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**Article XIII.—POINTS OF THE SKELETON OF THE  
ARAB HORSE.**

BY HENRY FAIRFIELD OSBORN.

The blood of the so-called Arab horse, which Ridgway believes to be of very remote North African or Libyan origin, is very widely diffused, not

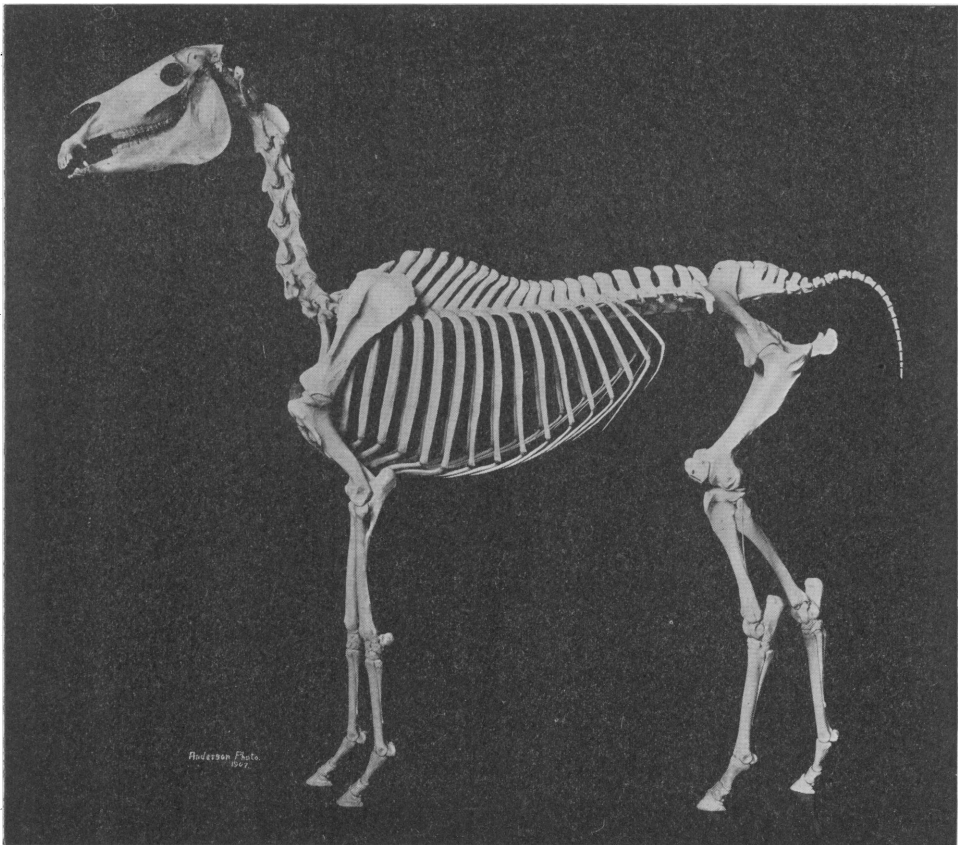


Fig. 1. Skeleton of the Arab Horse 'Nimr'.

only among the thoroughbreds but among the finely bred horses of different types in all parts of the world. Many so-called Arabs are what the Arabians

themselves would call 'sons of horses,' that is, half Arab and half ordinary or northern blood.

The American Museum of Natural History has acquired the skeleton of 'Nimr,' a gift from Mr. Randolph Huntington of Oyster Bay, L. I. (February, 1904). This animal was sired by the desert bred 'Kismet,' a famous race horse, and it has a very direct pedigree and history. It is probably as pure an example as can be found of the modern Arab, somewhat enlarged and modified by favorable western environment and abundant food. It has been mounted with consummate skill by Mr. S. H. Chubb for the Museum collection showing the evolution of the horse. The following



Fig. 2. 'Nimr'.

notes on the skeleton of this animal are published with the hope of securing additional observations.

In the Arab both head and tail are carried 'high' when animated, and in this skeleton all the Arab characters are brought out as follows:

1. Skull short, but broad between the eye sockets.

2. Eye sockets high and prominent, giving the eyes a wide range of vision.
3. Facial profile, or forehead, concave.
4. Jaw slender in front, deep and wide set above the throat.
5. Round ribbed chest, well 'ribbed up' and short back with only 5 ribs, or lumbar, vertebræ.
6. A horizontally placed pelvis (a speed character) and very high tail region, few tail vertebræ.
7. A complete shaft of the ulna, or small bone of the forearm.
8. Long and slender cannon bones, and long, sloping pasterns.

The most distinctive feature of horses of North African stock was pointed out by Sanson<sup>1</sup> in 1866, namely: that they possess five instead of six lumbar vertebræ. 'Nimr' shows this character; it is present in the skeleton of 'Lexington' in the U. S. National Museum; also in the mounted skeleton of a thoroughbred in the British Museum. Correlated with the very characteristic elevation of the tail in Arab horses we observe the upturned sacral and anterior caudal vertebræ, and the remarkably horizontal position of the pelvis in comparison with the relatively downturned caudals and more oblique pelvis of the northern or draft type of horse. A third feature is the very short dock; there are only 16 vertebræ in the tail of 'Nimr,' as compared with 18 vertebræ in the tail of the large draft horse and other horses of northern type. Abbreviation of the tail bones seems to have been a feature in the evolution of these animals. A fourth character of great interest is the complete shaft of the ulna, which for a short interval is actually free from the radius and extends continuously into the lower portion of the bone, which expands and supports the inner upper surface of the cuneiform; I have observed this character also in 'Lexington.'<sup>2</sup> Fifth, the Arab skeleton is noted for the density of its bone. Whatever may be true of the desert-bred Arab this does not especially apply to the stable-bred 'Nimr,' as shown by the following measurements by Mr. Chubb.

[Specimen	Bones of one front limb				Bones of one hind limb.			
	Weight of bones	Cubic inches in bones	Cubic inches per lb. of bone		Weight of bones	Cubic inches in bones	Cubic inches per lb. of bone	
Arab (Nimr)	5 lbs.	141	28½		7 lbs.	200	28¾	
Shetland	¾ "	21½	28¾		1 "	29	29	
No. 14131	6¾ "	179	26½¾		8½ "	248	30.2/3	

Sixth, the skull of 'Nimr' is marked not only by the prominence of the brain case, correlated with the large brain, but by the prominence and

<sup>1</sup> Comptes rendus Acad. Sci. Paris, 1866, p. 485, and Mémoire sur la détermination d'une type spécifique de race chevalin à cinq vertèbres lombaires. Jour. de l'Anat. et de le Physiol. de M. Robin, t. V, 1868; also Comptes rendus, 1869.

<sup>2</sup> Also in the skeleton of a Grevy Zebra in the American Museum Collection.

superior position of the orbits with breadth of forehead, and by the consequent depression of the profile of the face below the orbits, giving the characteristics Grecian or 'dish' profile in the Arab head. Seventh, the sagittal crest as well as the origin of the temporalis muscle is unusually well defined. Similarly the crest below the orbit for the masseteric origin as well as the fossæ for the insertion of the masseteric muscles in the angular region of the jaw are sharply defined, the expansion of this angular region below the level of the ramus being a very characteristic feature of the Arab. Another mandibular feature is the slenderness and tapering of the jaw anteriorly. In short, the cranium of the Arab skull is of a very distinctive, high bred type and will be readily recognized from that of the cart horse type although several of its characters might be seen blended in the skulls of common

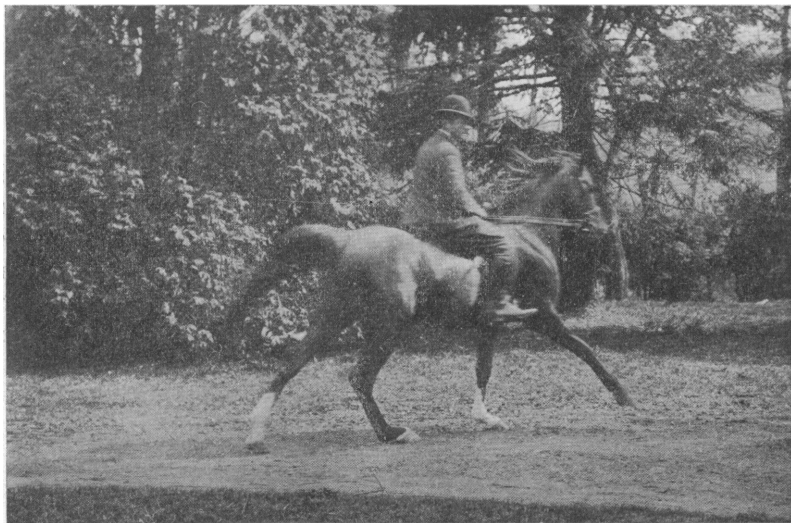


Fig. 3. 'Kahled', son of 'Nimr'.

horses having more or less Arab ancestry. Lydekker has called attention to a slight depression just below and in front of the eyes in the malar region as characteristic of the skulls of several thoroughbreds; he speaks of it as representing the vestigial pit of a face 'gland.' This is undoubtedly a significant character, but we do not find much trace of it in the skull of 'Nimr.'

The neck is much longer relatively than that of the Shetland.

Altogether in my opinion these osteological characters justify the separation of the Arab as a distinct species (*Equus africanus* Sanson), of distinct origin and from wild ancestors very different from those of the northern horse.

## MEASUREMENTS OF 'NIMR'.

By S. H. Chubb.

Total length of vertebræ	248 cm.	8 ft.	1 $\frac{1}{8}$ in.
" " " skull	53	1	8 $\frac{1}{2}$
Height at withers	147	4	10
" " pelvis	145	4	9
Length of scapula to cartilage	36	1	2 $\frac{1}{8}$
" " innominate	38	1	2 $\frac{7}{8}$
" " humerus	32	1	$\frac{5}{8}$
" " femur	40	1	3 $\frac{1}{2}$
" " radius	37	1	2 $\frac{1}{2}$
" " tibia	38	1	2 $\frac{7}{8}$
" " cannon bone (fore)	261 mm.		10 $\frac{5}{8}$
" " " " (hind)	305	1	
" " prox. phalanx (fore)	86		3 $\frac{3}{8}$
" " " " (hind)	84		3 $\frac{5}{16}$
Transverse diameter of cannon bone (fore)	34		1 $\frac{3}{8}$
" " " " " (hind)	32		1 $\frac{1}{2}$
" " " prox. phal. (fore)	35		1 $\frac{3}{8}$
" " " " " (hind)	35		1 $\frac{3}{8}$
" " " thorax	57 cm.	1	10 $\frac{1}{8}$
Vertical	56	1	10