

### Early Man in America

Claims that primitive man inhabited America at a time vastly earlier than hitherto supposed have received substantiation through the visit of Dr. O. P. Hay, paleontological authority of the U. S. National Museum, Smithsonian Institution, to the gravel pits at Frederick, Okla., where were recently discovered well-made flint arrowheads and other artifacts in association with skeletons of animals that lived during the early part of the glacial epoch.

Acceptance of such antiquity for man in America will not only upset the prevailing notions as to human history in the western hemisphere but will date ancient man in America earlier than the famed Neanderthal and Cro-Magnon men of Europe.

The new evidences of early man in America were unearthed, studied and reported by J. D. Figgins and Harold J. Cook of the Museum of Natural History, Denver. Dr. Hay's trip was made to inspect the site and the circumstances surrounding the excavations. The question of the existence of early man in America has long been one of controversy in scientific circles, many anthropologists being unwilling to believe that America was inhabited before the Indians who emigrated here from Asia not more than 25,000 years ago according to some authorities.

"I feel that those who go to Frederick and see for themselves will have no doubt as to the authenticity of these evidences of early man in America," Dr. Hay said. "Those who believe that man has existed on this continent for only a few thousand years should investigate this case and give us their explanation of it."

In a detailed statement to Science Service, Dr. Hay said:

"At Frederick, Okla., there is a north and south ridge about one-half mile wide. Its highest point is a hill about 100 feet above the country east and west. The whole deposit is that of a river whose current must at times have been rapid.

"The situation shows that these materials were laid down long ago. Rivers do not run on the tops of ridges and hills. Since that stream abandoned its channel the near-by Red Beds of the vicinity have been eroded away about 100 feet, still more at a distance; and the river has gone elsewhere. The topography seems to show that the old bed on  
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### Excavate Crusader's Castle

Ruins and debris of a crusader's castle in Palestine have been studied for one month by an expedition from the Metropolitan Museum of Art, and as a result the everyday life of the knights who set out for Jerusalem to recapture the tomb of Christ from the infidel is beginning to be clearly understood.

In a report of the museum's expeditions, just issued, Dr. Bashford Dean, curator of armor, points out that objects used in homes of the twelfth and thirteenth centuries are rare, because whatever existed in towns and castles of Europe has been thoroughly picked over and lost since early times. Only religious books and art have survived to show a little of the crusaders' existence.

The great castle of Montfort, just explored, has remained very much as the Saracens left it after a victorious and destructive siege against the Hospitalers in 1271.

From the articles and fragments of articles discovered in the ruins, Dr. Dean states:

"We know today many objects associated with the crusader's daily life—his pottery and glass, his pitchers and bowls, his wooden spoons, his thimbles and needles.

"We have seen his tent peg carved with heraldic bearings which his  
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### MEDICINE

#### New Color Test For Toxins

A color test that will speed up the commercial production of diphtheria and tetanus toxins, if further tests bear out preliminary investigation, has been discovered by Drs. Lucy Mishulow and Charles Krumwiede of the New York City Health Department.

Up to the present time the standardization of toxins, which play such an important part in modern therapeutics, has been based on a system by which the strength of a batch of toxin could only be determined by trying it out on laboratory animals. This procedure involves inoculation of many guinea pigs, endless calculations and observations and the keeping of innumerable records. Animal tests give satisfactory results but chemical tests when possible are much more rapid and exact.

In the process of trying out different reagents to detoxify diphtheria toxin Drs. Mishulow and  
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### Vitamin B In Lactation

A poorly nourished mother, whose bodily stock of vitamin B is subnormal, becomes unable to pass along this necessary food element to her nursing offspring, even when she receives a renewed supply. To fortify her milk with vitamin B, so that the nurslings get their share, she must have several times the ration necessary for the mere maintenance of her own bodily health.

This is the nub of the conclusions reached by Dr. Barnett Sure, dean of the agricultural college at the University of Arkansas, based on his experiments with laboratory animals kept on a carefully analyzed synthetic diet. He made use of white rats, partly because they are convenient to handle and can always be depended on to have plenty of young ones, and partly because in general what holds good for rat diet also holds good for human beings.

When he excluded vitamin B from the rations of his animals, both mother and brood became sick with beri-beri, a disease common in the rice-eating Orient though rare, or at least not pronounced, in the West. If he gave the mother the minimum requirement for her own health, her body absorbed it and failed to pass it on with her milk. But if he increased her supply to between three and four times the minimum requirement, both mother and brood recovered.

Dr. Sure has been able to obtain a concentrated extract from the germs of wheat with a vitamin B content at least three times as great as that of brewers' yeast, the usual laboratory source. He has found that by feeding this directly to the young animals, he can benefit them much  
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### HYGIENE

#### Tooth-Brush Peril

The old family tooth-brush is again under indictment with none less than Dr. F. D. Donovan, surgeon dentist to the royal household of England leading the attack.

Practically no tooth-brush in current use is free from germs, declared the guardian of the royal molars in a recent report to the medical journal *Lancet*. He has examined bristles from hundreds of them, including his own, under the microscope with disturbing results.

While pyorrhoea is not actively caused by the unclean brush, in Dr. Donovan's estimation, he nevertheless  
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### Vitamin Big Factor

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more than by giving it to the mother and letting them obtain it through her milk.

He tells a rather appealing story of the feeding of his experimental pets:

"One of the laboratory assistants, who is an experienced nurse, gives the babies individual attention, is very tender to them, and instead of forcing the medicine dropper on them lets the vitamin solution drop into their mouths slowly. The illusion works surprisingly. The little rats, still deprived of vision, have a feeling that they are nursing and cling on with their little front legs to the medicine dropper as they would to their mother's breast. In a few days they become very anxious for the vitamin and it is a difficult matter then for the attendant to hold them still, since they are very anxious to receive not only their daily portion but also the portion belonging to their little brothers and sisters.

"The mother is also very anxious for her allowance, which she receives in the dry condition moistened with a few drops of water. If perchance the attendant should forget to separate a two-thirds-developed litter from the mother, a problem of psychological interest develops. A competition for vitamin between mother and young ensues. The mother loses all the maternal instinct which she possessed to such a highly developed degree earlier in lactation, and will subsequently even slightly abuse her offspring who are trying to rob her of her vitamin portion which she needs later during the nursing period for her own welfare."

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### Tooth-Brush Peril

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less believes that it is at the root of 90 per cent. of the cases now prevalent in the civilized world. Keeping brushes immersed in a one to twenty solution of carbolic acid when not in use is the only practical method he has found of keeping them sterile. This is hard on the brushes and fine for the manufacturers, he admits, but is the only remedy he can see at the present time to check the prevalence of the infection.

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The world's food supply from cultivated crops is produced on about seven per cent. of the land area.

### Excavate Crusader's Castle

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people hammered into the ground probably with the type of heavy hammer which here turned up, and carved possibly with the very chisels; or the rings to which he tethered his steed, and how they were fastened to the wall.

"We may even picture him carrying his pottery lamp, long beaked, green enameled, as he picked his way up the steep stairs, or may see his outline and the sheen of his mail by the light of transparent glass lamps swinging from the ceiling by chains attached to handles of cobalt blue glass. We know even definitely what buckles he wore in his costume."

The arms and armor worn by the thirteenth century knights in their holy warfare must have existed in large quantities, Dr. Dean states, but practically none of them have survived. The Montfort castle expedition has yielded only fragments of armor, but these show the kind of mail worn by the knights, at least so far as the size and weight of the links is concerned, and also the type of head protectors used.

"The outstanding feature in the present study," he says, "is the evidence that the knights of Montfort were living not under conditions of stress or hardship, but on very much the same material level which they would have occupied in Europe."

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### Color Test for Toxins

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Krumwiede found that the chemical compound gold chloride gave an interesting color reaction when mixed with the toxin. The investigators then proceeded to determine if a quantitative relationship existed between the strength of the toxin and the color produced. Their results indicate that such is the case. By means of the color tests they have been able to estimate the strength of the toxins and have found that this estimation checks approximately with the toxin value obtained by animal tests. If subsequent research bears out these results another great discovery will have been added to the credit of modern medicine.

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Aztec pyramid walls form the supports of many downtown streets in Mexico City.

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the ridge was that of Ancient North Fork of Red River. The present river runs in a bed 12 miles farther west and probably at a level about 200 or 250 feet lower. The geological map of the region shows that the intervening space belongs mostly to the Pleistocene; and the deposition of that has probably been the work of the river.

"The fact which makes the discovery at Frederick of the profoundest importance is the occurrence of a well-made flint implement in the lowest gravels and on the level of the bones of a primitive elephant, a mastodon, two species of camels, two species of ground-sloths, a glyptodon, and three or four species of horses, one very large, one pony-like. Somewhat higher up was found another arrow point. No one can, I believe, talk with A. H. Holloman, the owner of the pit and the finder of the fossils and artifacts, and with Dr. F. G. Priestley, who brought them to the attention of the scientific world, and have any doubt that the objects are authentic.

"As to the animals, I hold that they are characteristic of the first interglacial stage (the Aftonian) of the Pleistocene. The time when the deposits were laid down and the animals and the flint workers lived there is roughly estimated to be 500,000 years ago.

"This conclusion is sustained by the enormous amount of erosion suffered by the Red Beds since the river left its old channel; likewise by the occurrences of the relics of man mingled with early Pleistocene animals in perhaps fifty other localities. One of these may be mentioned. About two years ago collectors for the Colorado Museum of Natural History found a complete skeleton of an extinct buffalo near Colorado, Texas. It was buried in a deposit which appears to be the same as that found about 160 miles farther north and which has furnished numerous early Pleistocene animals. Now underneath this buffalo were found three flint artifacts.

"For eleven years I have been contending that these associations indicate the presence in North America, in early Pleistocene time, of human beings much like the existing Indians."

Science News-Letter, October 1, 1927

It takes from 3,000 to 8,000 cocoons to produce a pound of raw silk.