

**A URUS SKELETON** (*Bos primigenius*).

The zoological collection of the Imperial Agricultural High School at Berlin has recently been enriched by a very interesting object, viz., the skeleton of a wild cow (*Bos primigenius*). This was found May 12, 1887, when cutting peat in the bog at Gühlen, near Goyatz (Lower Lusatia), in the deepest stratum of the bog. Most of the bones lay in their natural relation to each other, and we may safely assume that the cow reached the spot where it was found in good condition, and that the disintegration took place there.

As it was found in the evening, when the workmen were preparing to go home, some of the parts were, unfortunately, overlooked. Among these were the lower bones of the right fore and left hind leg, most of the caudal vertebra, a rib, the breast bone, and several small bones. Several of the teeth were also lost during transportation. All of the other parts were saved, and are in an excellent state of preservation.

Through the efforts of Pastor Overbeck, of Zaue, a village near by, the newly found treasure came into the possession of Architect Overbeck, of Berlin, and from him the Imperial Agricultural High School purchased it; but in the meantime Overbeck had had the skeleton mounted by J. Wickersheimer, the missing bones being replaced in alder-wood by a skillful sculptor.

This skeleton is certainly an object of scientific interest. There are, to be sure, skeletons of the *Bos primigenius* in several museums—for instance, Jena, Braunschweig, Copenhagen, and Lund—but they have heretofore been very rare, although numerous skulls are known to exist.

The urus, or *Bos primigenius*, must not be confounded with the so-called aurochs, the real bison (*Bison europæus*). While a few of these latter—protected by strict laws—exist in the woods of Bialowicza (Russian Litauen), the other species is extinct. Several investigators are of the opinion that the last specimens of this class were killed in Poland about three hundred years ago; but others maintain that the urus was extinct in prehistoric times. We are inclined to the former opinion. Whether the so-called "wild cattle" which are kept in the parks of certain large landed proprietors in Scotland could be considered direct descendants of the *Bos primigenius* is doubtful; at any rate, these "wild cattle" are no longer of the same size and general appearance as the really wild urus, but have greatly degenerated in the course of time.

In many points the fossil skeleton from the Gühlen peat bog resembles the Podolian and Hungarian steppe cattle, but the urus is larger than these, as well as all kinds of domestic cattle. The height of the withers of the cow from Gühlen, as now mounted, is 5 feet 6 inches, while the skeleton of a domestic cow seldom measures 5 feet 1 inch. The skull of the former is 2 feet 1 inch long, that of a very large domestic cow is 1 foot 7 inches to 1 foot 9 inches in length. A specimen in the British Museum measures 2 feet 11 inches.

In regard to the horns, the part which was really horn has, naturally, perished in the course of the hundreds or thousands of years; but the well-preserved bone portions, called the horn cores, show that the horn sheaths were large and well formed. The length of one of the horn cores, exclusive of the bend, is 2 feet 3 inches, and its circumference at the base 1 foot 1 inch. The greatest distance between the horns at the curves is 2 feet 5 inches, and at their points they are 3 feet apart. The setting and curves of the horn cores can be seen in the accompanying cut.

As the *Bos primigenius* can rightly be considered the progenitor of our domestic cattle (*Bos taurus*, L.), or at least of certain breeds of them, and as many important investigations depend on a careful comparison of the wild species with their tame descendants, a urus skeleton may certainly be considered an important acquisition, specially for such a museum as that of the Agricultural High School of Berlin, which offers an opportunity for comparison of the skulls and skeletons of wild and tame bovines which is scarcely equaled by any other museum in the world.—*Illustrirte Zeitung*.

**Autumn Work among the Trees.**

All planting north of the latitude of this city is most safely done in the spring. Further south the long autumn enables trees, planted when the leaves are ripe, to push out new roots and establish themselves before the ground freezes. But where cold weather follows close after the early frosts, a tree planted in the autumn has no opportunity to develop new roots, and therefore loses not only the advantage it would have obtained in a more temperate climate in an early and vigorous spring growth, but it is forced to endure the severity of the winter without the aid of roots in active working condition. Trees planted in the autumn do not always die in the Northern States, but they are more apt to suffer than those planted in the spring, they are often blown over unless carefully supported, and they are frequently heaved by the frost or thrown out of the ground entirely. But for all the operations connected with the planting and the care of trees, except the mere setting them in the ground, the autumn is the right time. All planting plans should be completed, and all stock selected, at this season, and the ground to be planted should be prepared and ready to receive the trees.

Our springs are so short and the rush of spring work

The autumn, too, after the leaves have begun to fall from the trees, is the best time to study plantations with the view of determining which trees should be removed and which of those which are to remain need pruning. The actual condition of a tree—its health and shape, and its relation to its neighbors—is best determined after the leaves, or many of them, have fallen; and if trees are to be marked for the ax, it should be done now, and before really cold weather or snow makes the critical examination of each individual practically impossible. The autumn, too, as has been explained in a recent issue of this journal, is the best time for all pruning operations intended to rejuvenate old trees or to bring unsightly ones into shape.

The man, therefore, who has trees should devote some portion of these autumn days to determining how he can improve them by thinning or by pruning, or, if he is a planter, in deciding where his next spring's plantations are to be made, and what they are to be made of.—*Garden and Forest*.

**Ants and Butterflies.**

In the last number of the *Journal* of the Bombay Natural History Society, Mr. Lionel de Niceville

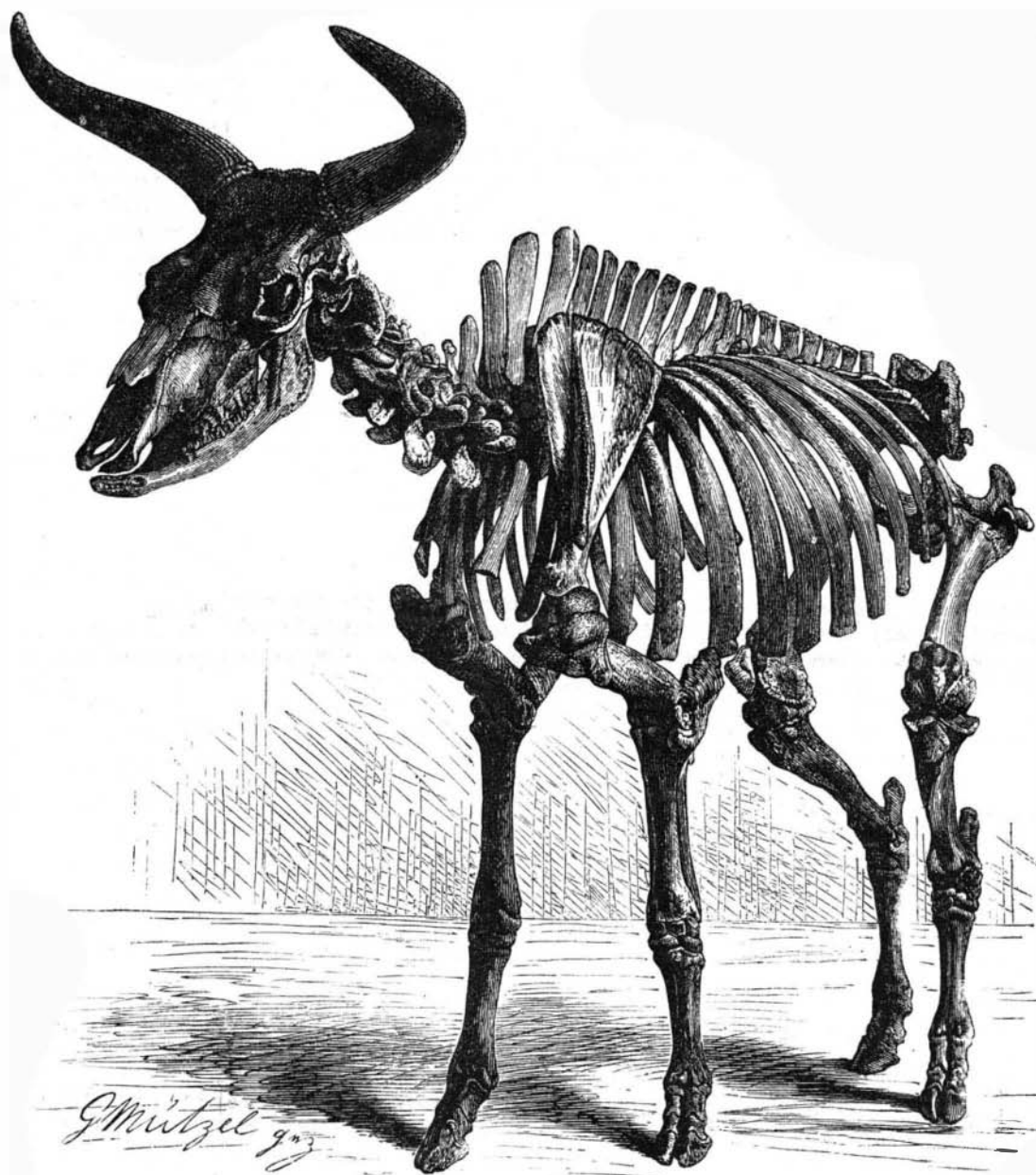
describes the manner in which the larvæ of a species of butterfly (*Tarucus theophrastus*, Fabricius) are cultivated and protected by the large common black ants of Indian gardens and houses. As a rule, ants are the most deadly and inveterate enemies of butterflies, and ruthlessly destroy and eat them whenever they get the chance, but in the present case the larvæ exude a sweet liquid of some sort, of which the ants are inordinately fond, and which they obtain by stroking the larvæ gently with their antennæ. Hence the great care which is taken of them. The larvæ feed on a small thorny bush of the jungle—the *Zizyphus jujuba*—and at the foot of this the ants construct a temporary nest.

About the middle of June, just before the rains set in, great activity is observable on the tree. The ants are busy all day running along the branches and leaves in search of the larvæ, and guiding and driving them down the stem of the tree toward the nest. Each prisoner is guarded until he is got safely into his place, when he falls off into a doze and undergoes his transformation into a pupa. If the loose earth at the foot of the tree is scraped away, hundreds of larvæ and pupæ in all stages of development, arranged in a broad, even band all round the trunk, will be seen. The ants object to uncovering them, and immediately set to work to put the earth back again; if this is taken away again,

they will remove all the chrysalids and bury them lower down.

When the butterfly is ready to emerge in about a week it is tenderly assisted to disengage itself from its shell, and, should it be strong and healthy, is left undisturbed to spread its wings and fly away. For some time after they have gained strength they remain hovering over their old home. In one case a butterfly fell to the ground before its opening wings had dried, and a soldier ant tried to rescue it. He carried it back to the tree with the utmost care, and made several attempts to assist the butterfly to hold on again, but finding his efforts unavailing, he left the cripple to recover himself. On his return, seeing no improvement, he appeared to lose all patience, and, rushing in, bit off both wings and carried the body into the nest. But high-handed proceedings of this kind are very unusual. It is said to be a curious sight to watch the fragile and delicate butterflies wandering about, all feeble and helpless, among the busy crowd of coarse black ants, and rubbing shoulders in perfect safety with the ordinary fierce, big headed soldiers. A larva of another species thrown down among them as an experiment was immediately set upon and torn to pieces by the ants.

It is said that in Leominster, England, there are growing together an oak and an ash which appear to have only one common trunk for four feet and then divide.



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is always so pressing that it is impossible to properly prepare the ground for planting unless it is done during the summer and autumn. This is the time, therefore, when northern planters should decide what trees they want to plant next spring, and just where they will plant them. It is the time to select and order nursery stock, and if the planter has any facilities for protecting plants through the winter in a cold cellar or pit, this is the time to obtain them from the nursery, rather than in the spring, when nursery men are crowded with orders, and too busy to devote proper time and attention to digging and packing their trees. The ground being prepared, the exact position of each plant determined on, and the plants on hand, the mere setting them in the ground is the work of a short time. The man, moreover, who is thus prepared beforehand for spring planting can take advantage of the first suitable weather, and get his plants into the ground as soon as the frost is out and it is dry enough to work, while if he waits for material ordered in the spring, very often it will not be received until after the trees have started to grow, and warm, dry weather has set in. In a climate like that of our Northern States, where summer follows hard after winter, and where spring is almost unknown, there is no other operation of the farm or of the garden which demands more carefully planned preparation—more forehandedness—than tree planting