

## THE BREEDING-BACK OF THE TARPAN

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### *Introductory note.*

In *Oryx*, Vol. I, No. 3, the translation was published of an article by Heinz Heck entitled "The Breeding-back of the Aurochs". In this Herr Heck described his experiments in resurrecting the aurochs, the wild ancestor of all present-day breeds of European cattle which became extinct over 300 years ago. The method used he calls "breeding-back" in which the aim is to direct the race back to a common ancestor. From skeletal remains and contemporary descriptions and paintings it was known what the aurochs looked like: a large neat, the bulls black with a broad yellowish-white stripe down the back and the cows red-brown; both sexes had white colouring round the muzzle and long, strong, curved, pale horns with black tips.

In his attempt to breed cattle akin to the aurochs, Herr Heck selected from different breeds shewing one or other of the desired features, crossed these and then crossed and re-crossed the offspring. The results were remarkable in that the aurochs was reconstituted within a very short time and henceforth bred true to type with no throw-backs to any of the recent heterogeneous forbears: the bulls were black, the cows red, the aurochs markings constant.

Professor Lutz Heck engaging later in similar experiments in Berlin Zoological Gardens, used quite different races of cattle and obtained results identical with his brother's.

It became evident that aurochs factors still present in greater or lesser degree in every breed of beef or dairy cattle we know to-day, were able to reassert themselves as soon as freed by favourable cross-breeding.

Below are some observations written by Heinz Heck on his experiments in breeding-back the form of wild horse known as the tarpan. Illustrations face page 313.

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When speaking of wild horses, one must distinguish between wild horses which, like zebras and antelopes, have been wild from time immemorial and whose ancestors never lived in a state of domestication under the rule of Man (and which are, incidentally, not easy to tame) and wild horses which are, in reality, feral—domesticated horses that have got away and are wild in that they are untamed and not broken in to riding or driving.

They can however easily be tamed and broken in. Well-known examples of these are the mustangs of the prairies, horses that escaped from settlers and became wild, for when America was discovered there was not a single horse on the whole continent and all those Indian tribes, famous for their outstanding horsemanship, used to move on foot.

Wild horses and wild domesticated horses can be distinguished at a glance. Wild domesticated horses have long, flowing manes and in such feral herds, specimens of all colours can be seen—greys, blacks, chestnuts, bays, and piebalds. Wild horses have short, bristly manes like zebras and all the members of their herds are of the same colour, namely the wild colour.

Wild horses are the wild ancestors of the domesticated horse. In earlier geological times, before any human culture existed and until after the ice age, they were the wild equines of Europe and some parts of Asia, just as to-day zebras are the wild equines of Africa south of the Sahara. And just as there are to-day still a number of different kinds of zebra in Africa, so there were in those days in Europe and Asia a number of different kinds of wild horse. They were the most favoured prey of the stone age hunters who caught them in pits and who killed them on vast organized drives and in all kinds of other ways and undoubtedly contributed materially to their disappearance. Those stone age people, however, painted the various kinds of wild horse with great realistic detail and yet with the highest degree of artistic consummation on the walls of their caves and there they were displayed in a most remarkable way. Of all those kinds of wild horse, only one is extant to-day and that is the one discovered, to the astonishment of scientists, by the Russian, Przewalski, in the desert-like starvation steppes of Zungaria in western Siberia. One should rather say re-discovered since a wild horse exactly like this one inhabited the plains of Europe during the ice age. Like most other steppe-dwelling animals, the Przewalski wild horse is red-brown in colouring and light underneath. As a legacy of its forebears from ages long past, it still carries zebra-like stripes at the backs of the legs which show up very clearly in the summer coat. The gratifying discovery of the last remaining species of wild horse was followed quickly by a sad end, for in the 'twenties of this century it became extinct in the free state. To-day there are left only a few scattered in various zoological gardens and none are breeding except in the 16-head Munich herd. Reared with greatest care from small beginnings, it is on this herd that the hopes of preserving the species must rest. If, however, we fail to increase the numbers of this small

stock, preserve them for posterity and, by means of international co-operation, put the breed on a broader basis, one of the most interesting animals of the earth will have played in our times but a disgracefully short part as guest artist.

Wild horses seem as a whole to be under an unlucky star. One of the European kinds, the mouse-grey wild horse for which the Russian name of tarpan has been adopted, was, in historical times, still extant over wide areas of Europe. In the first half of the last century, it was still numerous in the steppes of the Ukraine north of the Black Sea. Most unfortunately, scientists of the last century failed to give the tarpan the attention it deserved because, like the naturalist Brehm, they believed it to be a feral horse. And so, in 1876, the tarpan quietly died out without our having even so much as a skin in our museums.

This mouse-grey tarpan was different from the light bay Przewalski wild horse not only in colouring but also, quite unmistakably, in build. The Przewalski horse has very strong, thick bones and an almost disproportionately long, heavy skull with narrow forehead which is the reason why many research experts believe that the heavy cart horses of to-day are descended from this type. The mouse-grey tarpan has much finer bones and above all a short, light head with broad forehead and more prominent eyes which give the head a more pleasing expression. It is doubtless correct to look on the tarpan as the progenitor of the breeds of our swift riding horses which attain perfection of physical beauty in the pure-bred Arab.

In breeding-back the tarpan I was, of necessity, obliged to proceed by a somewhat different method from that used for the aurochs. All the characteristics of the aurochs could still be found even though they were divided between various different breeds of cattle. But looking for the characteristics of the tarpan, I realized that there was a gap, since there appear to be no primitive domesticated horses of the tarpan type that have preserved one of the most important points of their wild ancestors, namely the short, upright mane. This is, no doubt, because horse breeders of all ages have admired the long mane and, in addition, valued it for the profit to be obtained from the hair.

To get somehow over this difficulty, I chose at the beginning of the experiments mares from Iceland and Gotland that were markedly like tarpans in skull and build and put these to a Przewalski stallion instead of putting them to a stallion from another breed descended from the tarpan. The resultant crosses

were in no way satisfactory, either as regards colour or build, but nonetheless I mated them one with another—that is to say a cross-bred mare with a cross-bred stallion. Out of this stock there emerged on 22nd May, 1933, the first foal with the desired mouse-grey colouring, in spite of the fact that I had never had a mouse-grey brood mare. Other foals followed. Some of these inherited from the Przewalski sire the too long head and heavy bones and were, for that reason, put aside; I used instead those foals which had inherited the necessary mouse-grey, wild colouring together with the fine tarpan head and bones. Things went pretty well after that, for it seems that the fine head associates easily with the mouse-grey wild colouring and to-day there is quite a considerable stock of back-bred tarpans in the Tierpark Hellabrunn.

Tarpan foals are not born mouse-grey but have a very different childhood dress. They come into the world the kind of blonde brown of a loaf, without zebra stripes on the legs and without any of the other markings and they change colour only after a few months. This observation about the change of colour in the wild ancestor surely supplies the explanation as to why our domesticated horses often, to the astonishment of their breeders, change colour so radically in the first years of their lives. Black and red foals turn into greys, grey foals later become black, duns become bays, so that one is sometimes amazed at how the same horse looks a year later. These astonishing changes in colour are probably an ancient legacy from the tarpans.

Most of our tame horses have soft hoofs with but slight growth so that many well-bred horses wear out their hoofs as soon as they go unshod. The reason for this is probably that for a long time now our horses have been shod as soon as they were required for work or riding and this artificial expedient has tempted breeders away from paying adequate attention to strong hoofs. My tarpans however have hoofs like steel. During the war I sent one of my stallions for stud purposes to a farm in East Galicia; shortly before the end of the war it made the return journey by road harnessed to a cart, and making great detours, it covered the distance of about 1,000 miles to Munich unshod. Its hoofs on arrival were in perfect condition.

Two fine European animals that had disappeared, the aurochs and the tarpan, are, by means of carefully planned breeding, there again, but one must remember that it is really a miracle that they have done so well in so short a time. The success does however show that through artificial selection, we are able to call forth forms of animal life more quickly than could be the

case by means of natural selection; for natural selection is slower to throw out those inheritors which are not useful to the breed. Nature, however, has endless time at her disposal, whereas the life of a man is almost too short for the making of new animals or for the reconstitution of those that have already disappeared.

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