ANTHROPOLOGY

Modern Man Gets New Kin; Palestine Man "One of Us"

Anthropologists and Archaeologists From All Over World Gather for Symposium on Early Man

THE WORLD'S two billion living inhabitants have been handed a new relative.

Speaking at the opening session of the International Symposium on Early Man, held at the Academy of Natural Sciences, Philadelphia, Theodore McCown of the American School of Prehistoric Research introduced Palestine Man—who must have lived at least 60,000 years ago—as no mere ancestor of modern man, but one of the family, so to speak. Sir Arthur Keith, eminent British anthropologist, was joint author of the report brought to America by Mr. McCown.

Thus, Palestine Man may give people who now live on earth a new pride in their antiquity. For *Homo sapiens* is discovered existing in the middle of the Old Stone Age.

Two types of man lived in the Palestine caves, and both lived about the same time, Mr. McCown explained. The caves which have yielded their skeletons are at Mount Carmel. British and American archaeologists have been working jointly to salvage the important chapter of prehistory buried there.

Of the two types of Palestine Man extracted from their hardened earth beds, one type was small and had many traits like the clumsy, chinless, low-browed Neandertal men of western Europe. The other type was tall, even approaching six feet, and these men had faces much nearer our own modern type.

Evolutionary Plasticity

The fact about these latter people that astounds scientists is that they varied widely among themselves in type, in what is described as "their evolutionary plasticity."

They are a varied type of man, the report declares, "who may be considered as the prototype of the earliest modern Europeans."

Carrying the history of mankind back into a much earlier chapter, long before *Homo sapiens,* W. C. Pei, of the Institute of Human Paleontology in Paris, sent word to the Symposium of discovery in China of extremely ancient stone tools. One piece of worked stone and some worked bones are believed to be "the oldest indication of human handwork in China."

These tools, he said, seem to be even older than Peking Man, who is credited with beginning the true Stone Age industry in China. Peking Man, China's oldest known inhabitant, has been given an estimated age of half a million years. The new discovery of stone tools goes back to the Pliocene period of geologic time, when man and his work are still almost completely mysterious.

Earth Revolution

A violent revolution of the earth, upheaving and lifting the whole of eastern Asia, gave China its first human immigrants.

This picture from man's earliest days on earth was brought to the International Symposium on Early Man, by Père Teilhard de Chardin, consulting paleontologist of the National Geological Survey of China.

Peking Man, China's oldest inhabitant, whose skeletal remains and campfires and tools have been found buried in caves near Peking, can be used as an index to happenings in his time in Asia, Malaya, India, and Europe, Pére Teilhard said.

Giving Peking Man the same geological antiquity as Java Man, who is generally rated half a million years old and the oldest and most ape-like type in man's ancestry, Père Teilhard stated that Peking Man represents an early man of primitive type, closely approaching Java Man. Peking Man, he added, is definitely a step below the Neandertal type of prehistoric man.

"Sinanthropus (Peking Man) is perhaps the next to last step traceable between anthropoids and man," he declared.

Peking Man arrived in China, the geologist explained, just after eastern Asia was uplifted in a rejuvenating movement of the earth's crust. Lakes in North China dried up definitely in this geologic revolution. Their sediments were tilted. Rivers cut deep gorges, and thick fans of red clay spread along the slopes. Subtropical animal life vanished from China, replaced by other animals such as deer migrating from the northwest. Water buffalo came up from the south, and from the south, probably, came Peking Man.

The water buffalo and euryceroid deer that were contemporaries of Peking Man are seen as significant evidence which will eventually fit China's earliest human chapter to that of central Europe.

A lack of sea-going craft kept early man from making long voyages, and delayed human occupation of some dis-

EASTER GREETINGS

A whole family of Easter bunnies. They hatched from eggs, too, as you may see by referring to page 197.

tant lands of the earth. This suggestion was advanced by Prof. D. S. Davidson of the University of Pennsylvania, in reconstructing the arrival of man in Pacific islands.

"Distant voyages on the open sea," he said, "are not known for any part of the world much before 1000 B.C., although coastwise traffic appears to have been carried on for 2,000 years before."

From the time of Java Man, half a million years ago, down to about 2,000 years ago, there is a long gap for which science has little definite evidence about human happenings in the Pacific. Indirect clues suggest that Tasmanians came from Asia to Tasmania in the Old Stone Age, Prof. Davidson said, and Australians reached their continent toward the end of the Old Stone Age, possibly 15,000 or 20,000 years ago.

The order of emigrants from Asia to Pacific homes is believed to be Tasmanians, Australians, Papuans, Melanesians, Indonesians, and Malays.

The theory that Pre-Polynesian sailors voyaged across the Pacific to America, and introduced their customs and language traits into Indian cultures, was discounted by Prof. Davidson. He said there probably were Polynesian voyages, but not earlier than 1400 years ago for want of suitable boats. And the few Polynesians who apparently did come made no important impression on South American Indian cultures.

Ice Age Americans

Columbus may have discovered America for the white man, 1492. But who discovered America for the red man—and when?

The verdict of Prof. Ernst Antevs, well-known Swedish geologist now working in America on this highly controversial problem in American prehistory, was given to the same meeting.

America, Prof. Antevs said, appears to have been discovered before the Ice Age ended; that is, over 10,000 years ago.

Changes in climate deeply affected ancient man, the geologist said. When the last glaciers melted back toward polar regions in Asia, it appears that roving hunters followed the mammoth and other mammals spreading north. The quest for food led some of these Asiatics across Bering Strait and so they entered the New World.

"Doubtless the oldest records of man in North America are still hidden in Alaska, his port of entry," the geologist stated.

Meanwhile, he continued, the oldest traces of man in America that scientists are able to assign to an estimated time in prehistory, are several thousand miles from Bering Strait in the Southwest.

Giving his opinion of some significant sites, Prof. Antevs said:

"Possibly the oldest records of man found in North America are those near Abilene, in Texas, although a critical study is needed concerning the actual age and conditions of formation of the artifact-bearing beds. Probably the oldest find of the Folsom culture is that at Clovis in eastern New Mexico, which appears to be 12,000 or 13,000 years. The Pinto culture of the Mohave Desert, 170 miles due east of Los Angeles, may be about equally ancient."

While man's presence in America for 10,000 years or more is indicated by this study of earth layers containing his weapons, campfires, and ancient animals slain in the hunt, the identity of the early hunters themselves is as baffling as ever. Certain skeletons or fragments have been found, which some anthropologists link with this hunting age. However—

No skeletons yet unearthed in America reveal men earlier than, or different from, Indian types, the symposium was told by Dr. Ales Hrdlicka, noted anthropologist of the U. S. National Museum. This point of view would suggest one of two things: Either remains of the early hunters are still completely and totally undiscovered, or Indian types were developed thousands of years ago in America and remained with little change—an idea difficult for anthropologists to credit.

Dr. Hrdlicka, who has charge of the Museum's large collections on physical anthropology, reported that American Indians vary remarkably in head type, yet all the while "presenting a basic racial unity." Indians had high or low foreheads, heads long or broad. Some even had skulls practically replicas of Old Stone Age skulls from Europe. This variety, Dr. Hrdlicka declared, has been too little recognized.

The famous skeleton of Minnesota Man cannot be 20,000 years old, as has been claimed for it, Dr. Hrdlicka said, because it is the skeleton of a Sioux Indian. The Sioux inhabited the region in Indian times.

"Item for item, the major characteristics of the Minnesota skull are duplicated in the Sioux," he reported.

It could not be assumed, without overwhelming proofs to the contrary, Dr. Hrdlicka concluded, that a type of American man would continue to occupy the same limited part of the continent, undergoing no physical changes in thousands of years. (*Turn to page* 198)

BIOLOGY

"Real Life" Drama Produced By Agriculture Department

LIFE'S beginnings, most elemental of all drama, is Uncle Sam's latest motion picture production. A "real life drama," in the literal sense of the words, has just been given its initial release by the U. S. Department of Agriculture's motion picture division.

A rabbit egg is the leading character. Rabbits really do have eggs, and this one, no bigger than a mustard seed, is typical of those from which all animal life from fish to man begins.

The story is the life history of the egg from the moment it bursts from the follicle of the ovary. This process, called ovulation, was never filmed before. A special technic originated by the film's scientific director, Dr. E. I. Evans, dairy scientist, made it possible for photographer Carl Turvey to include this early act in life.

"For the first time on any screen," there is shown creation's most vital race scene, the rush of the male spermatozoa to the female egg. The winning sperm cell forges through the egg's outer membrane, and the sperm cell nucleus merges with the egg nucleus into one large cell.

Life goes on with the wriggling, squirming and pushing of the fertilized single cell as it divides, first into two cells, and then into many.

Birth is the climax of the film. The camera sees a close-up of the uterus containing five unborn rabbits, each in its placental sac. Dr. Evans opens one of these sacs by Caesarean section and the baby rabbit is born.

It took two years to make this scientific drama, explained Raymond Evans, Agriculture's motion picture chief. The production will be used in the educational work of the department.

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"Bone Age" Man

Before the Old Stone Age got well into its stride, there was a "Bone Age" prelude.

This view of man's cultural beginnings comes from Vienna. Prof. Oswald Menghin of the University of Vienna described to the Symposium bone tools found in Europe and Asia. So crudely are these tools worked, he said, that doubt has arisen whether some of these bones were artificially treated at all.

Prof. Menghin's own view is that the bone implements were earliest among the three great streams of culture that developed early in the Old Stone Age. The bone industries had their original home, in his opinion, in northern Asia.

Later was developed the flake-culture, by which Stone Age man learned to strike a flake from a core of stone. Abandoning the core, the stone-worker would shape the flake into a serviceable tool. This flake-culture, the Viennese archaeologist said, probably had its cradle-land in the steppe region of Eurasia.

Still later, was introduced a more advanced technique of stone work. This was the core- or handaxe-culture. Stone Age men chipped off fragments from a piece of rock, and shaped the core that remained into a tool. The home of this Stone Age technique is probably India, said Prof. Menghin.

The cradle-lands for these ancient methods of workmanship are located tentatively by Prof. Menghin in parts of the world where only one of the methods was known. In some parts of the Old World, flake-culture and core-culture existed side by side or mixed together.

Problems of the origin of the Eskimos, and their ancestry in the Old Stone Age were raised by Prof. Kaj Birket-Smith, of the National Museum in Copenhagen. The theory that Caribou Eskimos, who live west of Hudson Bay, are "more or less direct descendants of the primeval Eskimos" was advanced by the Danish anthropologist.

While other Eskimos have adapted their lives to the sea and ice, hunting seal and walrus, the Caribou Eskimos have remained an inland people who hunt caribou.

"An analysis of their culture reveals the fact that they have many elements in common with sequestered areas both in North America and Northern Eurasia," Prof. Birket-Smith said. "And it would seem, therefore, that over the whole of this region there are traces of an old common culture."

This is far from showing the connection of the Eskimos with the Old Stone Age, he added, but it may give a hint of where to hunt for the ancestry of these northern, specialized people.

"It is pleasant to record," he said, "that both the International Congress of Anthropological and Ethnological Sciences and the International Congress of Proto- and Prehistoric Sciences have taken up the plans for an international investigation of this important question."

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PHYSIOLOGY

Gland-Like Action by Nerves Demonstrated in Invertebrates

Nerve Cells Secrete Physiologically Powerful Substances As Do the Specialized Endocrine Glands

THE NERVOUS system is also a glandular system. Nerve cells secrete physiologically powerful substances just as do the cells of the thyroid, pituitary, adrenal, and other specialized glands of the body. Known for some years as a basic fact in the life of backboned animals, this has now been extended to include invertebrates as well, through the work of a German woman scientist, Dr. Berta Scharrer of Frankfurt-am-Main.

Dr. Scharrer reviews briefly the work of pioneers in the investigation of neuro-secretory phenomena of vertebrates, that led to her investigations among the so-called lower animals. Another German, F. W. Kroll, pointed out the presence of gland-like secretions within the brain. The brilliant researches of an American physiologist, Dr. G. H. Parker of Harvard, demonstrated the formation and important functioning of secretions which he called neurohumors at the ends of nerves.

There followed an intensive search for secretory cells and tissues within the nervous centers. During the past nine years a considerable number of researchers, in lands ranging from Spain to Japan, and including Dr. Scharrer herself, have conducted microscopic studies of suspected nerve masses, and have found the sought-for "neuro-glandular cells" to be very widely distributed among vertebrate animals.

During the past three years Dr. Scharrer has been making thin sections of the bodies of all manner of invertebrates—worms, mollusks, myriapods, insects—from a geographic range that includes Naples, the South African coast, and several points in Germany. In the nervous systems of all of them she has found gland-like, secreting cells.

The cells do not seem different, on superficial examination by ordinary microscopic means, from the thousands of other nerve cells that surround them. But upon treatment with appropriate chemical reagents, the protoplasm in the neighborhood of the nucleus is shown to be crowded with what Dr. Scharrer calls "secretion droplets."

All these discoveries that point to a gland-like action of nerves have been the work of a very few years. What their significance may be the work of the next few years may disclose. It is a new window in the wall of the look-out tower of science.

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ENGINEERING

Lamp Has Varying Focus For Use In Different Ways

A VARIABLE focus lamp shade, one which may literally be turned inside out, or changed to any focus by the mere turn of a thumbscrew, has been patented (No. 2,063,504) by three New York City inventors.

With this shade, the light intensity, spread of light, the height to which a wall can be illuminated, may all be increased or decreased at will.

Made of parchment paper, thin sheet metal or plastic, in flat position the shade takes on the appearance of a split ring. One of the split edges can ride over the other, and overlap to any extent by turning a thumb screw on the shade. This causes the shade to take on a conical shape of any desired focus.

Science News Letter, March 27, 1937