

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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