ASTRONOMY—ARCHÆOLOGY

Origin of Maya Calendar

The simple method by which ancient wise men of tropical America observed the sun and were able to tell their people when to plant crops has been discovered by Mrs. Zelia Nuttall, well-known authority on Mexican archæology. Mrs. Nuttall, who has spent over thirty years studying the antiquities and early history of ancient Mexico, is now in Washington, where she explained her theory to the American Anthropological Association. On their arrival in the New World the Spaniards were surprised to find that the natives had an accurate knowledge of the length of the solar year. This remarkable fact has hitherto been explained as an indication that early astronomer priests, even in primitive communities, must have made careful observations of the sun and must have gradually worked out a system of calculating and recording the average number of days between the longest and shortest days in the year. Mrs. Nuttall found that such difficult, complicated and sustained mental efforts were not necessary nor probable.

"All the centers of ancient American culture," she explains, "are situated within the tropics. In this zone the sun passes twice a year through the zenith, the result being that twice a year at noon there occurred the momentary striking phenomenon of all vertical objects casting no shadow.

"Archæological and documentary evidence establish beyond doubt that the Mexicans, Maya, Peruvians, Ecuadorians, and others inhabiting the tropical zone observed the periodical strange and momentary disappearance of shadows and interpreted it as 'a descent of the Sun-God.'

"This 'descent of the god' was of outstanding importance to the primitive farmers, because it was always accompanied by rains, caused by the heat of the vertical solar rays. The priests or wise men who observed the 'descent of the god' could thus safely assure the people that the time was ready for them to sow the seeds of maize and other food plants."

The first means by which the solar phenomenon could have been noted, were plain vertical posts or upright stones. But later, Mrs. Nuttall believes, the people began to feel that more worthy places of rest should be provided for the descending Sun-

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PHYSIOLOGY

Milk Relationship

The ancestral strain that unites all the higher animals has been demonstrated through their milk no less than through their blood chemistry. Researches on the lowest of the mammals, just finished at the University of Adelaide, Australia, by Prof. H. R. Marston, have completed the data available on the composition of milk throughout the range of animals that nurse their young on this fluid.

The two chemical compounds most characteristic of all kinds of milk are milk sugar, or lactose, and casein, the latter the proteid substance that forms the basis of cheese. Both these compounds are unique, being found nowhere else in the animal or vegetable kingdoms. Other proteins of milk are likewise distinct, but they are not so profoundly different from the proteins of other sources as is casein.

Here is striking evidence of a father and son—or perhaps better, a mother and daughter—relationship among all the hosts of mammals. This is the one thing in common possessed by all the higher animals. As we pass down from man through the apes, dog, tiger, cow, whale, bat, rat, and armadillo to the duck-bill, we arrive at an animal that is obviously closely related to the reptiles, for it hatches its young from eggs and has reptile-like jaws.

"The Echidna," says Prof. Marston, "transfers the egg to its ventral pounch, which in the breeding season becomes a functional incubatorium, where it very soon hatches, and the embryo obtains its nourishment by nuzzling the milk secreted from the many openings of the mammary ducts, which are scattered over the surface of the breast in the region of the pouch. There is no development of a definite teat."

Prof. Marston found the milk of the Echidna exceptionally high in fat, 19.6 per cent. being present. Among milks known at present this is equalled only by that of the reindeer and the whale. The monotreme milk had three times the protein content of cow's milk.

Thus from the simplest mammal to the most exalted we find milk; and this milk always contains lactose and casein, and lactose and casein are found nowhere else. They constitute a continuous thread running up and down through the mammalian world. And they are a strong

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ETOMOLOGY

War on Corn Borer

The United States has officially declared renewed war upon a foreign invader. By authorizing the appropriation of $10,000,000, almost the cost of a first-line armored cruiser, Congress and the President have recognized the menace, not of armed men, but of an army of insects, the European corn borers. The stake of the battle is the corn crop, valued at $1,703,430,000 for the past season.

The corn borer is a strong fighter and has gained an almost conclusive victory in Canada, where it has reduced the corn acreage 90 per cent. Although it is in this country to stay, it has been the hope of government entomologists to keep it confined to states where it will do the least damage and to keep it out of the great corn belt. The borer has been getting nearer and nearer to the corn belt and just recently took its first plunge deep into this sector, appearing in Kankakee county, Illinois.

Annually the U. S. Bureau of Entomology gets an appropriation from Congress for research and quarantine work. Ten million dollars is now asked for an experimental campaign in improved crop methods. It is a clean-up campaign to reduce the chances of spread by reducing the number of borers present in infested areas. The money is wanted at once, for the work must be done by June first. The bill just passed is an authorization bill and must be followed by the actual appropriation of funds.

Effort is being made to rush an appropriation measure through Congress since the last deficiency bill will not come up for some time and the delay would be costly to the control measures.

No matter how soon the appropriation will be made it is understood that not a penny of the money will be used until the state legislatures in the affected districts pass regulatory legislation empowering federal and state men to go into the corn fields for the necessary clean-up work planned.

Science News-Letter, February 26, 1927

Benjamin Franklin invented a peculiar musical instrument.

Roman seamen were troubled by ship borers that made honeycomb of their wooden galleys.

Pork should be thoroughly cooked, because poorly cooked pork may harbor parasites of a disease known as trichinosis.

Milk Relationship

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part of the evidence that mammals evolved one from the other. In the evolving process milk persisted because it proved to be a most desirable means of rearing the young. It needed no improvement, therefore it persisted, even through all the branches and twigs of the great mammalian tree, as it grew and developed from the primitive seedling.

Science News-Letter, February 26, 1927

The anaconda is the most dangerous of constricting snakes.

Coffee was introduced into England in the seventeenth century.

A meter to measure the force of a swimmer's stroke has been devised.

Chocolate drunk by the Mexicans is sometimes flavored with red pepper.

In the days of Hamurabi, 4,000 years ago, perfumery was considered so essential that even servants were ordered to use it.

The Indians of the New World had already domesticated the guinea pig, llama, turkey, and alpaca by the time Columbus arrived.

Origin of Maya Calendar

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God. Sun-pillars, stelae, stone seats, altars, towers, and even shrines and temples were set up to celebrate this great and mysterious phenomenon, and in time an elaborate ceremonial was developed, which included the offering of blood and sacrifice of human victims.

In the light of this discovery, ancient American religions, art, and calenders take on new aspects. The Sun-God, who is so widely depicted in the Mexican Codices and bas-reliefs and on Maya temples with his heels in the air and his head far below them, has generally been termed "the diving god." According to Mrs. Nuttall's interpretation of these figures, the god is descending through the air and the feather-like decorations on his arms are symbolical like the wings with which angels are represented in Christian art. Many of the carved and painted representations of the Sun-God in the form of a human being, bird or jaguar, show him accompanied by plumed serpents which symbolize the rains from heaven associated with him.

Another mystery she has explained simply is that of the strange "Chultunes" of Yucatan. These are subterranean structures shaped like a long-necked decanter with a circular opening at the top, large enough for a person to be lowered into the chamber below by means of a rope. Mrs. Nuttall pointed out that these awe-inspiring underground rooms, with the round opening at the top, were designed so that the priest-astronomers could register privately and accurately the passage of the sun through the zenith. At this moment the solar rays would enter directly into the vertical shaft and fall exactly on the center of the floor below.

She also pointed out that the smaller vertical shaft recently discovered in the exact center of the core of the round temple known as the "Caracul" at Chichen-Itza was admirably adapted for the same purpose.

Mrs. Nuttall believes that there is no reason why this simple means of accurately determining the length of the year and an analogous solar cult should not have originated and evolved independently in the tropical zone and under identical climatic conditions in other parts of the world, such as Ethiopia, Nubia, and India.

Science News-Letter, February 26, 1927