

THE HORSE AS SEEN BY A MEDIEVAL ARAB SCHOLAR  
ABŪ 'UBAYDA: *KITĀB AL-ḤAYL*

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The subject of this article is the body-parts of the horse as Arabic authors observed them. The horse, thanks to its elevated role among the Arabs inspired many writers, poets and scholars to write about it. For example, Abū 'Ubayda, Ibn al-Kalbī, Ibn al-A'rabī, Ibn Qutayba (*Ma'āni*), Ibn al-Anbārī, al-Aṣma'ī, an-Nuwayrī (*Nihāya* X, 342 ff), Ibn Sīda (*Muḥassaṣ* II, 138-145), Muḥammad b. Ḥabīb, an-Naḥḥās, ar-Riyāšī and so on.

The books about the horses are – sometimes literally – similar to each other in many aspects, such as the commentaries to the various body-parts and the quotations from some verses to support them. The Arab authors usually borrow explanations in their entirety from each other then record variations of the body-parts, distinguished by special features. By choosing one of the descriptions, the others can be understood too. The main source of this article is Abū 'Ubayda's *Kitāb al-ḥayl*, compared to relevant chapters in Ibn Qutayba's *Ma'āni*, Ibn Sīda's *Muḥassaṣ* and an-Nuwayrī's (*Nihāya*) where the views of many different authors are expounded.

Abū 'Ubayda (d. 209/824-5) the scholar from Baṣra in the 8th century, about whom Abū Nuwās wrote that "he was a skin stuffed with knowledge"<sup>1</sup>, knew all the names of the horses and their riders, their stories and their origins in the *ḡāhiliyya* as well as in Islam. According to reports on him, it would not have been possible for two horses to meet in the time of Islam, without his knowing their names and their riders's names.

He wrote ten books about horses: *Kitāb al-ḥayl* (The book of horses), *K. ad-dībāḡa* (The book of prestige), *K. asmā' al-ḥayl* (The book of the names of horses), *K. ḥudr al-ḥayl* (The book about the horses's gallop), *K. ṣifāt al-ḥayl* (The features of horses), *K. faḍl al-faras* (The book of the advantageous features of a noble mount), *K. al-liḡām* (The book of the rein), *K. as-sarḡ* (The book of the saddle), *K. ḥiṣā' al-ḥayl* (The book of the castration of horses). He gave a detailed description about the body-parts of a horse in his book *Kitāb al-ḥayl*, where his knowledge about the horse compares with that of the Baṣran philologist al-Aṣma'ī (d. 213/828)<sup>2</sup>. It is said in later times too that they were like two horses of betting, who reach the goal all together but for a nose's length (aṣ-Ṣalqānī 1977:84). A lot of anecdotes were hatched about the

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<sup>1</sup> Cited by Gibb 1963:54.

<sup>2</sup> Cf. Abū 'Ubayda, *Ḥayl* 22-23.

distinction between the two scholars, and one of these concerns a story that happened during one of their visits to al-Faḍl b. Rabīʿa. Making an account of the body-parts of a horse, al-Aṣmaʿī turned out to be able not only to list and show them on the horse presented, but to recite a poem too on each of them. Abū ʿUbayda retreated by referring to his being a philologist and not a veterinary. Thus the winner was al-Aṣmaʿī, who riding on the visual aid would remind Abū ʿUbayda several times of the distinction between the two of them (al-Qifṭī, *Ruwāt* II, 202). Although the winner was not Abū ʿUbayda, his book about the horse had nevertheless become a classic on the subject.

The account of the body-parts of the horse in his book resembles that in the anatomy books of European scholars, but his description is not an exact work of anatomy. It is instead, partly a visual account and partly a scientific description. Therefore it is rather difficult to find the exact equivalent of the various parts in another language. It seems that the Arab authors in the Middle Ages had looked at a horse quite differently from the way European authors did or do. For example, the accounts of the parts of the forehead and the croup of a horse, and their names, reflect a view from the outside and are not a result of an exact account of the muscles under the skin.

Abū ʿUbayda divided the forehead into three parts, in the upper part of the forehead is the *nāsiya* (under the forelock) and below this is the *ḡabha*, while at the bottom of the forehead between the two eyes is the *ḡabīn*. At the lower part of the *nāsiya*, where the two bones leading to the eyes fork off, is the *muḥayyā*, and in the middle of the *ḡabha* is the *latma* or *latāt* (Abū ʿUbayda, *Ḥayl* 125-129). In a simpler manner, Western anatomical description does not differentiate between these parts and only uses the words forehead or 'parietal bone'.

Abū ʿUbayda uses different names for the various sections of the back's stringy muscle of the croup. The part above the tail, where the two muscles join, is the *ḡurāb*. The upper part of the semitendinosus muscle (*ḡāʿirat*) near to the tail is the *ṣalā* and its lower part is the *kādatān*, at the upper part of the hind leg. The upper part of the croup is *ḥaḡabatān* (Abū ʿUbayda, *Ḥayl* 143-144, 213).

The description includes some inner parts too, but these also seem to result from simple observation. This and the comments offered on the names of the various body-parts show that an Arab author would describe the muscles in relation to one another, sometimes giving them names of animals (perhaps because the resemblance). For example,

- sparrow (*ʿusfūr*): the root of the forelock;
- owl (*ḥamā*): top of the head;
- fly (*dubāb*): iris, corpora nigra or the tip of the ear;
- titmouse or finch (*ṣurrad*): vein at the bottom of the tongue;
- butterfly (*farrāša*): fine bones at the top of the head;

bee queen (*ya'sūb*): white stripe on the nose that reaches neither the forehead above nor the nostrils below;

young eagle (*nābiq*): the fleshy part of the humerus, biceps brachii;

falcon (*ṣaqr*): hair ridge at the groin;

sandgrouse (*qatā*): place behind the rider on the horse's croup;

crow (*ḡurāb*): the upper part of the croup above the tail, where the two muscles join;

male bustard (*ḥarab*): hair ridge at the loin;

eagle (*nasr/nusūr*): frog;

Elanus Caeruleus (*zurraq*): whiteness in the eyes.

Abū 'Ubayda lists 16 animal species or more accurately, 16 species of animals that fly (*Ḥayl* 153 "*asmā' at-ṭayr fi l-faras*"). Other authors, like al-Aṣma'ī, mention further animal species like the ostrich (*na'āma*), the pigeon (*sa'dāna*), and the hawk/falcon (*bāz*) (ad-Damīrī *Ḥayāt* II, 160).

Abū 'Ubayda listing the names of species, does not juxtapose explanations, so the reader has to find them elsewhere in the book, among the explanations on the various body-parts. Sometimes the reader may suspect that the writer hides himself behind the veil of simplicity, leaving the task of precise identifications to the reader. For example, the *ḥadaqa* is, in his description, a black circle in the eyes, whereas the *insān* is the blackness in it (Abū 'Ubayda, *Ḥayl* 129). The iris is a *dubāb*. Or, in another passage, the *mukḥulān* is a well visible bone inside the carpus (Abū 'Ubayda, *Ḥayl* 135). In the account of some body-parts, all the writers whom I have consulted tell the same commentaries, word by word, while in other cases they differ totally from one another.

Ibn Sīda (d. 488/1066) summarizes best the various commentaries (*Muḥassaṣ* VI, 135-204). For example the *ḥāfir* in most descriptions means the hoof, yet in the opinion of Ibn Sikkīt it may also mean the ankle (*ḡubba*). According to Ibn Sīda, the *'usfūr* is the area extending from *nāsiya* down to the eyes (*mā taḥt an-nāsiya ilā l-'aynayn*). Abū 'Ubayda says that the *'usfūr* is the root of the *nāsiya* (*Ḥayl* 125). As regards the *ḥawṣab*, Abū 'Ubayd (d. 224/838) states that it is the interior of the hoof (Ibn Sīda, *Muḥassaṣ* II, 145) whilst Abū 'Ubayda holds that it is the two bones of the pastern (*ḥawṣabān*) (*Ḥayl* 137).

Abū 'Ubayda describes the horse together with its rider mounted on its back, which can be gathered from the commentaries on the body-parts: the *musta'āḥ* is the place between the halter's nose-strap (*marsin*) and the lips (*Ḥayl* 130), the *sālifa* is the place where the collar is put (*Ḥayl* 132, 185), the *qaṣara* is the place on the neck of a horse behind the collar's position (*Ḥayl* 133), the *ṣafḥa* is the place on the horse's sides which the horseman's thighs touch (*Ḥayl* 139, 204), the *ma'add* is the place on the sides of a horse pressed by the horseman's feet (*Ḥayl* 134), the *markal* is the place on the horse's sides where the rider urges him for a gallop (behind the elbows) (*Ḥayl*

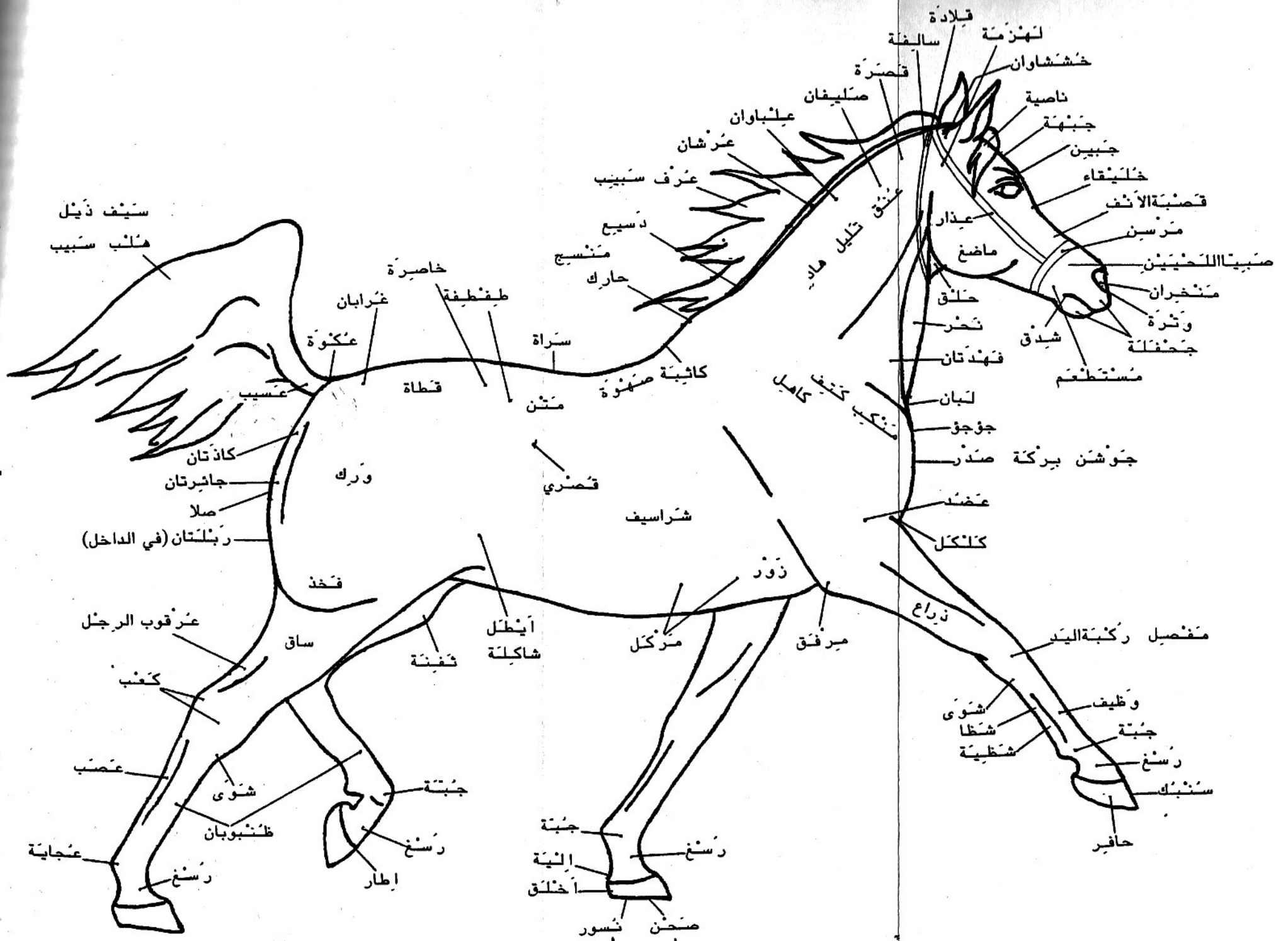
139, 191). The *qadāl* is the place behind the *nāsiya*, where the halter's forehead-strap is (*Hayl* 128).

Sometimes the descriptions concern various regions of the horse's body, and not concrete things, and the adjoining parts with the same function bear the same name. For example, the *nāsiya* is the forelock and the part of the forehead under it, just as *sālifa* means a part of a neck and a mane above it (Abū 'Ubayda, *Hayl* 125, 185). There are some parts of the horse which European scientists totally neglect, but the Arabs do not: wrinkles at the throat (*ḡirān*), the place before the rider on the withers of a horse (*kāṭiba*) and so on (Abū 'Ubayda, *Hayl* 133, 186, 188). The Arabic descriptions about the horse include some variations according to features in addition to the general commentaries, for instance, long or the short ears, with straight or loose edges, hairy ears or smooth ears and so on, and these types have different names. This kind of description confirms that the aim of describing the horse in the Middle Ages was not only to have a sound knowledge of the horse, but to prove the author's ability to collect ever more words referring to the horse. In this mentality, I see both the characteristic Arab competitiveness and the precision of the philologists. The books about the horses were written by philologists or more accurately, by real factotums who aspired to learning everything they could. The horse thus all but became secondary in the books written about it, the main thing being to prove one's superior knowledge.

In the collection of Abū 'Ubayda we find some words which he mentions several times, relating to different body-parts. Examples include the *dubāb* and the *radfa*: *dubāb* means the tip of the ear (*Hayl* 125) or the iris in the eyes (*Hayl* 129), *radfa* means a separate bone in the hoof, in the knee or in the joint between the cannon and the pastern (*Hayl* 136, 137). It is likely to be not a bone but a cartilage in all the three cases and they could have taken the same name because of their identical function.

Abū 'Ubayda names three different bones in the hoof. I could identify one of them with certainty which is the coffin bone, that the hoof surrounds. One of the other two bones is the aforementioned *radfa* (*al-ʿazm al-munqatʿi fi ḡawf al-ḥāfir*) and another bone is perhaps the navicular bone (*ʿazm fi ḡawf al-ḥāfir fi bāṭinihi*) whose other name is *difdaʿ* (frog) (*Hayl* 137-138). This latter is used by the European scientists for the horny-matter part at the sole of the hoof, between the sulci. In the Arabic texts however the frog corresponds to the *nusūr* (*mā irtafaʿa fi bāṭin al-ḥāfir min aʿalāhu*) that is what protrudes from the sole of the hoof, namely at its surface and not within (*Hayl* 138, 201). The *watra* is the place between the two nostrils (flat tendinous plate) and the place between the hock and the outer side of the knee (*Hayl* 130, 145, 218).

The idea of making a vocabulary on the body-parts of the horse is rooted in the fact that it could greatly facilitate the understanding of other parts of the book of Abū 'Ubayda, and other medieval works about the horses. For example, the *Kitāb*



قلادة  
 لهزيمة  
 خششاوان  
 ناصية  
 جنبه  
 جنبين  
 خلياقاء  
 قنصبة الأنف  
 مرسين  
 صبيبا اللحينين  
 منخبران  
 وثرة  
 جحفلة  
 مستظعم  
 شديق  
 حلق  
 نحر  
 فهدتان  
 لبان  
 جوجو  
 جوشن بركة صدر  
 عضد  
 كالكمل  
 شدا  
 حافير

سالفة  
 قصرة  
 صليبان  
 علباوان  
 عرشان  
 عرف سبيب  
 دسيح  
 منسج  
 حارك  
 عنق خليل ماد  
 عذار  
 ماضع  
 منكب خفيف كامل  
 قنصري  
 شراسيف

خاصيرة  
 طقطيفة  
 غرابان  
 عكوة  
 سرة  
 كاشبة صهوة  
 متثن  
 قطة  
 عسيب  
 كاذتان  
 جاشرتان  
 صلا  
 ربلتان (في الداخل)  
 فتخذ  
 ساق  
 ثغينة  
 ايتطل  
 شاكلية  
 ميركل  
 زور  
 ميرفق  
 ذراع  
 مفصيل ركبة اليد  
 وظيف  
 جبنة  
 رسغ  
 سنبك  
 حافير

سيف ذيل  
 هلب سبيب

سمارة  
 ↓  
 أرض

← آخرة

أوله →

جبنة  
 رسغ  
 ائية  
 اخلق  
 منحن  
 مسقل

رسغ  
 عجاية

*al-hayl* of Abū 'Ubayda, as such Arabic works in general becomes after a long introduction profoundly absorbed in the explanations of the body-parts of a horse from its head to its tail, then continues to use these words without any further pieces of information. With the vocabulary, the description of the horse became easier to survey, while the illustrations make these commentaries visible.

Unfortunately, Abū 'Ubayda's book does not include figures or pictures to aid his descriptions, therefore it was necessary to use European anatomy manuals to identify the various body-parts. The difficulty lay in the fact that the descriptions had resulted from an outside observation which made it highly ambiguous what is really meant by the 'inside' or the 'outside' of this or that, or what might be 'a well visible bone' or 'tendons without flesh', or which are 'the two veins in the thigh' and so on. Since Abū 'Ubayda describes the body-parts in relation to one another, this helped identification. Whenever the names of the body-parts could be identified with European definitions they are given in this way instead of the original commentary.

The body-parts of the horse  
An Arabic-English vocabulary based on Abū 'Ubayda's *Kitāb al-hayl*<sup>3</sup>

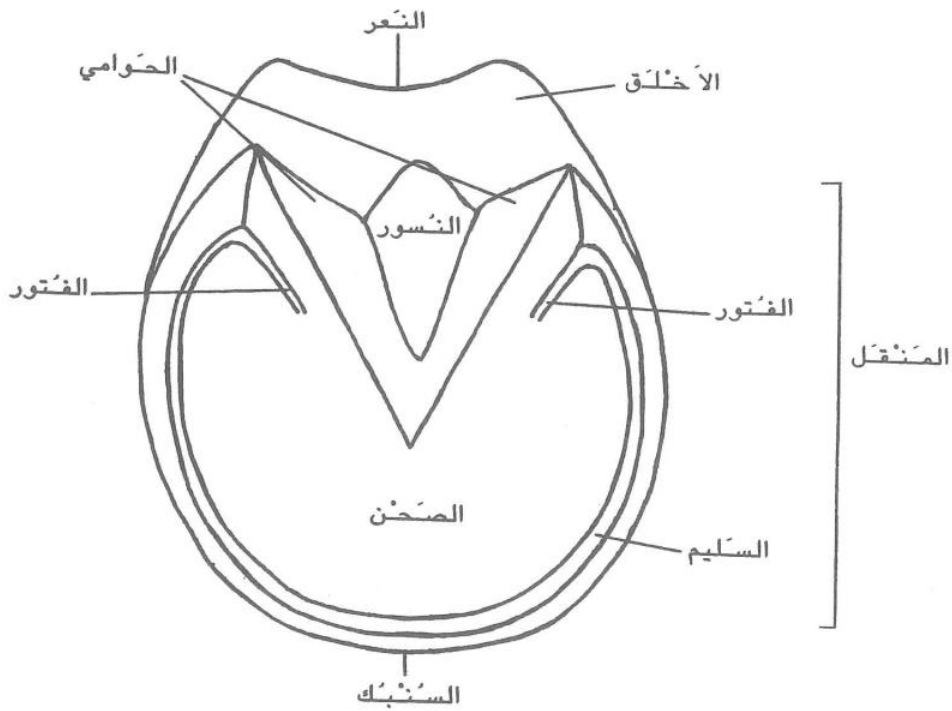
head	(١) رَأْسِي
forelock	(٢) ذَوَابِيَة
forelock and the forehead under it	(٣) نَاصِيَة
root of forelock	(٤) عَصْفُور
mane plus part of the neck above the forelock	(٥) قَرْنَس
place behind the forelock where the halter is put	(٦) قَذَال
place behind the nucha, occiput	(٧) فَهْقَة
top of the head	(٨) هَامَة
line of occiput	(٩) قَمْحَدْرَة / قَمْحَدْرَة
nasal ridge	(١٠) خَلْيَقَاء
fine bones of the top of the head	(١١) فَرَاشَة
part of the forehead under the ears	(١٢) جَبْهَة
part of the forehead above the eyes	(١٣) جَبِين
the place of the forehead, where the two bones leading to the eyes fork off	(١٤) مَحْيَا
centre of the forehead	(١٥) لَطْمَة / لَطَاة
the two bones above the eyes, temporal gossa	(١٦) وَقْتَان
the fleshy part at the holes above the eyes, adductor muscles and temporalis muscle	(١٧) الْخَصْمَتَان
palpebra	(١٨) حِجَاجَان
eyes	(١٩) عَيْنَان
upper eyelids	(٢٠) حِجَابَان
black circle in the eyes, corneoscleral junction	(٢١) حَدَقَتَان

<sup>3</sup> It is outside the scope of the present paper to compare these words to those amassed by Raswan (1945) among nineteen Inner Arabian camel- and horse-breeding Bedouin tribes.

blackness inside the <i>hadaqa</i>	انسانان (٢٢)
iris, corpora nigra	ذبابان (٢٣)
palpebrae	ماقر (٢٤)
palpebra which is not included in <i>hiğāğ</i> , palpebra tertia	جفون (٢٥)
edge of the eyelid	حيتار (٢٦)
eyelashes	أشعار (٢٧)
bulbus oculi	مقلتان (٢٨)
tip of the ears	ذبايان (٢٩)
back of the ears	عيران (٣٠)
nasal orifice	صماخان (٣١)
face	خدان (٣٢)
caput mandibulae	لهزمتان (٣٣)
concha nasalis	خيشوم (٣٤)
nasal bones	سوموم (٣٥)
the nose from the ridge to the nostrils	قصبية الأنف (٣٦)
well visible bone under the eyes, facial crest	نوايق مجاري دمويه (٣٧)
the place of the halter's nose- strap, caninus muscle	مرسين (٣٨)
flat tendinous plate	وترة (٣٩)
medial and lateral alae of nostrils	منخيران (٤٠)
lips	جحفلتان (٤١)
corner of the mouth	شدقان (٤٢)
the place between the halter's nose-strap and the lips, zygomaticus muscle	مستطعم (٤٣)
mandibula	لحيان (٤٤)
tactile hairs of maxillary labium	لحية (٤٥)
temporo mandibular joint	نكفتان (٤٦)
masseter	ماضغان (٤٧)
maxilla	شجير (٤٨)
tonsils	جوزتان (٤٩)
part of the maxilla nearest to the nose	صبيبا اللحيين (٥٠)
tongue	لسان (٥١)
root of the tongue	مكدة (٥٢)
two veins in the tongue: arteria and vena lingualis	سردان (٥٣)
edge of lingua	أسلة (٥٤)
palate	قلنت (٥٥)
gap between the palate and the nose, rima glottidis	مخارة (٥٦)
teeth	أسنان (٥٧)
the two front teeth	ثنايان (٥٨)
the two medial teeth	رباعيات (٥٩)
the two corner teeth	قوارح (٦٠)
eye-teeth	أنهاب (٦١)
molar teeth	أضراس (٦٢)
diastema	عمور (٦٣)
mane	سبيب عرف (٦٤)
fluff at the root of the hairs	شكير (٦٥)
mane crest	عرشان (٦٦)
two sinews under mane crest	علبوان (٦٧)

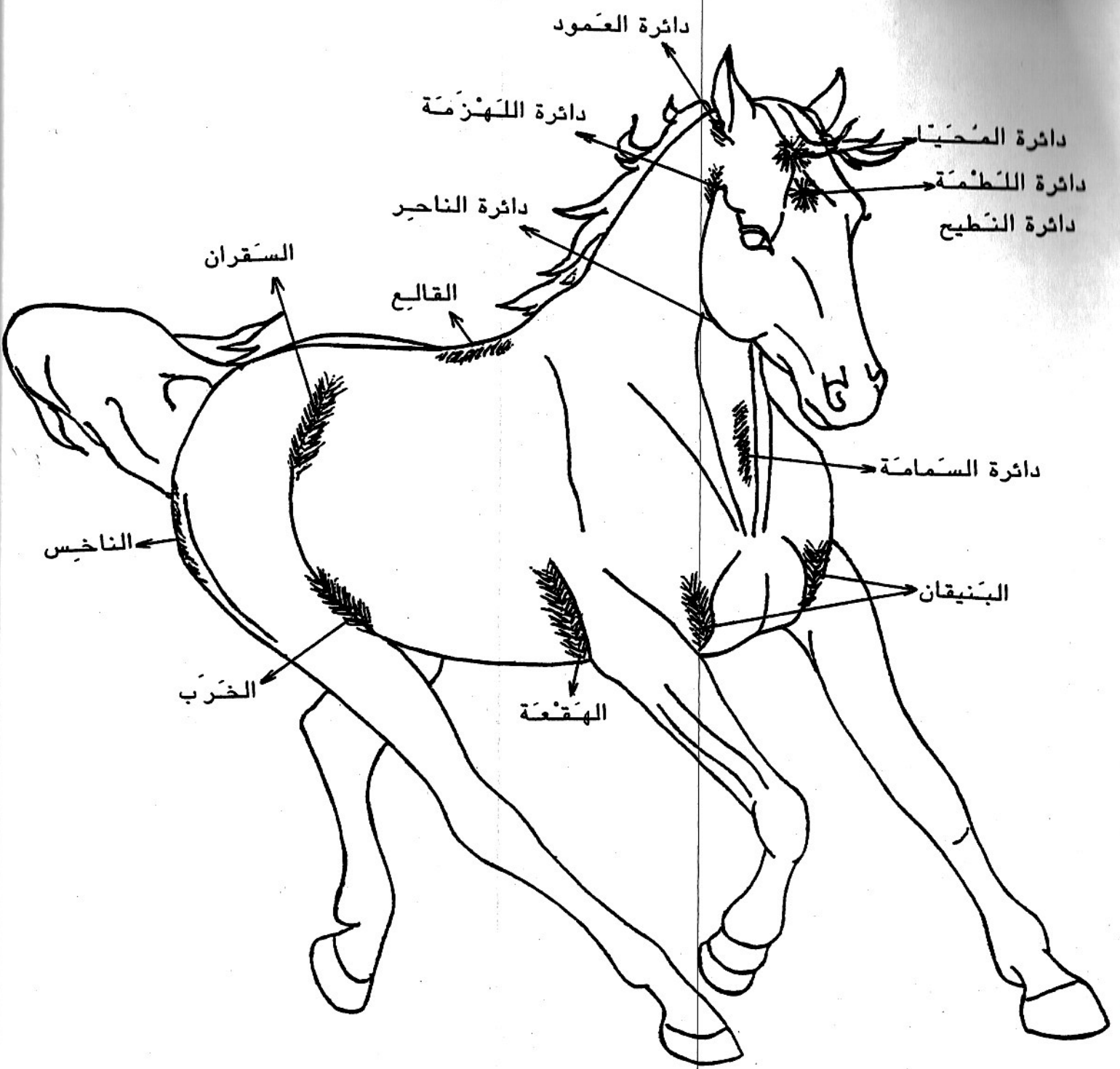
two sides of the neck, musculus splenius	صَلِيْفَان (٦٨)
the fleshy part of the cervical vertebra	لَدِيدَان (٦٩)
cervical vertebra	دَأْيَات (٧٠)
marrow	نُخَاع (٧١)
musculus cleidotransversarius	خَرَزَة (٧٢)
protruding bones behind the ears	خَشَشَاوَان (٧٣)
hair ridges of groin	صَقْرَان (٧٤)
neck	عُنُق (٧٥)
the part of the neck behind the ear bones	مَذْمَر (٧٦)
the part of the neck behind mudammar	لَبْتَان (٧٧)
place of the collar, upper part of the neck up to the ear bone	سَالِفَتَان (٧٨)
sternohyoides muscle, the part connecting the head to the neck	مَذْبَع (٧٩)
two veins in the neck	شَوَارِب (٨٠)
gullet	بَلْعُوم (٨١)
part of the neck behind a place where the collar is put	قَصْرَة (٨٢)
creases in the throat	جِرَان (٨٣)
the part connecting the neck and the withers	دَسِيْع (٨٤)
the nethermost part of the neck at the chest	لَبَان (٨٥)
back	سُرَاة (٨٦)
upper half of the withers	سَيْسَاء (٨٧)
withers	مَنْسِيْع حَارِك (٨٨)
place on the withers before the rider	كَائِبَة (٨٩)
scapula	كَاهِل (٩٠)
the rider's seat on the back of a horse	صَهْوَة (٩١)
the line of the backbone	قَرْدِيْدَة (٩٢)
back strap	جِدَة (٩٣)
thoracic vertebra	مَحَال (٩٤)
intervertebral disc	طِبْيَاق (٩٥)
the vertebra and the intervertebral disc together	صَلْب (٩٦)
each side of the horse	سَنَاسِيْن (٩٧)
back	مَتْن (٩٨)
back of the two scapulas	أَسْنَان الْكَاهِل (٩٩)
place behind a rider on the back of the horse, upper part of the croup	قَطَاة (١٠٠)
upper part of the croup where the two muscles join	غُرَابَان (١٠١)
groove between the two gluteus muscles on the top of the croup	قَتِيْنَة (١٠٢)
back of the croup	عَجْب (١٠٣)
thorax	جَوْشَن (١٠٤)
two sides of a horse at the place of a rider's feet	مَعْدَان (١٠٥)
shoulder	كَتِيْف (١٠٦)
back of the shoulder	غُضْرُوف / غُرْضُوف (١٠٧)
sinews in the back of the shoulder	مَقْرِيْضَان (١٠٨)
point of the shoulder	أَخْرِمَان (١٠٩)
shoulder, the part connecting the scapula to the humerus	مَنْكَبِيَان (١١٠)
humerus	عَضْدَان (١١١)
fleshy part near the point of the shoulder, biceps brachii	نَاهِيْض (١١٢)
fleshy part near the elbow, triceps brachii	مَرْدَغَة (١١٣)

groove between the two muscles of humerus	غُرُور (١١٤)
breast, pectorals	صَدْر (١١٥)
upper part of the chest, musculus pectoralis descendens	جُوْجُوْ (١١٦)
protruding part of the chest near the shoulder, musculus cleidomastoi	فَهْدَتَان (١١٧)
the chest as a whole	بَرْكَة (١١٨)
sternum	قَص (١١٩)
forearms of the forelegs	ذِرَاعَان (١٢٠)
elbow, olecranon	مِرْفَقَان (١٢١)
olecranon	إِبْرَتَان (١٢٢)
upper part of the forearm, where it joins the humerus	قَبِيحَان (١٢٣)
thick upper part of the forearm	عَظْمَتَان (١٢٤)
joint	مُرْكَب (١٢٥)
sinews	حِبَال (١٢٦)
place inside the forearm, which is not hairy: chestnut, tarsal pad	رَقْمَتَان (١٢٧)
vein inside of the forearm	أَبْطِنَان (١٢٨)
fine lower portion of the forearm	أَسْلَتَان (١٢٩)
place under the <i>asla</i> , which is not hairy: chestnut	مُسْتَدَق (١٣٠)
visible bone inside of the carpus	مُكْحَلَان (١٣١)
the part connecting the radius to the cannon bone	رُكْبَة (١٣٢)
round separate bone in the <i>rukba</i> : patella	رَضْفَة (١٣٣)
sinews joining to the patella	رَصْنَان (١٣٤)
fat in the joint	دَائِرَتَان (١٣٥)
round mobile bone at the back part of the <i>rukba</i> , accessory carpal bone	مَابِض (١٣٦)
cannon	وَضِيف (١٣٧)
cannon bone	قَيْنَان (١٣٨)
protruding bone on the inside part of the cannon	أَشْجَعَان (١٣٩)
sinew inside the cannon, joining it to the accessory carpal bone	عَصَب (١٤٠)
veins between the sinews in the cannon, arteria digitalis palmaris communis	أَبَاغِيل (١٤١)
sinew between the cannon and its root, musculus flexor digitorum superficialis	شَطَا (١٤٢)
splint bone	شَطِيَّة (١٤٣)
extremities of the cannon's sinews	مَضِيْفَتَان (١٤٤)
lower side of sinew	زَوَائِد (١٤٥)
pure sinew with no flesh on it	إِنْسِي (١٤٦)
sinew at the back of the ankle connecting to the hoof, musculus flexor digitorum profundus, manica flexoria	عَجَايَة (١٤٧)
chestnut on the front part of the ankle	قَمْعَة (١٤٨)
long hairs in the back side of the pastern	ثَنَة (١٤٩)
ankle, between the pastern and the cannon	جَبِيَّة (١٥٠)
bone between the pastern and the cannon, large metacarpal bone	رَضْفَة (١٥١)
pastern (between ankle and hoof)	رَسْن (١٥٢)
the two bones of the pastern	حَوْشَبَان (١٥٣)
bone between the <i>tunna</i> and the <i>umm qirdān</i> , long pastern bone	مَرِيْط (١٥٤)
short pastern bone	أَم قِرْدَان (١٥٥)
sesamoid bones	بَرْجَمَتَان (١٥٦)
ring above the coronary band	حَصِيْمَة (١٥٧)
hoof	حَافِر (١٥٨)



coronary band	إِطَار (١٥٩)
coffin bone	دَخِيس (١٦٠)
bulbs of heel	أَخْلَق (١٦١)
part of the hoof between <i>al-amār</i> and <i>aṣ-ṣaḥn</i>	سَلِيم (١٦٢)
bone inside the hoof, navicular bone	ضَفْدَع (١٦٣)
part of the hoof between <i>al-futūr</i> and <i>as-salīm</i> , sole	صَحْن (١٦٤)
part of the hoof at the edges of an-nusur, bar of wall	فُتُور (١٦٥)
protruding part of the sole, frog	نَسْر / نَسُور (١٦٦)
the sole as a whole	مَنْقَل (١٦٧)
paracuneal sulcus and junction between frog and sole	حَوَام (١٦٨)
interbulbar groove	فَجْوَة (١٦٩)
groove in the back side of the hoof	نَعْر (١٧٠)
upper part of the hoof's back	دَوَابِر (١٧١)
fleshy part above the coronary band at the back side of the hoof	إِلْيَة (١٧٢)
muscles of the chest that reach the earth if the horse lies down, musculus pectoralis transversus	كَلْكَل (١٧٣)
the outer side of the ribs	جَوَانِح (١٧٤)
the part of the thorax from the first rib to the sixth	زُور (١٧٥)
the third rib	بَلْدَة (١٧٦)
rib	فَلَكَة (١٧٧)
the last rib out of the <i>zawr</i>	رَهَابَة (١٧٨)
the place on the horse's sides where the rider urges him for a gallop, behind the elbows	مَرْكَل (١٧٩)
two sides of the thorax of the horse where the rider's thighs touch them	صَفْحَتَان (١٨٠)
ribs	حَصِير (١٨١)
creases	أَبْهَرَان (١٨٢)
the last ribs	قُصْرِيَان (١٨٣)
the outer side of the ribs	شَرَّاسِيف (١٨٤)
the inside of the horse	جَوَاف (١٨٥)
aorta	رَتِين (١٨٦)
heart	قَلْب (١٨٧)
vena	نَاطِط (١٨٨)
larynx	حَيْزُوم (١٨٩)
gullet	حَلْقُوم (١٩٠)
hepar, liver	كَبِد (١٩١)
lungs	رِثْتَان (١٩٢)
kidney, renis dexter and sinister	كَلْبَيْتَان (١٩٣)
intestines	أَعْفَاج (١٩٤)
belly	قُصْب (١٩٥)
ventriculus	دَمَانَة (١٩٦)
lobus hepaticus	رَيْكْتَان (١٩٧)
part of the belly in front of the navel, where the veterinary stings it	مَنْقَب (١٩٨)
the lower part of the liver	كَبِد سَفْلَى (١٩٩)
navel	سُرَة (٢٠٠)
the navel and its vicinity	مَأَلَة (٢٠١)
navel	رَاهِنَة وَاهِنَة (٢٠٢)

the navel's vein	مُتَمَّ (٢٠٣)
aorta and vena epigastrica caudalis superficialis, aorta and vena mammaria media	حالِيَّان (٢٠٤)
penis	جُرْدَان (٢٠٥)
testicle	خُصْبِيَّة (٢٠٦)
region among the penis and the testicles and the inner side of the knee ( <i>tafina</i> ): inguinal region	رَفْنَع / رَفْنَع (٢٠٧)
preputium	غُرْمُول (٢٠٨)
preputium	قَنْب (٢٠٩)
urethra	إِحْلِيل (٢١٠)
veins (pipes?) originating in the scrotum (testicle)	أَسْهَر (٢١١)
part between the perineum and the testicles, perineal region	صَفْن (٢١٢)
the back part of the belly	حُجْزَة (٢١٣)
converging hair ridge on the groin	خَرْب (٢١٤)
croup, gluteus	وَرَك (٢١٥)
upper part of the croup	حَجَبَتَان (٢١٦)
upper part of the thigh	تَفَاحَتَان (٢١٧)
back part of the croup between root of the tail and semitendinosus	عَزِيْزَاء (٢١٨)
semitendinosus	جَاعِرَتَان (٢١٩)
muscle with no bone underneath	خَرْبَتَان (٢٢٠)
root of the tail, dock	عَكْوَة (٢٢١)
tail bone	عَسِيْب (٢٢٢)
hairs of the tail	مَلَب سَيْف (٢٢٣)
musculus sphincter ani externus	حِتَار حَلَقَة (٢٢٤)
anus	سَم (٢٢٥)
anus	خُورَان (٢٢٦)
musculus levator ani	سَعْدَانَة (٢٢٧)
preputial raphe	عِيْجَان (٢٢٨)
vulva	ظَلْبِيَّة الأُنْثَى (٢٢٩)
vestibulum vaginae	مَهْبِل (٢٣٠)
musculus constrictor vestibuli	خَاتِم (٢٣١)
musculus constrictor vulvae	شَرِيْجَة (٢٣٢)
ventral commissure, the lower part of the vulva	ثُلُول (٢٣٣)
musculus semimembranosus	رَبْلَتَان (٢٣٤)
musculus gracilis	نَدَاة (٢٣٥)
grooves between fleshy parts	غُرُور (٢٣٦)
fleshy parts in the thighs	خَصَائِل (٢٣٧)
joint between femur and tibia, on the outer part of patella	مَأْيُض (٢٣٨)
joint between femur and tibia, on the inner part of patella	ثَفْنَة / ثَفْنَة (٢٣٩)
thigh, tibia	سَاقَان (٢٤٠)
fleshy upper part of thigh	حَمَاتَان (٢٤١)
sinews	حِبَال (٢٤٢)
two veins in the thigh	نَسْوَان (٢٤٣)
two tendons between <i>'urqub</i> and <i>ma'bid</i>	وَتْرَتَان (٢٤٤)
pure tendons (with no flesh on them)	أَيْبَسَان (٢٤٥)
between the upper fleshy part of the thigh and the hock	



دائرة العمود

دائرة اللهزيمة

دائرة المحيّا

دائرة اللطمة

دائرة النطيط

دائرة الناخس

السقران

القالع

دائرة السمامة

الناخس

البنيقان

الخراب

الهقعة

point of the hock, calcaneus	كَعْبَان (٢٤٦)
two bones of the hock	مَنْجَمَان (٢٤٧)
tendo calcaneus communis (Achillis) and calcaneus	عَرْقُوبَان (٢٤٨)
hock	إِبْرَتَان (٢٤٩)
cannon (between the ankle and the hock)	وُظِيف (٢٥٠)
front part of the cannon	ظَنْبُوبَان (٢٥١)
ankle between cannon and pastern	جَبِيَّة (٢٥٢)
hair on pastern	ثُنَّة (٢٥٣)
superficial flexor tendon	عَصَب (٢٥٤)
back part of ankle	عَجَايَة (٢٥٥)
the lower part of the knee (carpus) and the hock on the cannon	شَوَى (٢٥٦)
upper part of the hind legs	فَخْدَان (٢٥٧)
the lower part of the semitendinosus	كَادَاتَان (٢٥٨)
back part of <i>fahidān</i> under the <i>kādātān</i>	فَاشِلَان (٢٥٩)
hair ridges, tufts of hair	دَوَائِر (٢٦٠)
converging hairs at the bottom of the upper part of the forehead	دَائِرَة المَحْيَا (٢٦١)
converging hairs in the middle of the forehead	دَائِرَة اللُّطْمَة (٢٦٢)
two hair ridges in the middle of the forehead	دَائِرَة النُّطِيع (٢٦٣)
hair ridge in the middle of the neck at the front part	دَائِرَة السَّمَامَة (٢٦٤)
two hair ridges in the front part of the chest	بَنِيْقَان (٢٦٥)
hair ridge in the first part of the thorax, behind the elbow	مَهْجَة (٢٦٦)
hair ridge in the loin, before the knee	خَرْب (٢٦٧)
hair ridge on the semitendinosus	نَاخِيس (٢٦٨)
hair ridges between the top of a croup and the last rib, at the groin	سَعْقِرَان (٢٦٩)
hair ridge at the place of the saddle, on the horse back	قَالِيع (٢٧٠)
hair ridge at the throat	دَائِرَة النَّاخِر (٢٧١)
hair ridge on the temporo mandibular joint	دَائِرَة اللُّهْزَمَة (٢٧٢)
hair ridge at the place of the collar	دَائِرَة العَمُود (٢٧٣)

An alphabetical list of the body-parts of the horse<sup>4</sup>

جَاعِرَاتَان (٢١٩)	أَيْبَسَان (٢٤٥)	أَسْهَر (٢١١)	أَبَايِل (١٤١)
جَبِيَّة (٢٥١), (١٥٠)	بِرْجُمَاتَان (١٥٦)	أَشْجَمَان (١٣٩)	إِبْرَتَان (١٢٢), (٢٤٩)
جَبِيَّهَة (١٢)	بِرْكَة (١١٨)	أَشْفَار (٢٧)	أَبْطَنَان (١٢٨)
جَبِين (١٣)	بِلْدَة (١٧٦)	أَضْرَاس (٦٢)	أَبْهَرَان (١٨٢)
جَحْفَلَتَان (٤١)	بَلْعُوم (٨١)	إِطَار (١٥٩)	إِحْلِيل (٢١٠)
جَدَة (٩٣)	بَنِيْقَان (٢٦٥)	أَعْفَاج (١٩٤)	أَخْرَمَان (١٠٩)
جِرَان (٨٣)	تَفَاحَاتَان (٢١٧)	إِلْيَة (١٧٢)	أَخْلِق (١٦١)
جِرْدَان (٢٠٥)	ثَفِينَة (٢٣٩)	أَم قِرْدَان (١٥٥)	أَسَلَة (٥٤)
جِفُون (٢٥)	ثَنَابَان (٥٨)	أَنْسَانَان (٢٢)	أَسَلَتَان (١٢٩)
جَوَانِع (١٧٤)	ثُنَّة (٢٥٢), (١٤٩)	إِنْسِي (١٤٦)	أَسْنَان (٥٧)
جَوْجُو (١١٦)	ثُولُول (٢٣٣)	أَنْيَاب (٦١)	أَسْنَان الكَاهِل (٩٩)

<sup>4</sup> The words are arranged in strict alphabetical order. The numbers in brackets refer to the numbers given in the vocabulary.

قَصْرِيَان (١٨٣)	صَلِيْفَان (٦٨)	ذَوَابَة (٢)	جَوْرَتَان (٤٩)
قَص (١١٩)	صِمَاخَان (٣١)	رَأْس (١)	جَوْرَشْن (١٠٤)
قَطَاة (١٠٠)	صَهْوَة (٩١)	رَاهِنَة وَاهِنَة (٢٠٢)	جَوْف (١٨٥)
قَلْب (١٨٧)	ضَفْدَع (١٦٣)	رَبَاعِيَات (٥٩)	حَاغِر (١٥٨)
قَلْت (٥٥)	طَبِاق (٩٥)	رَبْلَتَان (٢٣٤)	حَالِبَان (٢٠٤)
قَمْحَدَوَة / قَمْحَدَوَة	ظَبِيَّة الْأَنْثَى (٢٢٩)	رَسْن (١٥٢)	حِبَال (٢٤٢)، (١٢٦)
(٩)	ظَنْبُوبِيَان (٢٥٠)	رَضْنَان (١٣٤)	حِتَار (٢٦)
قَمْعَة (١٤٨)	عِجَان (٢٢٨)	رَضْفَة (١٣٣)، (١٥١)	حِتَار حَلْقَة (٢٢٤)
قَنْب (٢٠٩)	عُجَايَة (١٤٧)، (٢٥٥)	رَفْع / رَفْع (٢٠٧)	حِجَابَان (١٨)، (٢٠)
قَوَارِح (٦٠)	عَجَب (١٠٣)	رَقْمَتَان (١٢٧)	حِجَبَتَان (٢١٥)
قَوْنَس (٥)	عَرِشَان (٦٦)	رَكْبَة (١٣٢)	حِجْزَة (٢١٣)
قَيْنَان (١٣٨)	عَرَقُوبِيَان (٢٤٨)	رَهَابَة (١٧٨)	حَدَقَتَان (٢١)
قَيْنَة (١٠٢)	عَرِيزَاء (٢١٨)	رَيْثَان (١٩٢)	حَصِير (١٨١)
كَاثِبَة (٨٩)	عَسِيْب (٢٢٢)	رَيْكَتَان (١٩٧)	حَصِيصَة (١٥٧)
كَادَاتَان (٢٥٨)	عَصَب (١٤٠)، (٢٥٤)	زَوَائِد (١٤٥)	حَلَقُوم (١٩٠)
كَاهِل (٩٠)	عَصْفُور (٤)	زُور (١٧٥)	حَمَاتَان (٢٤١)
كَيْد (١٩١)	عَضْدَان (١١١)	سَاقَان (٢٤٠)	حَوَام (١٦٨)
كَيْد سَفْلَى (١٩٩)	عَظْمَتَان (١٢٤)	سَالِفَتَان (٧٨)	حَوْشَبَان (١٥٣)
كَيْف (١٠٦)	عَكْدَة (٥٢)	سَبِيْب عَرَف (٦٤)	حَيَزُوم (١٨٩)
كَعْبِيَان (٢٤٦)	عَكْوَة (٢٢١)	سَرَاة (٨٦)	خَاتِم (٢٣١)
كَلْكَل (١٧٣)	عَلْبُونَان (٦٧)	سَرَة (٢٠٠)	خَدَان (٣٢)
كَلْيَتَان (١٩٣)	عَمُور (٦٣)	سَعْدَانَة (٢٢٧)	خَرِب (٢١٤)، (٢٦٧)
لَبَان (٨٥)	عَنْق (٧٥)	سَقْرَان (٢٦٩)	خَرِبَتَان (٢٢٠)
لَبْتَان (٧٧)	عَيْرَان (٣٠)	سَلِيم (١٦٢)	خَرِزَة (٧٢)
لَحْيَان (٤٤)	عَيْنَان (١٩)	سَم (٢٢٥)	خَشْشَاوَان (٧٣)
لَحْيَة (٤٥)	غَرَابَان (١٠١)	سَمُوم (٣٥)	خَصَائِل (٢٣٧)
لَخْضَتَان (١٧)	غَرُضُوف (١٠٧)	سَنَاسِين (٩٧)	خَصِيَّة (٢٠٦)
لَهْدِيَان (٦٩)	غَرُومَل (٢٠٨)	سَيَسَاء (٨٧)	خَلْبِيْقَاء (١٠)
لَسَان (٥١)	غُرُور (٢٣٦)	شَجْر (٤٨)	خُورَان (٢٢٦)
لَطَاة (١٥)	غُرُور غَر (١١٤)	شِدْقَان (٤٢)	خَيْشُوم (٣٤)
لَطْمَة (١٥)	غُضْرُوف (١٠٧)	شَرَّاسِيْف (١٨٤)	دَائِرَة السَّمَامَة (٢٦٤)
لَهْزَمَتَان (٢٣)	فَائِلَان (٢٥٩)	شَرِيْجَة (٢٣٢)	دَائِرَة العَمُود (٢٧٣)
مَاطِيض (٢٣٨)، (١٣٦)	فَقْتُور (١٦٥)	شَطَا (١٤٢)	دَائِرَة اللَطْمَة (٢٦٢)
مَاضِيَان (٤٧)	فَجْوَة (١٦٩)	شَطِيَّة (١٤٣)	دَائِرَة اللَهْزَمَة (٢٧٢)
مَاق (٢٤)	فَخِيْدَان (٢٥٧)	شَكِيْر (٦٥)	دَائِرَة المُحْيَا (٢٦١)
مَأَلَة (٢٠١)	فَرَاشَة (١١)	شَوَارِب (٨٠)	دَائِرَة النَاحِر (٢٧١)
مَتَم (٢٠٣)	فَلَكَه (١٧٧)	شَوَى (٢٥٦)	دَائِرَة النَطِيح (٢٦٣)
مَتْن (٩٨)	فَهْدَتَان (١١٧)	صَبِيَا اللَحْيِيْن (٥٠)	دَائِرَتَان (١٣٥)
مَحَارَة (٥٦)	فَهْفَه (٧)	صَحْن (١٦٤)	دَأِيَات (٧٠)
مَحَال (٩٤)	قَالِع (٢٧٠)	صَدْر (١١٥)	دَخِيْس (١٦٠)
مَحْيَا (١٤)	قَبِيحَان (١٢٣)	صَرْدَان (٥٣)	دَسِيْع (٨٤)
مَذْبِيح (٧٩)	قَدَال (٦)	صَفْحَتَان (١٨٠)	دَمَانَة (١٩٦)
مَذْمَر (٧٦)	قَرْدُودَة (٩٢)	صَفْن (٢١٢)	دَوَابِر (١٧١)
مَرْدَعَة (١١٣)	قَصَب (١٩٥)	صَقْرَان (٧٤)	دَوَابِر (٢٦٠)
مَرَسِين (٣٨)	قَصْبَة الْأَنْف (٣٦)	صَلْب (٩٦)	ذَبَابَان (٢٣)، (٢٩)
مِرْفَقَان (١٢١)	قَصْرَة (٨٢)		ذِرْعَان (١٢٠)

هَفْعَة (٢٦٦)	نَاطِط (١٨٨)	مَنْجَمَان (٢٤٧)	مَرْكَب (١٢٥)
هَلْب سَيْف (٢٢٣)	نُخَاع (٧١)	مَنْخِرَان (٤٠)	مَرْكَل (١٧٩)
وَتِين (١٨٦)	نُدَاة (٢٣٥)	مَنْسِج حَارِك (٨٨)	مَرِيْط (١٥٤)
وَتْرَتَان (٢٤٤)	نَسْر / نَسُور (١٦٦)	مَنْقَب (١٩٨)	مُسْتَدَق (١٣٠)
وَتْرَة (٣٩)	نَسْوَان (٢٤٣)	مَنْقَل (١٦٧)	مُسْتَطَعَم (٤٣)
وَبْرِك (٢١٦)	نَعِير (١٧٠)	مَنْكِبَان (١١٠)	مَضِيغَتَان (١٤٤)
وَضِيْف (٢٥٣), (١٣٧)	نَكْفَتَان (٤٦)	مَهْبِيل (٢٣٠)	مَعْدَان (١٠٥)
وَقْبَان (١٦)	نَوَاهِيْق مَجَارِي	نَاخِس (٢٦٨)	مَفْرِضَان (١٠٨)
	د موعيه (٣٧)	نَاصِيَة (٣)	مُتَلَتَان (٢٨)
	هَامَة (٨)	نَاهِض (١١٢)	مُكْحَلَان (١٣١)

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