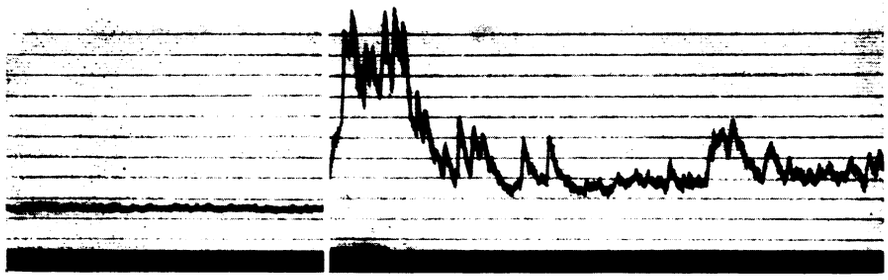


HERE IS A DREAM OF CONEY ISLAND

This photograph taken of the electrical current in a sleeper's arm shows you the picture of a dream. At the left is a record made while the individual was just sleeping and snoring restfully. The right section shows how the waves magnified when the sleeper dreamed he was at the amusement resort Coney Island.

PSYCHOLOGY

Photographic Record Made Of a Sleeper's Dream

Psychologist "Taps the Wires" of Human Thought, Picking Up Electric Impulses From Deaf-Mute's Arm

DID YOU ever see a dream walking? Members of the New York Academy of Sciences did recently. At least they saw the photographic tracing it made as it passed through the sleeper's mind.

A photograph, with jagged peaks something like the charts of business increase and depression familiar on the newspaper financial pages, is the first scientific record of what goes on in the mind of a person asleep. It was shown by Dr. Louis W. Max, psychologist of New York University. The peaks revealed to the observing scientist what was going on in the sleeper's brain when he dreamed of Coney Island.

Not occult, not "spirit" pictures, the dream tracings were made with a practical hook-up of familiar electric apparatus, string galvanometer and amplifier. With this device attached to the arms of deaf-mute sleepers, Dr. Max is able to see when a dream begins and how long it lasts, just as the physician with his electrical apparatus is able to watch the tremors and palpitations of the living heart.

Dreams last longer than has been supposed. Instead of being all over in a brief fraction of a minute,—almost instantaneously—one dream was observed to last for 2¾ minutes. When he awoke the sleeper said he had had a long, hazy dream. He could not remember any outstanding incident.

Dreams are remembered much better when they are interrupted. For this reason, Dr. Max seldom allowed the sleeper to dream it out. He would wake him while the dancing light of the apparatus still showed mental activity was taking place.

Out of 33 persons so awakened, 30 told of dreams broken off when they were roused.

As a check, Dr. Max waked 62 persons while the record showed no activity. Only 9 of the 62 had been dreaming, and most of these had dreamed of seeing something.

Since the hands and arms of deaf-mute persons are used for both conversation and writing, it is natural that the electrodes attached to their arms would pick up electric impulses accompanying most thoughts and dreaming, Dr. Max explained. Dreams of the type of visions, however, may leave their traces elsewhere in the body. Further experiments may show such action currents in the eye-balls, he prophesied.

These electrical traces of thought are like the brain-waves observed by Drs. H. H. Jasper and Leonard Carmichael, of Brown University and Bradley Hospital, Providence, R. I., and reported last January. (*SNL, Jan.* 19)

They are electric impulses picked up, turned into light and amplified so that they can be seen on a screen or photographed. It has long been known that such electric currents accompany activity of the nerves, but it is only recently that they have been put to use to find out about the hidden workings of the brain in thought. And it is only within the last few months that scientists in this country have picked them up directly from the brain.

These brain-wave pictures do not tell the whole story, Dr. Max said, because thinking is not confined to the brain. His new photographs show that during dreaming and waking thought electric impulses occur and can be pictured not only in the brain but also in certain outlying muscles of the body.

The brain should be thought of as a telephone switchboard. In taking these pictures the scientist has turned detective and "tapped" the wires near the receiver end.

Do speaking persons have electric currents in their throats and tongues as the deaf-mute person does in his fingers and arms? Dr. Max is trying to find out. The difficulty is to get anyone to go to sleep while his tongue is hooked into the amplifier circuit. So far he has found only four who could sleep under these difficult circumstances. None of them dreamed. But even in dreamless sleep, a current of six microvolts was picked up. This compared with an average of only one microvolt from the arm.

Science News Letter, May 25, 1935

MEDICINE

Black Widow Spider Not So Black as She's Painted

NOT as black or deadly as she has been painted is the latest medical verdict on the "black widow" spider. This partial clearing of the lady spider's reputation is made by Drs. J. M. Frawley and H. M. Ginsburg, of Fresno, Calif. (*Journal of the American Medical Association,* May 18).

The shiny arachnid has come to be feared as something of a nation-wide menace since fatalities from its bite have been reported in increasing numbers.

Fifty-two cases of black widow spider bite have been treated without a fatality in the Fresno General Hospital, these doctors report. The right hospital treatment will save the life of the person the black widow bites, they believe. No treatment or the wrong treatment may result in death.

Here are some details of the treatment they recommend: They put the patient to bed and apply iodine to the site of the bite. They require him to drink large quantities of water and of nonalcoholic fluids. They give him a hypodermic to al-

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.

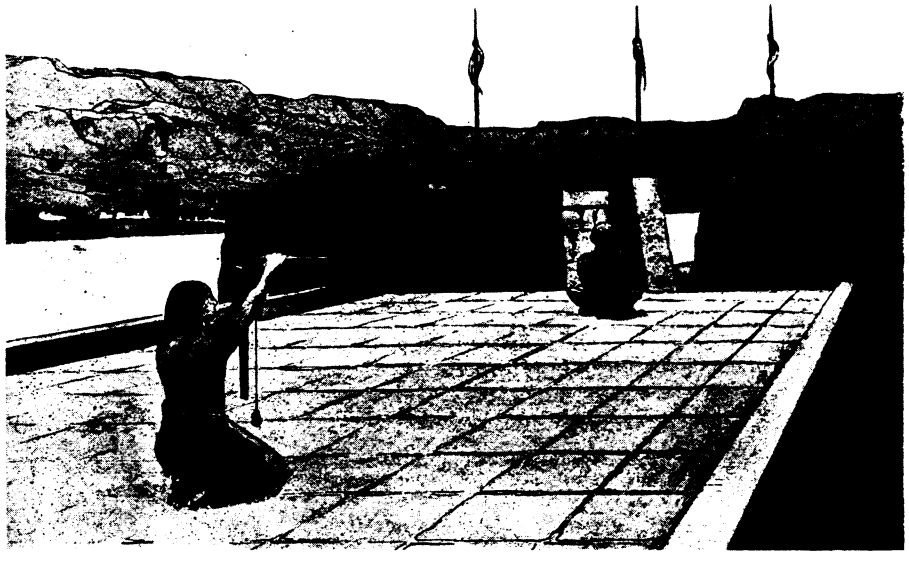
Even learning of the Egyptian calendar, the Greeks could never free themselves of their calendar which had entrenched itself in their beliefs and customs.

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.