



San Josecito Cave—a 70-foot cleft in limestone

IN RECENT YEARS FIELD PARTIES of the Institute's Division of the Geological Sciences have been conducting a series of paleontological investigations in southern Nuevo Leon, Mexico (E & S, Sept. '43, Feb. '48). There, in the cave of San Josecito, they have uncovered deposits which probably furnish the most satisfactory information we have of the vertebrate life of the Ice Age in Mexico.

While the field work has continued, research has also progressed with individual members of the Pleistocene assemblage of mammals and birds from that locality.

The composite skeleton of the Mexican horse illustrated on page 17 was recently prepared and mounted in the laboratories of Caltech's Division of the Geological Sciences. In anticipation of presenting the paleontological material to the valuable collection of native fossil specimens on exhibit at the Instituto Geologico Nacional, a second horse skeleton, reconstructed at the California Institute, was taken by truck in early spring of this year to Mexico City.

This horse was chosen for special study and for presentation to the Mexican Institute for several reasons. First, it furnishes information on a group of animals that has played an important part in the history and economy of Mexico—and still does. Secondly, some forerunners of the living forms are already known, at least from later geological formations in Mexico. And

This picture of fossil specimens in San Josecito Cave gives some indication of the job of selection, sorting and working out of material that faces the paleontologist in the field.

25,000-YEAR-OLD HORSE

The skeleton of an Ice Age horse
makes a return trip to Mexico

by CHESTER STOCK

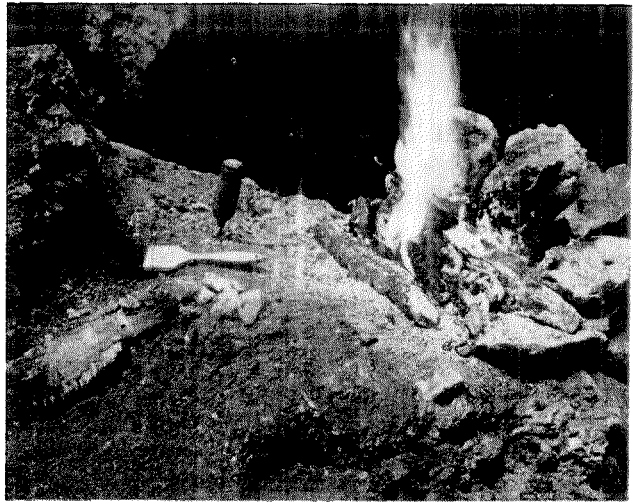
finally, the available fossil material of this species of horse was sufficiently complete to permit the construction of an articulated skeleton illustrating its diagnostic skull and skeletal characters.

Until the discovery of the fossil specimens at San Josecito Cave, horses of the Pleistocene or Ice Age in Mexico were known only by fragmentary remains. The presence of several species had been recognized, but determination was limited to the characters indicated by isolated teeth or jaw fragments.

One of the earliest records was that made by the distinguished British comparative anatomist, Sir Richard Owen, who in 1869 described two halves of a palate with the cheek-teeth on either side which had been found



After fossil bones have been worked out and cleaned, the next step is to dry them out near a fire. These are horse bones being dried out in San Josecito Cave.



in deposits exposed in the Valley of Mexico. To this type of horse he applied the name *Equus conversidens*. It would appear that some of the characters on which the mammal was once considered as distinct can no longer be relied upon, but in the large series of specimens referred to as *E. conversidens* the animal from San Josecito Cave appears to be most closely related to Owen's species from the Valley of Mexico.

It is now possible on the basis of the amount of fossil material available to give a full statement concerning the morphological structure that this creature possessed whereby it differed distinctly from other Pleistocene horses of North America.

The picture below shows in side view a skeleton of the Mexican horse, permitting for the first time recognition of the size and proportions of the animal. In stage of evolution (as expressed, for example, in the structure of its feet and teeth) the Pleistocene horse is close to its modern descendant. The distinctness of the form, with reference to fossil horses known from other Pleistocene horizons in North America, can be appreciated by a comparison of the Mexican horse with that of the characteristic horse from the Pleistocene asphalt beds of Rancho La Brea, California, right, below. Not only is the Mexican horse considerably smaller, but the proportions of the skull and skeleton are different.

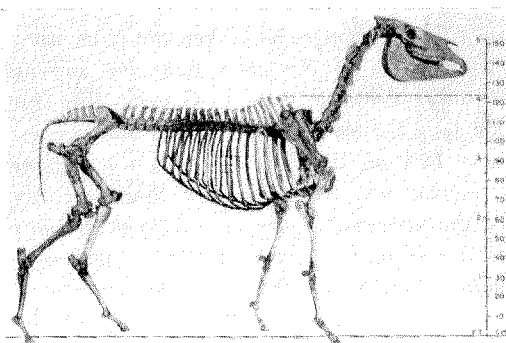
The San Josecito horse may be likened in general size to the living Mongolian wild horse and the African

Burchell zebra. In certain details of the enamel pattern of the cheek-teeth (regarded by some students of fossil equines as significant from the standpoint of expressing zebrine relationships) the Mexican horse may be considered as resembling the zebras.

The very small hoofs are also like those of the zebra. However, on the basis of the proportions of its skeletal parts and of the skull the Mexican horse deviates from both *Equus burchelli* and *E. przewalskii*.

The direct association of the California Institute in the furtherance of the paleontological activities of the Mexican Geological Institute is an expression of the desire to cooperate in the study of common problems in the fields of education and science of special interest to Mexican and American students.

FOSSIL HORSES — FROM MEXICO AND CALIFORNIA'S RANCHO LA BREA



Skeleton in side view of a horse from the Pleistocene deposits of San Josecito Cave, Nuevo Leon, Mexico—known as *Equus conversidens leoni* Stock. Note the relation in size and differences in skeletal characters when compared with the Rancho La Brea specimen below.

Skeleton in side view of a characteristic horse from the Pleistocene asphalt deposits of Rancho La Brea, California—known as *Equus occidentalis* Leidy. Note the relative size of the animal with regard to that of the Mexican horse above.

