

change the animals along lines wholly determined by man; lines that make the animals more useful or pleasing or curious to us, but not better fitted to survive in nature. In fact most of these artificially induced changes tend to unfit the animal for success in life unaided by man; they are mostly degenerative changes. The loss of flight, the shortening of legs, the overdevelopment of fat, the production of crests and plumes and ruffs, the loss of horns, the sluggishness and helplessness that characterize the domesticated animals of different kinds, are all characters and conditions of degeneration."—Kellogg's, "The Animals and Man."

The interest in animal breeding has led to the unravelling of the history of the origin of many of our more widespread and useful domesticated animals. The dog is said to be at once the oldest, closest, and most universal of all. "The Bushmen of Australia, the Esquimaux of the Arctic, the Indians of the pampas and prairie, the tribes of the scattered Pacific Islands, and the Caucasians of the world's great capitals, all have their dog companions." And they range in size from the tiny toy dogs, "that a lady can carry in her muff, to the great Danes and St. Bernards, that stand three feet high and weight one hundred and fifty pounds."

The races and types of dogs are numbered by the hundreds, but nowhere is the wild dog to be found. "The wild ancestors of the dogs are certain wolves and jackals of various lands. Dogs are descended from at least seven such wild species."

The house cats on the contrary . . . seem to be all descended from a single wild species, the wild dun cat (*Felis maniculata*) of north-eastern Africa.

"The horses of modern times can be traced back to two wild sources,"—one ancestor in northern Asia, from which the eastern horses have sprung; and one from Europe from which the horses of western Europe in general have arisen.

Geology indicates that America was the earliest home of the horse. The geological formations of North America, beginning with those of the Lower Eocene period, have yielded very complete series of fossil skeletons of the early horse. Most convincing series are to be seen in the museum of Yale University and

the museum of Natural History, New York City.

The first skeleton indicates that its owner was a small animal, about the size of a fox, with four toes well formed and splint of the first toe on the front feet, and three toes and splint of the fifth toe in each hind foot. It changed from age to age, keeping pace with the development of the great central plain, growing larger, gradually losing toe after toe, and showing marked changes in tooth formation, all of which are readily accounted for if we allow that it was all the while undergoing a change of habits from a low-land (marsh land) inhabiting animal to one frequenting the high plains, and constantly exercising its best means of defence in its struggle for existence—its speed. Some investigators think that it very early spread into Asia, probably by way of a land connection in the region now occupied by Behring Sea and Strait, and in its new home finally became the progenitor of the horse races of the world. The American branch entirely disappeared in late geological times, exterminated most likely by the panther.

The wild horses on the plains of America have descended from European importations brought over by early explorers. On which of the British Isles do we find wild ponies? On what Nova Scotia island do we also find ponies? How did they get there?

The many races of cattle have all been derived from two sources,—the wild Banteng of southern Asia, and the wild ox of Europe; from the latter our more important types have descended. The wild cattle of America have come from importations brought out by explorers.

Breeders are now attempting a cross between the cow and the American bison, and are meeting with some success. The hybrid is an excellent beef animal. The largest herd is owned in Ontario.

Our different races of sheep seem to have been derived from three wild species,—one of which lived in southern Europe, another in Northern Africa, and the third in western Asia. Most of the present European and American races have descended from the Asiatic species. Man has been breeding sheep since the early Stone Age.

The wild boar of Europe, and another species of eastern Asia have given us our races of