

ANCIENT BISON



EXTINCT WESTERN HORSE



PUMA



COYOTE



DIRE WOLF



EXTINCT BLACK BEAR



STILTED-LIMBED LLAMA

ONE need not explore far back in earth history, certainly no farther than the Glacial Period or the geologic yesterday, to apprehend the great change which has occurred in the life of the San Joaquin plain with the passage of time. Fortunately for the student of this intriguing chapter in the geological story of California, tar seeps in the vicinity of McKittrick, west of Bakersfield, have preserved animals and plants of the Ice Age in much the same manner as the famous Rancho La Brea deposits have their ancient life record in southern California.

That remains of extinct creatures are to be found in these asphaltic deposits was known back in the '60s and '70s, actually before the discoveries of similar materials at Rancho La Brea. It was not, however, until comparatively recently, when workmen were grading and surfacing the highway which connects the village of McKittrick with the oil centers of Taft and Maricopa, that brea deposits containing an abundant life record of the past were uncovered not far south of McKittrick. These outpours of tar result from oil seepages which have continued to the present day, for there are many places where the sticky material exudes from cracks and fissures to mix with the soft earth on the surface of the ground. In the course of time tar beds of considerable extent were laid down and form the terrace accumulations that can be readily discerned on the south side of McKittrick valley.

Subsequent digging in the McKittrick deposits has brought to light thousands of specimens representing bones, skulls and teeth. These show the characteristic brown or dark color, the result of long contact with and penetration by bituminous substances. Study of the actual occurrence and of the many different kinds of animals as well as plants found in the

YESTERDAY'S ANIMALS of the SAN JOAQUIN

By Chester Stock

deposits suggests rather clearly that entombment of this organic material took place under topographic conditions similar to those that prevail now in this region. A foothill belt occurring at the base of the Temblor Mountains and bordering the San Joaquin Plain on the west offered a favorable environment during the Glacial Period for a highly diversified assemblage of animals. With few exceptions these creatures were occupants of the plains or Great Valley of California.

Among the forty-odd kinds of mammals known from the locality the larger forms include the Columbian mammoth, mastodon, and the peculiar ground sloths of South American origin. Presence of many individuals of the extinct western horse and the ancient bison suggest grazing opportunities on the plains. The large North American camel of the Ice Age is present along with the peccary, small antelope, pronghorn, deer and elk. The camel, peccary and small antelope are now extinct and are found to be identical with species occurring at Rancho La Brea. The pronghorn, deer and elk may well represent species that have survived to the

present day. The elk, for example, cannot be readily distinguished from the Buttonwillow elk that now inhabits this section of Kern County.

Also in the group of large animals found at McKittrick are two types of special interest. A tall, thin-legged camel, which may have had the appearance of a stilted-limbed llama, is known by a number of individuals. In much fewer numbers is a muskox-like animal, whose presence in the Ice Age of California was known heretofore only from cave deposits in the northern part of the state. Its presence this far south might well imply a cooler climate for the area than that which prevailed in the vicinity of Rancho La Brea when the latter tar traps were active.

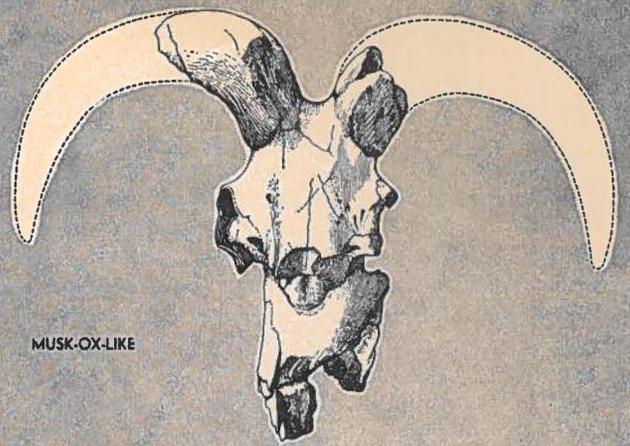
Caught with the plant-feeding mammals in the McKittrick tar seeps are a number of large flesh-eaters like the sabre-tooth cat, great lion-like cat, gigantic short-faced bears and grim wolves. With these are found black bear, puma, wild cat, fox, skunks, weasels and badgers. Coyotes are especially abundant. The predatory animals are not represented in the McKittrick asphalt in such preponderant num-



GREAT SHORT-FACED BEAR



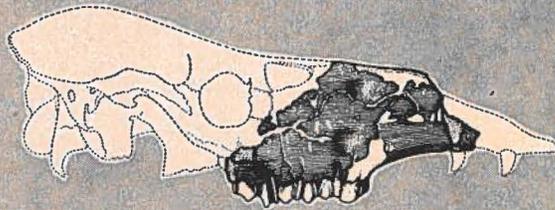
SABRE-TOOTH CAT



MUSK-OX-LIKE



EXTINCT LION-LIKE CAT



LARGE EXTINCT CAMEL

SKULLS OF VARIOUS CHARACTERISTIC ICE AGE MAMMALS FOUND IN THE McKITTRICK TAR SEEPS

1/2 NATURAL SIZE

bers, in relation to the non-carnivorous group, as is the case at Rancho La Brea; a rather noteworthy feature pointing to a different mode of trapping of animals at the former locality.

The birds from the McKittrick brea beds, of which there are nearly sixty different kinds, show striking resemblances to those from Rancho La Brea. There are also some noteworthy differences. As at the Los Angeles locality the predatory birds like vultures, eagles, hawks, falcons are present in large numbers. The great extinct condor-like vulture, *Teratornis*, occurs but the California condor has not been found.

In one excavation of the McKittrick asphalt remains of water and shore birds were found in considerable number. These belong to grebes, herons, storks, swans, ducks and geese, including an extinct pigmy goose. Presence of these forms points to the occurrence of standing bodies of water or perhaps a lake in the region where the tar seepages took place. However, not far away the conditions were apparently so arid as to permit but little ground cover by plants and this may be

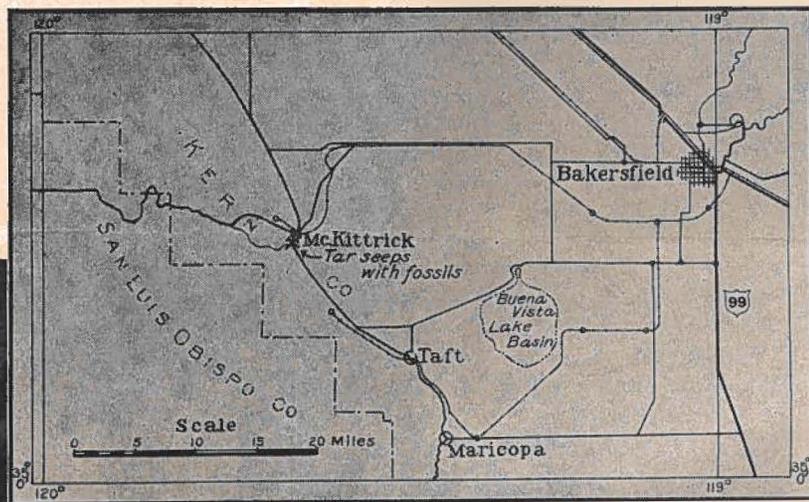
the principal reason why the wild turkey, so abundant at Rancho La Brea, is totally absent at McKittrick.

One may envisage a region for this stage in geologic time, immediately before the present, not unlike the border zone as it exists today along the west side of the San Joaquin valley. During the period of accumulation of the tar deposits the vegetation in the immediate vicinity included the salty sage which at present grows in more arid parts of the San Joaquin valley. Not far away at higher elevations in the mountains to the west grew pines and junipers.

Doubtless then as now the mountains served as a barrier to the easterly movement of moisture-laden air from the Pacific Ocean. The climate at that time was probably somewhat colder and dryer

than is the case today in the McKittrick area. Under these circumstances there existed in the immediate region of the tar seepages, pools of water or perhaps a lake having somewhat the appearance of Buena Vista Lake and fed by streams from the western watershed of the Sierra Nevada and possibly from the Coast Ranges as well. On occasion large outpours of tarry material moved sluggishly across meadows of the lake-border zone and into the water itself, thus furnishing the agent by which various mammals, birds and other organisms were mired and subsequently entombed.

Authorities seem agreed that these events occurred during the last cold stage near the close of the Ice Age which would place this portion of early California history within the last 50,000 years.



The photo at left proves that scientific work requires brawn as well as brain. Photo shows excavators removing fossil materials from the bone quarry at the McKittrick asphalt deposit. Above is a map showing road and rail routes to the McKittrick fields

