

ARCHAEOLOGY

Town Planning Before Babylon Shown by Finds Near Baghdad

THE EARLIEST known example of town planning has been discovered at Kafaje, an archaeological site in Iraq about 50 miles from Baghdad—east of the river Tigris. Writing in the *London Times*, Dr. H. Frankfort, field director of an expedition working on behalf of the Oriental Institute of Chicago, reports that he has uncovered a temple, contemporary with the tombs discovered by C. L. Woolley at Ur and dated at about 3500 B. C. A part of the town in which the houses are arranged with the greatest regard to economy of space was also unearthed. The partition walls are shared by adjoining houses and blind alleys serve as the entrance to houses at their ends. The houses are square with one another, and one long street runs through the town from northwest to southeast with side streets running off it at right angles.

Much of the site was pillaged by robbers in 1928, but one valuable find which they missed is a sculptor's workshop. Here can still be seen the details of the sculptor's technique. Statues are here in various stages of being hewn out of square blocks, while unfinished parts show how the sculptor dealt with broken statues sent to him for repair.

At Tell Asmar, 15 miles away, where the expedition has also been at work, several discoveries of the first importance for archaeology and the history of religion have been made.

For the first time archaeologists have been able to examine the domestic arrangements of the time of King Sargon I, the great king who founded the dynasty of Babylon in 2750 B. C. and claimed to have extended his dominions as far as the Mediterranean. Dr. Frankfort's expedition has excavated a temple and houses of this period, the first available for examination.

In the large "palace" building, what was apparently the women's quarters, a unit of longer rooms with small rooms grouped around, was found. This was not accessible from outside. It was strewn with pots, handmills and domestic utensils. In a small suite of two rooms, probably the apartments of the mistress, were beads, an ivory comb, rouge and black kohl for the eyes, both

kept in mussel shells, and finally what Dr. Frankfort regards as the raw material for the equivalent of the modern European lady's embroidery, lumps of bitumen and pieces of mother of pearl for inlay work.

Equally important for the student of early religions were the carved reliefs which were found in a temple of an earlier date than the Sargonic buildings, the "House of Abu," the Lord of Vegetation. In several of these reliefs the god is shown with part of his body in the form of a snake. In another a human or divine figure attacks a seven-headed monster with a spear. Four of the heads hang down while the remaining three menace the figure. This, Dr. Frankfort says, is undoubtedly the Asiatic prototype of the combat between Hercules and the Hydra.

Most important of all, however, is what Dr. Frankfort regards as a representation of the central mystery of the Asiatic fertility cults—the marriage of the god and the goddess. A male and female deity are shown side by side on a bed with the priest at the foot. This incident is hinted at in Babylonian texts; but this is the first representation of it ever to be found.

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ZOOLOGY

Petrified Forest May Show Antelope Herds of America

PETRIFIED Forest National Monument, in eastern Arizona, one day may be the great show place for antelope in this country, if plans now being considered by the Office of National Parks, Buildings, and Reservations of the Department of the Interior are carried out.

The Petrified Forest is a natural range for these plains animals. At present about 38 antelope range immediately south of the monument and along the approach road, while another band of 30 ranges immediately southeast of the monument and still a third, numbering about 200, ranges to the west. With this nucleus in the vicinity of the monument, there is sufficient stock available

for further development.

George M. Wright and Ben H. Thompson of the Division of Wild Life Studies of the Office of National Parks, Buildings, and Reservations, after inspecting the Petrified Forest last summer, recommended that the development of the monument as a real antelope preserve be inaugurated this summer. The plan under discussion involves fencing the outer boundaries of that portion of the monument under consideration for restocking, to keep out stray cattle and give the natural forage an opportunity to return.

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VETERINARY MEDICINE

Mosquitoes Carry Sleeping Sickness To Horses

SUSPICION that insects, possibly mosquitoes, may be carriers of the sleeping sickness outbreak in the St. Louis area receives a certain degree of indirect support in the recently established proof that a disease of the same general type in horses is transmitted by the yellow-fever mosquito, *Aedes aegypti*.

Encephalomyelitis of horses, which produces in horses and mules symptoms more or less resembling those of sleeping sickness in man, was traced to a filterable virus as a causative agent within the past four years, by Prof. K. F. Meyer of the Hooper Foundation and associates of the University of California. Early in the spring of this year, Maj. R. A. Kelser of the U. S. Army Medical School succeeded in infecting a horse through the bite of a yellow-fever mosquito known to be a carrier of the virus. He demonstrated also that the insect was not a mere mechanical



THE POETRY OF THE ROCKS

an address by

Dr. R. S. Bassler

Curator of Geology at the U. S. National Museum, Washington

To be given Friday, Sept. 15 at 1:45 p. m. Eastern Standard Time over stations of the Columbia Broadcasting System. Each week a prominent scientist speaks over the Columbia System under the auspices of Science Service.

carrier, but that the virus underwent some change in its body, analogous to the changes undergone by the malaria germ in the body of its carrier mosquito.

While this is not necessarily to be taken as indicative of a mosquito transmission of the present type of human encephalitis, it is at least suggestive.

The U. S. Public Health Service is not overlooking the possibility of insect transmission of the disease. A medical entomologist has been added to the corps of research workers now in the St. Louis area, and he is keeping in touch with the Washington office of the Service by long distance telephone.

An early killing frost followed by a sudden drop in the development of new cases would be a strong link in the chain of evidence binding the guilt on an insect carrier. But the average date for the first killing frost in St. Louis, over a 59-year period, is October 29; and that is too long to wait, if even fairly good evidence develops that mosquitoes are the carriers. The health authorities are prepared to wipe out all mosquitoes in the St. Louis area within two weeks, in case such evidence should justify the expense of the experiment.

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The History of Staining

A series of papers on the History of Staining which has been appearing in *Stain Technology* from 1928 to 1933 is to be published in book form about October 1, 1933. This book also includes full-page portraits and biographical sketches of nine men prominent in the development of staining technic.

The price of the book is to be \$2.00, but a special pre-publication price of \$1.50 is offered until the fifteenth of October, provided orders are accompanied by cash or by official orders from educational or scientific institutions.

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PHYSICS

History Never Repeats Self Mechanical Analogy Argues

IN DREAMS we sometimes find ourselves repeating experiences over and over. The scientists are discussing whether or not the universe is like that, capable of repeating over and over.

It is argued that time is infinite and that the total number of different kinds of events is finite, though large, since the whole volume occupied by matter is finite and the numbers of protons, electrons and photons are finite. Therefore every possible combination of events, however improbable, must occur over and over again. History in the large is like the repeating pattern of a wallpaper.

Prof. J. B. S. Haldane, the British biologist, has recently upheld this idea in opposition to Sir James Jeans' suggestion that the whole material universe is running down, that it must have been wound up at some finite past time and must cease to run down at some finite future time.

Prof. A. S. Eve, the McGill University physicist, says that the idea of history repeating itself is only a bogey. He produces argument that may relieve us of the necessity of believing that in an infinite past duration of time, these words have been written before, you have read them, not once, but again and again in the past, by the same light that falls upon the previously printed paper actually manufactured as before from the same material, woven atom by atom in the same pattern, printed in the same number of this magazine, dated identically day, month, year and entirely indistinguishable from the present number, all the rest of the universe being in the same state as before. And that in an infinite future time all these things must happen not once, but over and over again, without limit.

Prof. Eve's Argument

Here is Prof. Eve's argument:

"Consider a simple universe consisting only of two infinitesimal particles or points, one swinging to-and-fro along a diameter, the other going round the circumference of a circle. If these points start together on their different paths from the same end of a diameter and move as stated with equal and unvarying

speeds, then since the circumference and diameter are incommensurable, and their ratio $\pi = 3.14159 \dots$ never repeats or terminates even in an infinity of figures, it follows that the two points will never meet again at their original starting point. Incommensurables such as the square root of 2, 3, etc., are also common enough in our pattern of Nature so that it is safe to reject the idea of recurrent cycles and to state definitely that history does not and can not repeat itself. So that creation, new things for old, is proceeding to its fullest extent now.

"If it is urged that the above argument about two ideal infinitesimal particles racing round a circle and to and fro along a diameter (none of such things existing) is too academic and abstruse, it may be stated that if there is no limit to the smallness of a displacement, then any three bodies may occupy an infinitude of relative positions, which will not necessarily recur in an infinity of time. If the height of a wave is capable of all values, then the pattern of the waves on a lake or ocean will never repeat. Radiation in the universe, even in infinite time, is certainly yet more unlikely to recapture a previous state, even ignoring the tendency to 'run down' or change from short to longer waves."

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MEDICINE

Vitamin C Lack Connected With Cataract of Eye

LACK of vitamin C, the scurvy-preventing principle, may have something to do with the occurrence of cataract of the eye, in the opinion of Prof. H. K. Müller of the eye clinic of the University of Basel, Switzerland.

Rabbits to which Prof. Müller fed doses of naphthalene, the smelly stuff mothballs are made of, developed cataracts. At the same time, the vitamin C which is usually present in the aqueous humor of the eye disappeared. Prof. Müller has reported his discovery to *Nature*.

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