of young Pharaoh Tutenkhamon, in the land of Egypt over 1300 years before Christ, Prof. James H. Breasted of the Oriental Institute of the University of Chicago told how courageous Egypt pioneered in conquest of "time and its mysteries."

Prof. Breasted was giving the James Arthur lecture on "Time" at New York University, where the Arthur collection of clocks and watches is maintained.

Tutenkhamon's transit instrument for determining the hour by the stars was found by Prof. Breasted, reposing in an antiquity shop in London. An inscription on the instrument states that Tutenkhamon made it with his own hands.

Prof. Breasted emphasized that the instrument was not unearthed in Tutenkhamon's tomb, but was made by him in restoring tomb equipment of one of his royal ancestors. The shop that had it thought it part of an Egyptian writing kit, and Prof. Breasted was first to recognize its true significance. This timepiece and another belonging to Tutenkhamon's grand-father-in-law are the oldest surviving astronomical instruments in the world, the Egyptologist said.

Telling of man's hard struggle to measure time, resulting in calendar and clock that are so easily taken for granted today, Prof. Breasted brought out point after point from the oldest historic sources and modern primitive tribes.

Among people of low intelligence there is no conception of a long period of time. Modern example: a Dahomey Negro rarely knows how old he is.

Primitive men early observed the cycle of changes in a year. But length of a year, and mere arithmetic of counting the days it occupied were far beyond human powers at first.

For ages, man thought of roughly twelve moons as the length of a year.

The Babylonians based their calendar on moon months. For a time they adjusted it by inserting a month whenever the king noticed that "the year hath a deficiency."

The Greeks inherited their calendar from Babylonia, and wasted their scientific gifts adding one futile refinement after another to the hopelessly inconvenient and complicated lunar calendar.

Even learning of the Egyptian calen-

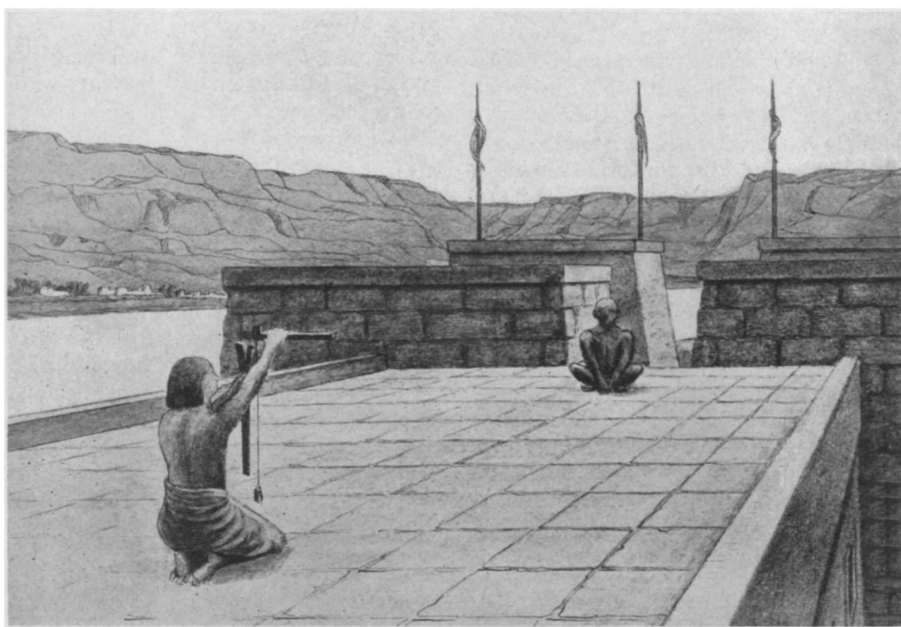
dar, the Greeks could never free themselves of their calendar which had entrenched itself in their beliefs and customs.

Mohammed was so ignorant of the nature of the calendar problem that in the Koran he forbade insertion of intercalary months, a device needed to keep any moon calendar from slipping far behind the solar year. A Moslem year still has 354 days.

The Egyptians were the only ancient people who clearly recognized the lunar year was not "real" and had courage and intellectual freedom to be rid of it. They got their clue to a year's length from the stars, not the sun.

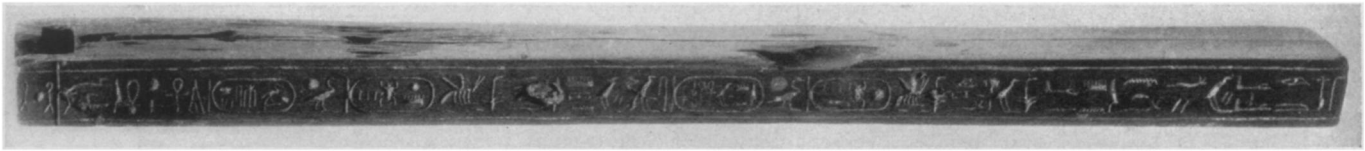
The lucky accident that the heliacal rising of Sirius occurs very near flood time on the Nile gave the Egyptians their fixed point for marking off time into years. They gave the year 360 days at first.

In 4236 B.C., Egypt advanced to having a practically convenient 365-day calendar of 30-day months with five feast days at the end. The date 4236 B.C., computed from references, is given this distinction by Prof. Breasted: "not only the earliest fixed date in history, but also the earliest date in the intellectual history of mankind."



HOW KING TUT'S CLOCK WAS USED

*Dr. James Breasted explains that the observer, seated on a meridian line, sighted through the forked top of a palm branch at stars in the northern sky over the head of the squatting assistant. A plummet was held in the observer's right hand so that the plumb-line cut through the star he was observing, and also so that the lower point of the weight was oriented to some part of the assistant's body, the shoulder, for example. Following the star with his plumb-line, the observer watched until the weight pointed to the crown of the assistant's head. The star was then crossing the observer's meridian. A time-table of hours when important stars crossed the meridian or occupied definable positions near it accompanied the transit instrument. The drawing is from the Science Museum, London.*



#### TUTENKHAMON'S CLOCK

*This clock bearing Pharaoh Tutenkhamon's inscription showing that he made it with his own hands is now in the Oriental Institute of the University of Chicago, through whose courtesy the photograph is used.*

Egyptians began the day at dawn, and this practice was used in Europe as late as the Middle Ages. Introduction of the striking clock, fourteenth century, shifted the beginning of day to midnight.

Egyptians early divided the day into 12 parts for convenience, but were not concerned that the parts be of equal length. As late as the Middle Ages in Europe, hours were of varying length—longer in winter nights, shorter in winter days, and vice versa in summer.

In early Christian centuries, Egyptians divided the hours into halves, quarters and eighths. The modern division into 60 minutes made of 60 seconds is no older than about 1000 A.D.

Primitive men and women today, lacking time pieces, use such phrases as "a rice-cooking" to mean about half an hour, or "the frying of a locust" to mean about a minute.

*Science News Letter, May 25, 1935*

#### ARCHAEOLOGY

### Engineers Find Aztec Lady of Lake in Mexico

**A**N AZTEC water goddess, once the proud lady of the lake which surrounded Mexico City in Aztec days, has been found in the dried lake bed by Mexican engineers.

All that remains of the glory of the "blue skirted one" is her figure made of painted clay and a quantity of Aztec pottery and ornaments. The goddess' shrine, which once rose out of shallow Lake Texcoco, went the way of other pagan Indian shrines when Spanish conquerors advanced on the Aztec capital.

Archaeologists of the National Museum in Mexico City, informed of the discovery, have investigated the site. From old maps they calculate that the water goddess' shrine stood near the lake shore camp of the Spaniards in 1520. Here the Spaniards built brigantines for a second attempt on Mexico City following their initial failure there.

*Science News Letter, May 25, 1935*

#### EPIDEMIOLOGY

## Colds Are Caused by Germ; Weather Can't Bring Them On

**N**O MATTER how much cold and rainy weather a person is exposed to, the individual will not catch a cold unless he is infected by a cold germ caught from another individual, Prof. Wilson G. Smillie of the Harvard University School of Public Health revealed.

Speaking at the annual meeting of the Associated Harvard Clubs, Prof. Smillie described four Harvard expeditions to isolated communities for the purpose of studying the common cold.

The investigations were conducted at Stevenson's "Treasure Island," which is St. John's in the Virgin Islands, at a Hudson Bay trading post on the Northwest river in Labrador, at Spitsbergen, the northernmost permanent settlement in the world, and at Happy Hollow on the Patsiliga river in southern Alabama.

Prof. Smillie also revealed that a person with a cold is only infectious for three days, even though he may be coughing and have a temperature after that time.

Summarizing the conclusions of the expeditions in his address, Prof. Smillie said:

"Common colds are an infection and are not due to cold weather. Many people think that colds are due to cold weather but this is not so. In Spitsbergen we found that the people were subjected to intensely cold weather and terrific winds all winter without catching cold; but as soon as the boats came in the spring and carriers of cold germs arrived, most of the people in Spitsbergen caught colds.

"On Stevenson's 'Treasure Island' in the tropics, which had a population of 746 when we were there, we found an almost perfect paradise as far as weather and environmental conditions are concerned. The people there also caught colds, but not as long as they were isolated from contact with carriers of cold germs.

"At the trading post in Labrador we found that the people did not have any colds all winter until a mailman arrived

and brought the cold germs in. Then colds spread to the whole community.

"So we proved that colds are infectious. A person with a cold is infectious, however, only for the first three days. The person may be coughing and have a temperature after three days, but he is not infectious any more."

Explaining the conduct of the investigations in field laboratories, Prof. Smillie said that a study of the causes and spread of colds in modern community life would have been unsatisfactory, since our life is so complex, our contacts so frequent and our environmental influences so varied.

"We attempted to simplify our studies by the establishment of field laboratories in these various isolated communities where human contacts are infrequent, life is simple and environmental factors measurable," he said.

Prof. Smillie led all of Harvard's cold studying expeditions except the one to Spitsbergen which was led by Dr. Harland Paul who has since joined the Rockefeller Foundation. The expeditions have been conducted at intervals since 1927.

*Science News Letter, May 25, 1935*

#### CHEMISTRY

### 2,000 Tons Per Month of Potash From Dead Sea

**P**OTASH from the waters of the Dead Sea, in Palestine, has now reached a production rate of between 2,000 and 3,000 tons a month. The initial rate, only two years ago, was not more than 1,000 tons a month.

The principal by-product of the potash industry is bromine, which now equals 74 per cent. of the total British requirement for this chemical. Other by-products in economic prospects are potassium sulphate and calcium sulphate, both meeting fertilizer needs of Palestinian soils. (*Die Umschau*, March 17)

*Science News Letter, May 25, 1935*