

CAMELS AND HORSES IN AL-AŞMAĪ'S MONOGRAPHS

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Abstract:

In this study, two works of al-AşmaĪ (d. 216/831), *Kitāb al-ḥayl* and *Kitāb al-ibil*, will be examined. Due to the similar subject matters— description of an animal species – the structure of the two works is also very similar. For both animal species, the most important topic is birth and reproduction, which is why *al-AşmaĪ*'s two books begin with this issue. The most suitable time for conception is determined based on experience, tradition, and observation, ensuring that the female animal can conceive and give birth to a healthy calf or foal. The fertility and abundant milk-production of camels, and the speed and endurance of horses, are thought to be ensured by their nobility, that is, the careful selection of pedigrees and ancestors, through the knowledge of genealogy.

Keywords: camel, Arabian horse, al-AşmaĪ, Arabic poetry

Medieval Arabic literature abounds in descriptions of animals, a large part of this corpus having been created in the late pre-Islamic era and transmitted through oral tradition and collected in the poetic anthologies of the early Abbasid period in the 2nd–3rd/8th–9th centuries. The relevant verses were also used in other, lexicographical works, sometimes under the titles *Kitāb al-ḥayl* or *Kitāb al-ibil*. In these works of lexicography, in addition to material collected by themselves among the Bedouins, the authors, such as Abū 'Ubayda (d. 209/824) and al-AşmaĪ (d. 216/831), also drew on collections of pre-Islamic or early Islamic poetry whenever they wished to explain the meaning of a rarely used word (Baalbaki 2014:3, 6–7). The camel was frequently described in the *qaşīdas* of many pre-Islamic poets, whose works can be found in the collection of the *Mufaḍḍaliyyāt* (al-Anbārī, *Mufaḍḍaliyyāt*), including Ṭarafa b. al-'Abd (d. 38/569), Başşāma b. al-Ġudayr al-Uḍrī (al-Murrī) (d. 14/608)¹,

¹ His name is Başşāma b. 'Amr, al-Ġudayr being his nickname (*laqab*). He was a pre-Islamic poet from the Ġaṭafān tribe who owned a lot of camels. When the number of his camels reached one thousand, he spotted out the eyes of a camel bull, as was customary at

Zuhayr b. Abī Sulmā (d. 88/609), al-Muṭaqqab al-‘Abdī (d. 36/587), ‘Alqama al-Fahl (d. 20/603), while descriptions of the horse are found in the poems of Ṭufayl al-Ġanawī (d. 13/610), Labīd b. Rabī‘a (d. 41/661), Imru’u l-Qays (d. 38/540), Abū Du‘ayb Ḥuwaylid b. Ḥalīd al-Hudālī (a *muḥadram* poet) (d. 33/654), and Zayd al-Ḥayl at-Ṭā‘ī (a *muḥadram* poet) (d. 9/630).²

Among the poetic images depicting animals, descriptions of camels (typically *nāqa*, ‘female camel’ and *ibil*, ‘camels’ in the plural) and horses (*faras*, ‘mare’, and *ḥayl*, ‘horses’ and ‘riders’) stand out. These animals are revered by the Arabs as *ḥayawān anīs* (‘living beings with souls’).³

In what follows, two works of al-Aṣma‘ī will be examined with an eye to the terminology: the *Kitāb al-ḥayl* and *Kitāb al-ibil*.

Due to the analogous subject matter, the structure of the two works is very similar. Both descriptions begin with mating, pregnancy, and birth. The description of the camel begins as follows: “*The most appropriate time for a female camel to become pregnant is when she misses a year (rests) after her previous pregnancy, and mating takes place then*” (al-Aṣma‘ī, *Ibil* 43):

أجودُ وقتِ يُحْمَلُ فِيهِ عَلَى النَّاقَةِ أَنْ تُجَمَّ سَنَةً وَيُحْمَلُ عَلَيْهَا

In the case of the horse, the most suitable time for a mare to conceive, as al-Aṣma‘ī puts it at the very beginning of the book again: “[*For all odd-toed ungulates*] *the most appropriate time (for a mare) to become pregnant is the seventh day after giving birth*” (al-Aṣma‘ī, *Ḥayl* 48).⁴

أجودُ وقتِ الحَمَلِ عَلَيْهَا بَعْدَ نِتَاجِهَا بِسَبْعَةِ أَيَّامٍ

The topic of mating and parturition is much more elaborately detailed in relation to camels than to horses, including elements such as the pregnancy probe (*bawr*), premature birth (*iḡāl*), and over-carrying (*idrāḡ*), which are missing from the description of horses. After describing the calves/foals at birth, the text traces their growth, followed by an anatomical description in the case of the horse (absent in that

the time. See his description of the camel in al-Qināwī. 1949:74–75; and on the tradition see ‘Alī 1980: VI, 79.

² Zayd b. Muḥalhil b. Zayd b. Munḥab b. ‘Abd Raḍā. He got his nickname (Zayd al-Ḥayl), because of the great number of his horses. Six of his horses are known by name from his poems: al-Ḥaṭṭāl, al-Kumayt, al-Ward, Kāmil, Du‘ūl, Lāḥiq. The Prophet Muḥammad changed his name to Zayd al-Ḥayr, when he converted to Islam, alluding with this to the value of horses.

³ Contrasted with wild animals such as the lion or hyena, which are called in Arabic *ḥayawān ābid* (untamed, wild).

⁴ The first estrus after parturition (so-called ‘foal-estrus’) occurs five to eleven days after her giving birth. The mare is then in conceptional ability again. According to the European tradition, the optimal day for mating during the initial estrus is the ninth day following parturition (referred to as the ‘foal one ninth’). See Bodó and Hecker 1998:216–217.

of the camel).⁵ Conversely, there is ample description of motherhood, suckling, and lactation (milk secretion) concerning camels. Within the anatomical description of horses, the author summarises the diseases of the legs and hooves as the most significant problems and does not address other diseases. In the case of camels, diseases are described after the animal's general characteristics, and the author mainly mentions internal problems caused by exhaustion and external injuries due to saddle sores or other bruises. He lists twenty-five diseases that can affect camels.⁶ After this, the two descriptions converge again, various desirable and undesirable characteristics being listed in the text. In the description of gaits, we find terms used for both camels and horses, just as in the description of colours that follows. The description of horses ends after the discussion of gaits, while two additional chapters complete the discussion of the camels due to the unique characteristics of the breed: the period between two waterings (*zim*'), and the types of marks (camel brands, *taznīm*) and skin twists used as markings.

Terminology related to watering	(al-Aşmaṭ, <i>Ibil</i> , 148–155)
Time elapsing between two waterings	الظَّمُّ
A camel, which is left by the water and drinks whenever it wants to	الرَّغْرَغَةُ
A camel cow that drinks every day	رَافِيَةٌ
Daily watering	الرَّفْقَةُ
Those who water their camels every day	الرَّفْقِيُّونَ
An animal watered in the evening one day and in the morning the next day	الرَّغْرِيْجَاءُ
Watering every day at noon	الظَّاهِرَةُ
Watering every two days	الرَّغْبُ
Watering every fourth day	الرَّبِيعُ
Watering every fifth day	الرَّحْمَسُ
The camels arriving for the fifth day's watering	جَاءَتْ الْإِبِلُ خَوَامِسَ

⁵ al-Aşmaṭ's explanations of the camel's body parts can be found in Ibn Sīda, *Muḥaşṣaṣ* II, 47–54. Among these we find some names common to horses as well, such as *ğirān* (throat, front-upper part of the neck in camels, fold of skin at the horse's throat), *dasi*' (the junction of the neck and withers in both species), *birka* (the front part of the camel's chest that touches the ground when lying down, or the whole breast in reference to the horse), *mirfaq* (the elbow in both species), *ğurābān* (the upper part of the rump on both sides of the tail in both species), *'ağb* (tail bone in both species), *'asīb* (coccyx in both species) *dirā'* (forearm, part of the leg above the cannon [*wazīf*] in both species), etc.

⁶ Among them are the illnesses caused by inner and outer parasites, tremor (*rağaz*) asthma (*rabw*) and a kind of infectious disease that resembles malleus (*şād*, *şayd*). Due to the mastitis occurring in dairy camels, the injury caused by the rope or a stringy piece of wood binding the udder, is discussed elsewhere in the text, as part of the description of the state after calving, as is the cutting off non-milk-producing nipples.

Watering every sixth day	السبْدُسُ
Camels watered every six days	سَوَادِسُ
Watering every seventh day	السَّبْعُ
Camels watered every seven days	سَوَايِعُ
Watering every eighth day	الثَّمَنُ
Camels watered every eight days	تَوَامِنُ
Watering every ninth day	التَّسْعُ
Camels watered every nine days	تَوَايِعُ
Watering every tenth day	العَشْرُ
Camels watered every ten days	عَوَايِرُ
The camels asked for water while on the way.	طَلَّقَتْ الإِبِلُ طَلْقاً إِلَى المَاءِ
Asking for water on the first night	طَلَّقُ
Asking for water on the second night	قَرَبُ
The camel went to the water, drank, and knelt	قَدَّ عَطَنَتْ
The camel kneeling after drinking at the water	هِيَ عَطُونُ
Camels watered for the second time	إِبِلُ عَالَةٌ
He drank little	تَشَحَّتْ
Little, non-thirst-quenching drink	الشَّرَابُ النَّشُوخُ
The camel is being held back from the water	قَصَبٌ يَقْصَبُ قَصْوَياً
The camel is being held back from eating	ظَلَّ عَاذِباً

Markings and camel brands ⁷	(al-Aṣmaʿī, <i>Ibil</i> 156–160)
Slitting the camel's ear as a mark; the slit part of the ear bends down, dries up, and becomes like an earring	التَّرْنِيمُ
A burned line, as a brand on the camel's thigh	الخِبَاطُ
A hooked stick-shaped mark anywhere on the camel's body; a mark made with a hot iron upon a camel	المَحْجَنُ
A hook-shaped stick mark that looks like a hook hanging from the edge of a camel's saddle	الخُطَافُ
Three stick-shaped markings, which relate to their lower part and diverge at their upper part	المُشْتِطُ
A brand made with a hot iron stick on the nose of a camel	الخِطَامُ
A she-camel marked with a nose brand	نَاقَةٌ مَخْطُومَةٌ
Two circular marks on the neck	المَحَلَّقُ

⁷ Among the markings, the tribal mark (*wasm*) is always placed in the same place on the camel (on the thigh), while the marks of the subtribes and families (*ṣāhid*) can vary on the upper arm, neck, and nose, in addition to the permanent tribal mark.

Marking at the very bottom of the neck	الليحاظ
The marking on the jaw	اللِّهَازُ
A camel marked on its jaw	مَلْهُورٌ
A small incision made with a large knife or sharp stone on the thigh or upper arm; the cut piece of skin curls up, dries up, and becomes like a skin wart	الْحَزْرَةُ
A large incision made with a large knife or a sharp stone, after which the skin is folded up and allowed to dry	الْجِرْفَةُ
An incision made on the hind leg (lower thigh: <i>sāq</i>) or upper arm (<i>ʿaḍud</i>) with a large, broad-bladed knife	الْقَرَعَةُ
A mark on the camel's face, a dry piece of skin the size of an olive	الْقَرَمَةُ
Splitting the camel's ear	التَّرْعِيلُ
A she-camel with split ears.; the dried part of the ear remains hanging	نَاقَةٌ رِغْلَاءُ
Splitting of the front part of the ear; the split ear part is left to dry	الإِقْبَالَةُ
Splitting of the back of the ear; the split ear part is left there to dry	الإِدْبَارَةُ
A female camel whose ears have been split in front and behind as well	النَّاقَةُ مُقَابِلَةٌ مُدَابِرَةٌ
The she-camel that has the back of its ear slit as a mark	المُدَابِرَةُ
Splitting the camel's ear in its middle part	الْحَرْقُ
An opening cut in the camel's ear	الشَّرْقُ
A slit-eared she-camel	سَرْقَاءُ
A mark reserved for kings	الصَّيْعِرِيَّةُ

In the terminology related to camel and horse, there are common names with either the same or the opposite meaning. Examples include *haġīn* (camel of noble descent or horse of low descent), *ḥadūda* (breeding animal: camel and horse), *ḥūš* (wild animal: camel and horse), *kumayt* (dark chestnut horse and dark red, reddish-brown camel), *ʿanaq* (quick lively gait of camel and horse), *hamlaġa* (light quick gait of camel casting its front legs ahead while walking and sliding its cushioned soles on the ground; and slow, sluggish gait of horse, much disliked by the Arabs), *ḥināf* (shovelling gait of the horse, with the hooves turned outwards while walking, and sideways gait of the camel), *munāqala* (the gait of the camel and horse avoiding stones), *aşfar* (yellow colour of the camel and horse), *adham* (black colour in the camel combined with a lighter belly and groin; pure black in the case of the horse),

aḥwā (a dark brown colour in the horse; a greenish colour mixed with black and yellow in the camel), *aḥḍar* (an earth-coloured, greenish-coloured camel; a black, greenish-coloured horse).

There are words and expressions within the terminology of the camel or the horse which have also been adopted as technical terms in Arabic prosody: *qāfiya muqayyada* ('unframed', 'fettered', bound rhyme), *qāfiya muṭlaqa* ('unleashed' rhyme). The name *daḥīl*, known in horse racing (a third horse placed between two horses bet for a race, on which no one may bet) (Ibn 'Abd Rabbihi, *al-īqd al-farīd* I:151), also appears in prosody as the name of a variable letter wedged between the rhyming letter and the foundation (*ta'sīts*). The term used in prosody for the letter before the rhyming letter is *ridf*, which originally meant the seat behind the camel-rider on the camel's back.

Before reviewing the thematic elements of the descriptions of the camel and horse, we must also briefly summarise the reasons of the marked cultural significance of these two species of animals for the Arabs.

1 The Origins of Camel- and Horse-Breeding among the Arabs: The Literary Sources

According to some of the classical Arabic sources (Ibn al-Kalbī, Ibn al-A'rābī and ad-Damīrī) recounting North Arabian traditions, the forefather of the Arabs is Abraham's son Ismā'īl, who was the first to tame the wild horses that God led to his tent and thus turned them into Arabian horses. The story of Ishmael (Ismā'īl b. Ibrāhīm), known from the Bible, was taken over by Arab traditions and supplemented by the idea that he was the first to speak Arabic, as well as a monotheist (*ḥanīf*) and the domesticator of the horse (ad-Damīrī, *Ḥayāt* 442; Ibn al-A'rābī, *Asmā'* 78; Ibn al-Kalbī, *Ansāb* 28–32). According to this tradition, the first Arabian horses came from the wild horses of the Arabian Peninsula (*al-ḥūšīyya*). These wild horses had once belonged to Wabār b. Umaym b. Lawḍ b. Sām b. Nūḥ but became wild after his death. We find the same story about the camels having been the property of Wabār, becoming wild after his death, and later joining the tame camel herds (Editor of *EP* 1971:637, Pellat 1971:666).⁸

According to another group of classical Arabic sources, which rely on South Arabian tradition, the first Arab tribe to have a horse was the South Arabian al-Azd (a subgroup of the Kahlān), who received a stallion named Zād ar-Rākib ('provision of the traveller') as a gift from King Solomon, which became the ancestor of the horses of the Arabs. The legendary 'Awaḡīyyāt, as well as Dāḥis and al-Ġabrā', were also descended from Zād ar-Rākib. Perhaps the start of horse breeding was associated with Zād ar-Rākib and was not important because it was the first horse to come to the Arabs.

⁸ For more information cf. Kutasi 2012:23–29.

The descent of the Arabian horse from wild horses might be connected to a historical event, the destruction of the dam of Ma'rib in the 6th century, after which some Yemeni horses might have escaped towards the desert, becoming wild over time, and appearing among the nomads of the Nağd region. The Banū Taglib were the first horsemen in Arabia, nomads living in eastern Arabia, well to the east of Nağd (Viré 1965:785). According to Ibn al-A'rābī (*Asmā'* 264, 101, 35) they were the first tribe to have a foal from Zād ar-Rākib, namely al-Huğayš, who became even faster than Zād ar-Rākib. Al-Huğayš's foal in turn was ad-Dīnārī (Bakr b. Wā'il's horse), and the latter's offspring was A'wağ (al-Akbar), owned by Banū Sulaym b. Mansūr, then passing to the Bahrā' tribe.

According to Arabian folklore, which is also referred to in the Qur'an (Q 88:16), the camel descended from malevolent *ğinn* (*šayātīn*), who lived in Hūš (the wilderness) beyond the sandy desert of Yabrīn⁹ and inaccessible to mortals. Occasionally these spirits appear in the form of a camels. The homeland of the *ğinn* is called Hūš in the same way as the abode of Wabār mentioned earlier, from which the ancestors of the Arabian horses and the Arab camels descend. The word itself is probably connected to *waḥš* ('wilderness') and *waḥšī* ('wild').

The Qur'an (Q 7:73–79, Q 11:64–65, Q 26:155, Q 27:48–49, Q 54:28) mentions a story about the Prophet Sāliḥ that is not found in the Bible. The she-camel in the story, the first camel that came to the people of Prophet Sāliḥ, the Tamūd tribe, as a divine sign. God made a pregnant she-camel emerge from a cleft in the rock to prove to his people that Sāliḥ was indeed God's messenger. The camel lived with the tribe for thirty years, then God warned the prophet in a dream that the camel would be slaughtered by a child with red hair and blue eyes, which indeed happened so. The unbelieving members of his tribe killed his she-camel and its calf during the evening watering.¹⁰ On the third day after the ominous deed, God destroyed them in an earthquake by way of punishment.¹¹ The prophet Sāliḥ's camel was given a place in heaven after his death by the grace of Prophet Muḥammad.

⁹ Yabrīn is the name of a settlement in Saudi Arabia in the middle of the desert, 210 kilometres south of the country's capital, Riyadh. It was once inhabited by the ad-Dawāsir tribe, thought to descend from the last king of Ma'rib and part of the al-Azd tribe that sources claim owned the ancestor of the Arabian horses, Zād ar-Rākib. The tribe is the maternal ancestors of some members of the Saudi royal family. Since 1940, the village has become inhabited again, mainly by the ad-Dawāsir tribe. The tribe keeps the best dairy camels in Saudi Arabia, a breed called *dawsir* after the name of the tribe. These are large, black-coloured camels.

¹⁰ Obviously not identical with the calf that the she-camel carried in her belly when she emerged from the rock cleft. A she-camel can give birth to eight to ten calves in thirty years.

¹¹ In ad-Damīrī's description, the killers of the camel died of a peculiar disease in three days, during which the colour of their faces first turned red, then black, and finally their hearts stopped. The calf managed to escape. See ad-Damīrī, *Ḥayāt* 331–332.

2 Thematic Elements Appearing in the Poems

2.1 Thirst and hunger

Due to the camel's extraordinary efficiency and its tolerance of thirst, it is indispensable for those who live in desert areas or undertake long desert journeys between two larger settlements. Adaptation to life in the desert has reshaped the camel's body in such a way that it can last up to ten to twenty-one days without drinking, provided it can graze on the salty plants of the desert. In connection with this unique ability, as we have seen, al-Aṣmaṭ devotes a separate chapter in his book on the camel to the different periods between two waterings (al-Aṣmaṭ, *Ibil* 148–155). Starting with the camel left at the water source, which drinks whenever it wants to (*ar-raġraġa*), arrives at ten days as the longest period between two waterings. This is valid for the desert environment, but if the camel can graze on green plants, it can last up to three to six months without water (Zāyid, Ġādirī and Šaraḥya 1991:150).

The camel depletes ('dehydrates') the moisture content of its body tissues to preserve the water content of its intestines, so that they can continue to carry out their digestive processes, and then, during rehydration, it is able to quickly transfer the absorbed amount of water (up to two hundred litres in three minutes) into its blood circulation.

كَمْ قَدْ حَسَرْنَا مِنْ غَلَاةٍ عَنَسَلٍ
حَزَفٍ كَقَوْسِ الشَّوْحَطِ الْمُعَطَّلِ

How many times have we chased to death his tall, light she-camel, which has become emaciated, its muscles dried up, it has become (indestructible) like a bow made of šawḥat¹², or like a stray camel without its owner (al-Aṣmaṭ, Ibil 103).

كَأَنَّهُ مِنْ طَوْلِ جَذْعِ الْعَفْسِ
وَرَمَلَانَ الْخَمْسِ بَعْدَ الْخَمْسِ
يُنْحَتُ مِنْ أَقْطَارِهِ بِقَاسٍ
مِنْ أَرْضِهِ إِلَى مَقِيلِ الْجَلْسِ

It [i.e. its body] is as if a piece had been cut out of its sides with an ax from the long, exhausting starvation and the fast walking, from the watering every five days, from its feet to the place where the saddle-cloth attaches (al-Aṣmaṭ, Ibil 112).

¹² A species of tree common in the mountain-range extending from near 'Arafāt to Naġrān in Yemen; see Lane 1872:1513.

مَسْنَهُنَّ أَيَّامَ الْحَرِّ وَطَوَّلَ مَا خَبَطْنَ الصَّوَى بِالْمُنْعَلَاتِ الرَّوَاعِفِ

They were emaciated by the hot, windy days and the long journey, during which they drummed with bleeding bandaged feet (al-Aṣma'ī, Ibil 48).

The camel's red blood cells are oval-shaped, without a nucleus, so they do not burst under the influence of a large amount of suddenly absorbed water, but only their shape changes to a spherical form. Kidney function starts normally operating one hour after rehydration.¹³ No other animal's body can do this. In a dehydrated state, the blood sugar level increases tenfold,¹⁴ without the sugar appearing in the urine. The camel stores sugar in its blood rather than losing water in the urine, so the amount of insulin in its blood increases along with the sugar. During dehydration, water is not obtained from the hump,¹⁵ the fat stored there is mobilized only when replenishing energy or in case of illness and is used to cool the body. For the only source of water, the amount of water stored in the alimentary canal. Camels lose much less blood plasma than other animals during dehydration. Water from fat metabolism, which results in weight loss, is also used during dehydration in vital processes.

Al-Aṣma'ī, when describing the very thirsty camel (*ba'īr haymān wa-nāqa haymā wa-ibil hiyām*) mentions that its spleen (such a camel is called *ṭahīl*) or its lungs (such a camel is *ṭanā*) stick to its side. This condition results from excessive dehydration of body tissues.¹⁶ He calls *huyām* the disease caused by thirst and accompanied by fever (al-Aṣma'ī, *Ibil* 129–130).¹⁷

ذَاتُ هَيْمٍ عَارٍ نَوَاشِيرُهَا تُصْمِتُ بِالْمَاءِ تَوَلِّبًا جِدْعًا

Its forearms are worn and hairless: I fasted it with water, which made it look like a malnourished one-year-old donkey mare (al-Aṣma'ī, Ibil 68).

ظَلَّتْ بِمُنْدَحِّ الرَّحَى مُتَوَلِّبًا

¹³ Concentrated camel urine contains twice as much salt (about 7%) as seawater (3.5%). see Yagil 1985:33.

¹⁴ It increases from 150mg% to 1300mg%.; see Yagil 1985:35.

¹⁵ The Arabic language has at least thirty terms to describe the hump, even though al-Aṣma'ī lists just fifteen hump-related terms in his book.

¹⁶ Arabian horses can reduce the water content of their body tissues by 12% in the event of a water deficit (Sneddon 1993:201–213). Their bodies become lean and dry like wood. In the poems, similarly to the emaciated camel, the poet compares the horse to worn wooden tools:

بِعَجْزِةٍ قَدْ عَتَزَ الْجَرِي لِحْمِهَا كَمَيْتِ كَانَهَا هِرَاوَةٌ مَثْوَالٌ

*I was sitting on a hard-fleshed horse, whose muscles had been dried by so much running, on a dark brown that was like the wood and spindle of a loom [in colour and material] (Ibn Qutayba, *Ma'ānī* 50).*

¹⁷ This illness is in fact caused by parasites of blood transmitted by flies. Among symptoms of the disease are fever, diarrhoea, and emaciation (Sa'ūd 2003: 80–81).

ثَامِنَةٌ وَمُعْوَلًا أَفِيلُهَا

They became bloated bellies, and their stature became like that of an eight-year-old camel. Their young, weaned calves are foaming at the mouth with thirst (al-Aṣmaʿī, Ibil 95).

The fact that the camel can eat even in a dehydrated state, since that it constantly regurgitates the bites, it has already swallowed, so its mouth does not dry out. Its production of saliva is continuous.

The members of the camel family, since they ruminate even though they are not ruminants but pseudo-ruminants,¹⁸ are named accordingly in the literature: the male animal is called a bull (*baʿīr*; *faḥl*¹⁹, *faḥīl*), the female is called a cow (*nāqa*), and the offspring is called a calf.²⁰ Contrasted with equids and non-ruminant herbivores, whose male is a stallion (*ḥiṣān*), whose female is a mare (*faras*, *ḥiḡr*), and whose offspring is a foal.²¹

The camel can ruminate while standing, lying down or walking. In the heat of summer, it usually ruminates at noon and at night, and during the rest of the day it eats for eight to twelve hours (Yagil 1985:47, Zāyid, Ġādirī and Šarahya 1991:132). It does not graze like other animals, by systematically grazing on everything in a certain area; its ‘tastes’²² plants as it moves further and further away, always only nibbling on one plant or another, instead of grazing on all of them (Iqbal and Khan 2001:59, Yagil 1985:57). The camel can graze even when the other animals are already lying down or looking for shade (Yagil 1985:47).

يَعْشَى إِذَا أَظْلَمَ عَنْ عَشَائِهِ

¹⁸ The order Artiodactyla includes two groups, the true ruminants (Ruminantia) (*al-muḡtarrāt al-ḥaḡiqiyya*) and the pseudo ruminants (Tylopoda) (*al-muḡtarrāt al-kāḡiba*). Pseudo ruminants have a four-part compound stomach like the genuine ruminants, the difference being that the third part, the leaf stomach or omasum (*al-waraqiyya*) is underdeveloped, elongated, and does not work as intensively as the corresponding part of ruminants. The main digestion takes place in the first part of the stomach, the rumen (*al-kirš*). This part of the stomach contains a large amount of gastric juice, 98% of which is water.

¹⁹ The word *faḥl* means any kind of male animal, not just the bull camel. *Faḥīl* is the name of the bull camel used for breeding. A male camel can also be referred to as *ḡamal*.

²⁰ The camel calf that has not yet been named is called *salīl*. The male camel calf is *saḡb*, the female is *ḥāʿil*. A camel calf that can stand and walk is *rāših*. While it is still stumbling, it is called *muḡfil*; when it can walk beside its mother, it is called *ḥuwār ḡādil*. The ten-month-old male camel calf is *aḡīl*, the female *aḡīla*.; while a one-year-old camel calf separated from its mother is called *faṣīl* or *faḡīm*. See al-Aṣmaʿī, *Ibil* 55–56.

²¹ The newborn colt is called *muhr*, the filly’s name is *muhra*. The foal is called this until it stops feeding on its mother’s milk, i.e. for one year. The Bedouin let the foal suckle for a year, after which it is separated from its mother. A one-year-old weaned foal is called a *ḡilw*. When it reaches the age of two, it is called a *ḥawlī*. See al-Aṣmaʿī, *Ḥayl* 48–49.

²² It means that the camels like to browse rather than graze.

مَنْ دُبَّحَ السَّلْعُ وَغُنْصَلَائِهِ
وَالْمَرْوُ يَهْدِيهِ إِلَى أَمْعَائِهِ
يُلْفَفُ الْحَيَّةَ فِي غَشَائِهِ

He can barely see when the night falls on him during his dinner of Capparaceae and Astaraceae. He is guided by the marw's smell (Maerna crassifolia), the leaves of which cover the snake [lying beneath] (al-Aṣmaṭ, Ibil 111).

Food is digested in the rumen. In accessory sacs in the rumen, it can store liquid, the composition of which is like camel saliva. This alkaline liquid can neutralize the acidic products formed during the rumen's digestion process, so this greenish-coloured liquid with a strong smell is potable for humans when necessary (Wilson 1984:73, Yagil 1985:26).

Horses graze slowly, although they prefer certain plants, stopping in one place and eating a lot of grass. The main digestion process takes place in their caecum, they can run even when full, so they do not need to rest for digestion either. The large intestine of horses can store large amounts of water. Arabian horses can last up to seventy-two hours (i.e. three days) in desert conditions with a minimal amount of water (Sneddon 1993: 201–213).²³ In his book al-Aṣmaṭ does not mention the horse's endurance of thirst, drinking water or camel milk and tying them to dairy camels, topics that are treated in the section *Kitāb al-faras* of Ibn Qutayba's *al-Maʿānī al-kabīr* (Kutasi 2012:106–173).

2.2. Noble lineages and reproduction

The Rwala Bedouins of the modern era divide camels into two groups: noble (*ḥurr*) and common (*āḍī*). A camel is considered noble only if both of its parents are proven by eyewitnesses to be noble. Even then, a camel can be recognized as noble if only the mother's nobility can be proven by eyewitnesses, since the identity of the father is uncertain. If a she-camel of good constitution, but of common descent, is mated by a noble camel bull, the daughters will be recognized as noble from the fifth generation, and the male offspring from the ninth generation (Musil 1928:332). Noble origin is regarded as a guarantee for the survival of good qualities:

²³ Based on the water and energy circulation of mammals, three ecotypes can be established: 1. The humid temperature type, which uses a lot of water and energy to maintain its vital functions, and whose kidneys have a weak concentrating ability. Such are cattle, elephants or moose, and horses in general. 2. The semi-arid ecotype, with a medium water requirement, with a good concentrating ability of the kidney, like the donkey, sheep, and Arabian horse. 3. The dry ecotype, with low water and energy turnover, with extreme concentrating ability of the kidney, such as camel, goat, gazelle and oryx. See Sneddon 1993.

عَزْرُ لَهُ بُوقَاتٍ فِيقَاتٍ بُوُقُ
أَعْمِدُ بَرَاعِيْسَ أَبُوهَا دُعْلُوُقُ

The udder has plenty of milk ducts inflated with the remaining milk. Trust the abundant milking she-camels fathered by Du'lūq (al-Aṣmaṭ, Ibil 70).

إِنْ سَرَكَ الْعَزْرُ الْمَكْوُذُ الدَائِمُ
فَاعْمِدُ بَرَاعِيْسَ أَبُوهَا الرَّائِمُ

If a female camel that always gives a lot of milk has been weakened, then choose the perfect sized one instead, the abundant milker, who is descended from ar-Rā'im (al-Aṣmaṭ, Ibil 80).

مَنْ هَمَزْنَا عِزَّهُ تَبَزَّكَعَا
عَلَى إِسْتِيهِ رَوْبَعَةٌ وَرَوْبَعَا

The (camel calf) from which we asked for a greater effort collapsed, the camel heifer and camel bull calf suffering from breeding paralysis (al-Aṣmaṭ, Ibil 67).

لَمَا خَشِيْتُ نَسْبِي إِضْوَانِهَا
مِنْ قَبْلِ الْأُمِّ وَمِنْ أَبَائِهَا
نَظَرْتُ وَالْعَيْنُ مِنْ إِسْتِمَائِهَا
أَرْمَكَ مَبْنِيًّا عَلَى بِنَائِهَا

If you fear that the offspring will inherit the weaknesses of the parents from the mother's or the father's side, then observe [your camels] and choose the best of them, the dark red colour, like the stature of the best (al-Aṣmaṭ, Ibil 67).

كَانَتْ نَجَائِبُ مُنْدِرٍ وَمُحَرِّقِ أُمَّاتِهِنَّ وَطَرَفُهُنَّ فَحِيلاً

Mundir's and Muḥarriq's excellent, noble camels were their ancestors and breeding bulls (al-Aṣmaṭ, Ibil 94).

The gestation period of female camels is thirteen months. Camel cows give birth to their first calf at six or seven years of age. Camels usually conceive every second year, so they can give birth to eight to ten calves during their twenty-five or thirty-year lifespan. A bull camel inseminates 150 to 200 female camels during the mating season (Hussein 1988). In Kenya today, the recommended number of calves is only six, because female camels, considered old by this time, give birth to weak and sick calves. Twelve-year-old breeding bulls are taken out of the herd and either let back after they have matured or are slaughtered (Kuria *et al.* 2016).

The breeder selects camel bulls based on the characteristics suitable for his purpose, preferring bulls with a proven ability to pass on its qualities to its offspring,

and then he inseminates the female camels of the herd. Inbreeding, which used to be a practice, is now being avoided and its consequences widely known.

فَتَعْرُكُكُمْ عَزَاكَ الرَّحَا بِثَقَالِهَا وَتَلْفَحُ كِشَافاً تَمَّ تَحْمِيلُ فَتُنْجِمِ

Your war, at the height of the battle, is like the battle of the millstone with the grains of grain. It crushes them into powder and collects them under an unfolded skin. This is how war breaks down warriors, and how it exhausts the unplanned, annual pregnancy of she-camels, which eventually give birth to twins (al-Aşmaṭ, Ibil 43).

نَجَائِبٌ لَا يُلْفَحْنَ إِلَّا يِعَارَةً عِرَاضاً وَلَا يُشْتَرِينَ إِلَّا غَوَالِيَا

Noble camels, which can only be fertilized with the owner's permission, are forcibly taken, and cannot be sold except at a high price (al-Aşmaṭ, Ibil 43).

سَوْفَ يُدْنِيكَ مِنْ أَمِيَسٍ سَبُنْنَا ةُ اِمَارَتٌ بِالْبَوْلِ مَاءَ الْكِرَاضِ
أَصْمَرَتْهُ عِشْرِينَ يَوْمًا وَنَيْلَتْ حِينَ نَبَيْلَتْ يِعَارَةً فِي عِرَاضِ

He brings you close to his young strong female camel with a soft touch, which sprays her urine full of cervical fluid as she walks around. Twenty days of being forced to kneel before the camel bull for mating had emaciated her (al-Aşmaṭ, Ibil 44).

وَلَوْ تَقُولُ دَرِبْخُوا لَدَرِبْخُوا

لَفَحَلْنَا إِنْ سَرَّهُ النَّتْوُحُ

قَاعٍ وَإِنْ يُنْزَكُ فَشَوَّلُ دَوْحُ

If you tell them to humble themselves, they will humble themselves to our bull, who is happy to make the females kneel. The bull knelt on them and, if they let him, would subdue all the females in his charge (al-Aşmaṭ, Ibil 44).

طَبُّ إِذَا أَرَادَ مِنْهَا عِرْسًا

حَتَّى تَلْفَحْتَهُ مَخَاضاً فُعْسَا

When a gentle, experienced bull camel approaches it [the she-camel] for mating, the pregnant she-camel will welcome him with her head and neck folded on her back (al-Aşmaṭ, Ibil 45).

إِذَا سَمِعْنَ صَوْتَ فَحَلٍ شَفْشَاقِ

فَطَعْنَ مُصْفَرًّا كَرَبْتِ الْإِنْفَاقِ

When they hear the grunting sound of a bull camel, they drip their urine, yellow and stringy, as if it were oil (al-Aşmaṭ, Ibil 46).

كَايْزَاغِ أَثْرَا الْمُدَى فِي التَّرَائِبِ

يُلْقَنَ بِجَادِيَّ ظُحُورَ الْعَرَاقِبِ

إِذَا مَا دَعَاهَا أَوْزَغَتْ بِكَرَاتِهَا

عُصَارَةَ جَزءِ آلٍ حَتَّى كَأَنَّمَا

When it [the camel bull] called them, their virgin she-camels sprayed their urine up to the front of their chests as if they were the marks of long knives. Their urine became thick and flowed like blood when a long knife was cut on their chest. They turn a saffron colour (from their urine) on the back of their hocks (al-Aṣmaṭ, *Ibil* 46).

سَدِيسٌ لَدَيْسٌ عَيْطُمُوسٌ شَيْمَلَةٌ ثَبَارٌ إِلَيْهَا الْمُحْصَنَاتُ النَّجَائِبُ

A young, six-year-old, fleshy, perfectly formed, fast-moving she-camel, tested by reputable, noble camel bulls (al-Aṣmaṭ, *Ibil* 48).

Turning to horses, the Arabs also distinguish between a noble horse (*aṣīl*, 'atīq) and a horse of lowly descent (*haḡīn*, *birdawn*), but the concept of nobility has a different meaning than for camels. A noble Arabian horse is one whose all ancestors come from at least five generations of desert-dwelling Arabian ancestors and are bred by desert-dwelling Bedouins. Arabian mares of the desert are also called *banāt ar-rīh* 'daughters of the wind', while those raised in oases are called *banāt al-mā* 'daughters of water'.

A foal of a noble Arabian mare that is mated by a stallion of unknown or non-Arabian origin will have her offspring being considered ordinary horses. Likewise, if a mare of common or uncertain parentage is impregnated (by chance) by a noble Arabian stallion, her offspring will be regarded as common. When breeding noble horses, Arabs follow inbreeding and lineal breeding, which means that the foal of the mare selected as the founder of the family inherits the characteristics of its mother and creates a bloodline that carries the characteristics of the founding mare in all its members. Offspring always come from relatives. During lineal breeding, the selected stallion, when it grows up, is further bred with its own daughters and their daughters. In the short term, this type of breeding does not constitute inbreeding, but if applied over a long period of time, the offspring will show less and less of the original pattern, and characteristic genetic diseases often occur (Bodó and Hecker 1998: 118–119, Hecker 1994:50–52). An abundant literature has been produced about the nobility of Arabian horses in the Middle Ages, the best-known of which are Ibn al-Kalbī's *Ansāb al-ḡayl* and Ibn al-A'rābī's *Asmā' ḡayl al-ʿarab*. Al-Aṣmaṭ, however, has little to say about the nobility of horses in the book discussed here.

أَحْوَى مِنْ الْعُوجِ وَقَاخُ الْحَافِرِ

Dark brown, a descendant of 'Awaḡiyyāt, with hard hooves (al-Aṣmaṭ, *Ḥayl* 49).

وَرَادًا وَحُورًا أَشْرَقَتْ حَجَبَاتُهَا بِنَاتٌ جِصَانٍ قَدْ تُعُولَمُ مُنْجِبِ

They are red and dark brown; their croups stand high; they are obviously mares descended from noble horses (al-Aṣmaṭ, *Ḥayl* 50).

There are significantly fewer poetic descriptions of the mating and pregnancy of horses in al-Aṣmaṭ's book than of the similar behaviour of camels. Horses have a gestation period of eleven months.

بَاتَتْ يُفَحِّمُهَا ذُو أَرْمَلٍ وَسَقَّتْ لَهُ الْفَرَائِشُ وَالسَّلْبُ الْقِيَادِي

They [the mares] spent the night so that the loud-voiced [stallion]²⁴ jumped on their backs, and those with new-born [foals] and those long-bodied [mares] having had a miscarriage were made pregnant [by it] one after another (al-Aṣmaṭ, Ḥayl 48).

If the mare desires the stallion, its state is referred to as *istawdaqat* (she is in estrus), and a mare in this condition is called *wadīq*. If it rejects the stallion and attacks it, the relevant verb is *aqāṣṣat*²⁵ (she pushed him away), such a mare being called *muqīṣṣ*²⁶ (rejector). If the mare's belly grows, it is described with the verb *a'āqqat* (it became pregnant), is the adjective being *'aqūq* (pregnant). If a mare's teat becomes shiny as a harbinger of pregnancy, the relevant verb is *alma'at* (shined) and the adjectival form is *mulmi'*²⁷

A verse by al-Aṣṣā reads:

مُلْمِعٌ لِأَعَةِ الْفُؤَادِ إِلَى جَحْ شِ فَلَاهُ عَنْهَا قَبِيسَ الْفَالِي

A shining one, which lovingly turns to its freshly weaned foal – what a separator!²⁸ (al-Aṣmaṭ, Ḥayl 48).

2.3. Dairy camels

In relation to camels, the subject that al-Aṣmaṭ treats most extensively is milk production and related topics (birth, udder formation, udder binding, mastitis, udder mutilation, copious milking, milk retention, nursing). In his book on horses, this subject is completely missing, since Arabian horses were only bred for riding, and their milk was not regularly drunk, only in times of necessity.

²⁴ A good stallion approaches the mares in the estrus firmly, but not aggressively, so as not to scare them away; see Horváth 2003:444.

²⁵ There are mares that, despite showing signs of estrus, refuse to tolerate the stallion trying to mount them, but instead kick to drive it away; see Horváth 2003:447.

²⁶ The word (pl. *maqāṣṣ*) means 'with a foal growing in its belly' or 'a foal growing in its belly'. It is also referred to as *muqīṣṣ* until the stallion impregnates it, whereupon it becomes *mu'iqq* (pregnant, conceived). In reference to donkeys, *iqṣāṣ* means the first period of pregnancy and *al-i'qāq* the last stage. See al-Aṣmaṭ, Ḥayl 352.

²⁷ In estrus the mare's teats swell, the skin on them tightens and therefore shines. In the same way, her coat also becomes shiny during this period.

²⁸ [*Falā* means separated, and *fālī* is the divider.]”

The milk production of the camel cow starts after the birth of the calf and lasts for 305–500 days. During a lactation period of eight to eighteen months, it can produce 10,000 to 12,000 litres of milk, 35 to 40 litres per day. Lack of water intake for a week reduces the amount of milk produced, but water deprivation for a shorter period has no such effect (Fábri, Varga and Nagy 2014:487):

تَمْشِي مِنَ الرَّدَّةِ مَشْيَ الْحَقْلِ
مَشْيَ الرِّوَايَا بِالْمَزَادِ الْأَثْقَلِ

Because of her swollen udder, she walks like camel cows that give a lot of milk, like water-carrying camels laden with water pots full of water (al-Aṣmaṭ, Ibil 55).

نَعُوسٌ إِذَا دَرَّتْ جَرُورُ إِذَا غَدَتْ
بُؤْيُزٌ عَامٌ أَوْ سَدَيْسٌ كِبَاوِلٌ

She has so much milk that she falls asleep while milking. When she eats, she leaves nothing behind. She is almost nine years old, her sixth molar has already erupted, her set of teeth is complete, like a nine-year-old (al-Aṣmaṭ, Ibil 76).

وَأِنْ لَمْ يَكُنْ إِلَّا الْأَمَالِيسَ رُوجَتْ
بِهَا حَالِقًا ضَرَّأَتْهَا شِكْرَاتِ

Only female camels with full udders and those whose udders are not yet full roam the barren, stark land (al-Aṣmaṭ, Ibil 77).

لَهَا شَعْرٌ دَاجٍ مُقْلَصٌ
وَجِسْمٌ خُدَارِيٌّ وَضَرْعٌ مُجَالِحٌ

It [the she-camel] has thick hair, long legs and a raised belly, its body is pure black, and its udder gives milk even in lean times (al-Aṣmaṭ, Ibil 80).

فَلْيَازِلْنَ وَتَبْكَاْنَ لَبُونَهُ
وَلْيَصْمِتَنَّ صَبِيَّهُ بِسَمَارِ

He will surely suffer from deprivation and his female camel will give little milk two-three months after giving birth. Silence his son [crying from hunger] with thin, greenish milk (al-Aṣmaṭ, Ibil 90).

أَنْتَ سَقَيْتَ الصَّبِيَّةَ الْأَصَاغِرَا

كَوْمًا بَرَاعِيْسَ مَعَا خَنَاجِرَا

تَرَى غُرُوقَ بَطْنِهَا الْبِوَاجِرَا

مِثْلَ خَفَافِيْبِثَ رَأَيْنَ دَاغِرَا

You watered the young, the smaller ones, a herd of camels, including the perfectly beautiful female camels along with the abundant milkers. You see the milk veins on the big bellies, coiling (under their skin) like hissing, evil snakes (al-Aṣmaṭ, Ibil 99).

Conclusion

For both animal species, the most important theme is birth and the reproductive process, which is why both of *al-Aşmaṭ*'s books begin with this topic. The most suitable time for conception is determined since experience, tradition, and observation, ensuring that the female animal can conceive and give birth to a healthy calf or foal.

The birth of a foal is the birth of a new hope, when the whole family watches with anticipation the first signs of a noble Arabian horse's characteristics. The birth of a foal is cause for a family celebration, after which they monitor its development day by day and look for the excellent qualities of its parents and ancestors to manifest in its movements and the development of its body.

The birth of a camel calf is a little different, since in addition to the desirable and expected qualities of camels, the sheer number of offspring is also important. In addition to fertility and copious milk, special attention was also paid to the moment of insemination of camel cows and, later, to their maternal abilities. More than half of al-Aşmaṭ's book on the camel deals with these topics. During mating, it can already be determined whether a camel cow will be fertile, whether it will accept the bull properly, whether it will be pregnant or just undergo pseudo-pregnancy. In the latter case, it only shows the signs of pregnancy without being in that condition. Barren camel cows have their tails broken so that they cannot spray their urine and mislead the camel bulls (al-Aşmaṭ, *Ibil* 46). When it gives birth to its calf, people watch if it will be healthy and produce enough milk to support its young as well as its owners, if its milk dries up quickly or it remains lactating during the udderfeeding period. The milk production of a she-camel after miscarriage can be maintained with an artificial calf (*al-baw*), or if an orphaned calf is brought to it, the calf is smeared with the secretions of the camel cow's vagina and the placenta so that it can smell it as its own (al-Aşmaṭ, *Ibil* 71).

By studying the camels' body shapes and behaviour, breeders observe them, look for the best-natured, fastest individuals with the most abundant milk production and breed them further. Descriptions of body shapes and descriptions of the nature of camels therefore form the second most detailed part of the book on camels, next to milk production. In the case of horses, instead of describing the body shapes, the description of the quality of the legs and hooves is given the most space within the book. Horses were bred for endurance and speed, thus their legs', and hooves' health and strength are extremely important.²⁹

²⁹ Ibn Qutayba (*Ma'ānī*, Chapter "*Kitāb al-faras*") provides a more extensive description of horses, detailing the beautiful shape of the head, posture, and all other characteristics of Arabian horses.

Thus, the fertility and abundant milk production of camels, as well as the speed and endurance of horses, are ensured by their nobility, the careful selection of their parents and lines of descent, or in other words, the knowledge of genealogy.

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