

Article

Humanizing Horses: Transitions in Perception and Perspective

Petra Maurer

Bavarian Academy of Sciences and Humanities, LMU Munich, 80539 Munich, Germany; phmaurer@zos.badw.de

Received: 25 April 2019; Accepted: 5 June 2019; Published: 7 June 2019



Abstract: In Tibetan history and culture, horses were among the most important animals, if not the most important of all. Horses were the mounts that provided transport, particularly for the nobility and kings, allowing them to travel more quickly and comfortably. Horses were also used for hunting, postal services, and to build a cavalry for warfare. In addition, they played a role in various entertainments, including horse racing, games, and parades. The unusually large number of manuscripts on horses attests to the value of horses in the Tibetan imaginaire compared to other animals that lived in the company of the people on the High Plateau, in Tibet itself, and in Tibetan cultural areas. This article begins with an outline of the uses and benefits of horses in Tibetan culture. It touches upon the animal's role as the mount of Tibetan kings and debates regarding horses' mental faculties. Then it presents a survey of the content of various manuscripts on equine studies based on sources from three stages: (1) the earliest Tibetan sources from Dunhuang; (2) translations from Indian texts; and (3) extensive compendia that merges all of the knowledge on horses available at the time of their composition. It analyzes the style and content of books that indicate the approach of the authors to the topic of "horse" and points to their view of horses in relation to Tibetan culture and Buddhism. Moreover, the books' content mirrors the various functions and applications of horses in Tibet and India. It reveals the purpose of these books in general and illustrates the relation between textuality and orality. The study demonstrates the link between hippology and hippiatry, and the development of equine studies in Tibet. It shows the influence of humans on horse medicine and, moreover, contributes to an improved understanding of the development of Tibetan medical sciences in general.

Keywords: Buddhism; animals; human–animal relation; traditional veterinary medicine; Tibetan horse medicine; horse books; traditional medical cures; Tibetan manuscripts; oral and written tradition

1. Introduction

Humans, horses and dogs have the same perception.

mi rta khyi gsum/rnam shes gcig

This popular Tibetan saying points to the relation between humans and two species living under their care and protection. Neither dogs nor horses were usually kept in the house, with the exception of the Lhasa Apso or Tibetan Terrier. Monks bred these charming little dogs in their monasteries, and aristocrats also favored these dogs, who lived in their houses to keep them company. Other Tibetan domestic canines were mongrels or watch dogs and lived, like horses, outside the house. They warned of approaching strangers and impending threats, a function that horses also served.¹ Horses

¹ This popular Tibetan saying distinguishes three types of living beings: humans, horses and dogs and excludes other animals, whereas the common distinction elsewhere is human versus animal as two categories that are mutually exclusive. In the

provided a range of services to humans, particularly transport, and they increased the speed of postal services, crossing thousands of miles into Mongolia, China, and India. The nomads of northeastern Tibet (modern Qinghai) were famous for horse breeding and trading, and by the 10th century, the Northern Song had acquired their horses for cavalry. Tibetans also supplied horses as tribute, and trade of horses for Chinese products like tea was a thriving industry between the two countries (Smith 1991, pp. 26–31).

Petroglyphs in the old kingdom of Guge in Western Tibet reveal that horses played a major role in hunting. The earliest Tibetan sources, the Old Tibetan manuscripts from Dunhuang that were written before the 11th century, tell hunting stories. Horsemen encircled animals, often wild yaks, and thereby can be situated within the great Eurasian hunting tradition (Bellezza 2016). Only men of a certain rank and wealth hunted on horseback because the animals, as well as tack and weapons, were valuable goods. Those of a lower rank were forced to hunt on foot (Huber 2005, p. 6). Thus, horses played a key role in obtaining food. Horse meat, however, was not on the menu because in ancient Tibet specific prohibitions forbade its consumption by humans. This was based on a belief that eating horse meat was polluting (Karmay 1975, p. 206). The bon text Ziji, for example, regards the meat of the *gyi ling* horse type as meat of minor quality (*mnyams*; gZi brjid 1967, vol. 3, p. 746).² Felted horse hair, like yak hair, served as padding to cover the *khogtse* (phon.), a particular type of Tibetan trap (Huber 2005, p. 13).³ Horses also played a major role in cultural events, such as horse races, parades, and games like polo (*rta rtsed spo lo*) that probably spread from Persia to other Arabic countries and via Central Asia to Tibet, Baltistan, and Ladakh, where people still play polo today. During the Tibetan New Year, the regent started two types of races on different routes: horses without a rider and runners on foot. The horses, selected by the ministry council (*bka' shag*), were expected to win, as their victory heralded the arrival of the future Buddha Maitreya. People scolded the losers as hoodoos, or indicators of bad luck (Maurer 2013).

Horses were expensive to purchase and maintain, and so commoners seldom owned them. In Tibet, as in other countries around the world, the horse was the animal of the nobility, landowners, leaders, and kings. In Tibet, despite the fact that historical records contain accounts of people dying after falling off horses (*rta gri*), the animal remained as a symbol of power and rulership.

[It happened] in the moonlight (*mtshan mo zla ba'i 'od*): the prince Jangtsa Laö (lJang tsha lha dbon), the oldest son of Mea tshom (Mes ag tshoms, ca. 712–755), participated in a horse race during a meeting with Chinese and Tibetan delegates near to the Tibetan-Chinese border. He fell from his horse and died (*der rgyal bus kyang rta rgyugs pas/rtas bskyur te 'das so*) (Kuznetsov 1966, p. 162; Sørensen 1994, p. 357).

The same story repeated itself, with changing protagonists, several times throughout Tibetan history. The historian Pawo Tsula Trengwa (dPa' bo gTsong lag 'phreng ba, ca. 1504–1566) reported on the sudden death of King Muti Tsenpo (Mu tig btsan po, 798–815) after he fell from his horse. The accident was not caused by poor horsemanship on the king's part; a man named Nanam (sNa nam) blocked the rider's path and caused the horse to shy. Another story tells of the death of King Drisong Detsen (Khri srong lde btsan, 755–796), who participated in a horse race in the 61st ox-year. He died on New Year, the Tibetan Losar, after being thrown from his horse (*chibs kyis bskyur*) (dPa' bo gtsug lag 'phreng ba 1986, p. 405). The horse's conceptual connection with rulership and power is further

last three decades, multi-scientific researchers in the fields of anthrozoology, human–animal studies, and ethnobiology have interrogated the relationship between humans and animals and published a large amount of literature on this topic. They have also coined terms such as “human animals” and “non-human animals” that are not particularly enlightening. Therefore, I decided to follow (Ohnuma 2017, p. xix) by adhering to the conventional terminology. For more information on this issue, see (Sax 2011; DeLapp 2011; Tonutti 2011). Here, I would also like to thank Veronika Goebel, Ludwig Maximilian University of Munich, John Powers, Deakin University, and the editors for their comments and suggestions.

² For a short survey of horse types, see below.

³ The spelling of this term is not clear; for possible spelling, see (Huber 2005, p. 6, footnote 7).

demonstrated by accounts of horse burials that were performed in ancient times, sometimes on a mass scale. Horse sacrifice was, however, prohibited during the reign of King Drisong Detsen (Heller 2003). Horses' body parts—including skulls, hooves, and the chestnuts—were used in rituals to protect against ailments and other dangers (Maurer 2015, pp. 78, 87; Heller 2003). In addition to serving as the mount of the living, horses carried the dead as well (Haarh 1969, p. 381). The horse remained valuable for many centuries as other options of transport were admittedly limited for a long period of time. The king deserved the best horses and, in India and Tibet, the excellent horse (*rta mchog*) is one of the seven precious emblems of royalty (*rgyal srid rin chen sna bdun*). Therefore, the attendants of the king or the groom had to find a way to select the best horses. The simplest, most obvious method was, and remains, a physical examination involving the inspection of the animal's physical appearance and specific characteristics, such as the shine and color of the coat, and the shape of the trunk, head, ears, hooves, and legs, which were decisive factors in assessing the quality of a horse.⁴ Other visible features that might be assessed were the horses' gait and behavior.

An additional and more significant step toward assessing horses' quality and health is anatomical and physiological knowledge that enables a more precise assessment of horses' mental faculties and a better understanding of the function of its senses, organs, and so forth: excellent, healthy horses should have excellent body functions. Moreover, the apprehension of the body's function enhances the effectiveness of medical care. Horses need good care in order to remain healthy, and good medical care begins with good fodder: good fodder and suitable food remain the basis of traditional Tibetan medicine. Tibetan veterinarians amassed substantial oral and written equine lore, which reflected the fact that humans depended on horses for a range of reasons. If horses were sick and unable to move, humans would be unable to hunt or fulfill other tasks, be it delivering messages, transporting goods, or engaging in warfare. In order to avoid causing an animal stress, humans needed, for example, to learn how to determine a horse's age. Humans' reliance on horses required them to gain a detailed, in-depth knowledge of these animals and to learn about horses' needs and wants, to read the signs of wellbeing and uneasiness, and also recognize the signs of health and the symptoms of ailments or wounds.

In light of these factors, it is not surprising that the most recent manuscripts on equine studies include everything: a knowledge of horses' bodies and bodily functions, their movements and behavior, caretaking, and breeding, all of which also demand knowledge of horse types. They depict any kind of observed disease in terms of symptoms and treatment, and the need to learn and understand these matters led to detailed observations of horses and the development of equine studies, followed by the composition of books related to hippology and hippiatry.⁵

Let us now return to the proverb cited at the beginning of this article. Proverbs express general thoughts and teachings that reflect human experiences in life. They show a specific view and perception of the world and the environment. The proverb *mi rta khyi gsum rnam shes gcig* assigns *rnam shes* to humans, horses, and dogs. Tibetan *rnam shes* is a philosophical term that commonly translates Sanskrit *vijñāna*, and means "consciousness," "perception," and even "discriminative cognition". A full discussion of these philosophical terms is beyond the scope of this paper, particularly as the translation of the term from Tibetan to Sanskrit would require further reflection on the various forms of *jñāna* and the question of whether they were present in animals as well as humans and other beings, but it may be worth sharing some thoughts.

In the proverb's context, the term refers to the ability to perceive the environment with one's senses, a property also found in animals. Although the term's use might be remarkable in this context, it has no philosophical meaning in this context. According to the sources in the database of the Munich

⁴ According to Tibetan literature, the coat color of the excellent horse, the horse of the ruler, is either white or blue and black; see (Dagyab Rinpoche 1992, p. 107).

⁵ For the content of the horse books, see (Maurer 2001).

Dictionary⁶, Tibetan *rnam shes*, denoting an animal's faculty for perceiving incidents, is rare but occurs also in another source: "The old dog with a perception smarter than a man" (*khyi rgan . . . rnam shes mi las sbyang ba*).⁷

Several scholars have discussed questions related to animals and sense faculties in Buddhist studies. Schmithausen, for example, assigns animals "some capacity for thinking" (Pāli *manasikāra*), but adds that they have a "lack of faculty of insight (Sanskrit *prajñā*)" (Schmithausen 1997). Ohnuma presents further thoughts on the mental faculties of animals by referring to a passage from the *Milindapañha* that ascribes attention (*manasikāra*) to animals, namely sheep, goats, oxen buffalo, camels, and donkeys. In contrast to humans, the *Milindapañha* refers to animals' lack of systematic attention (*yoniso manasikāra*), which makes it impossible for them to escape the cycle of rebirth (Ohnuma 2017, pp. 18–19). Tibetan books on horses refer to the mental faculties of horses as well. The Tibetan translation of the title of the *Śālihotraśāstra* is *rTa'i tshé yi rig byed*, (*Medical Sciences for Horses*) which refers directly to horses' mental faculties. One chapter deals with this topic, referred to as *snying stobs*, commonly translated as "mental strength, bravery, courage". These passages reflect similar mental faculties to those presented in the chapter on the social class of horses. They assign a certain character to a specific deity and quality to horses; an example is the *lha min* (Sanskrit *asura*), a type of horse that enjoys fighting. The characterizations appear as a more standardized assessment of horses:

[The horses] are brave and very clean. They pay respect to the owner and are good. They are strong and have quick *snying stobs*. They enjoy dough offerings and their behavior is authentic. They have a peaceful nature.⁸

Due to the context, I am tempted to interpret the term *snying stobs* as connoting "perception" rather than "bravery" because otherwise "quick" (*mgyogs*) does not fit. Horses, and animals in general, belong, despite their negatively evaluated rebirth, to the category labelled *sems can* (literally "mind-possessor"; Sanskrit *sattva*). In Buddhist philosophical literature, humans belong to the same category. According to the terminology in Tibetan and Sanskrit, living beings possess a mind (*sems*), the faculty that enables perception.

Seventeenth century Nepalese manuscripts include further references to the mental faculties of horses; in addition to descriptions of their bodily shapes, hippological passages on horse types refer, directly or indirectly, to their mental faculties. They assess specific horse types as suitable for specific social groups; for example, which kinds of horses are appropriate for robbers or for certain aristocrats, such as the minister of the maternal lineage (*zhang blon*). Additionally, these text designate horses' character directly in a specific way: "the *mdo ba* horse is assessed as calm (*sos dal*)". Furthermore, the chapters on diseases also assign mental faculties to horses by ascribing them a sad face (*ngo nag*) or diagnosing diseases caused by demons such as *Rāhu* (*gza'*) that require ritual treatment (Maurer 2001, pp. 185, 189, 196, 203, 217, 250). In consequence, scholars and practitioners, possibly with their scribes, recorded equine lore in writing for various reasons. For the purpose of demonstrating the development of horse medicine with its various stages, this article distinguishes three types of horse books. Their time and place of origin are the two criteria that will be used to distinguish these texts.

The first source is manuscripts from Dunhuang, Pelliot Tibétain 1061–1066. The authors composed them around the 8th–9th centuries, at a time when the caves in Dunhuang were still open. They wrote the scrolls in a simple language and depicted equine medical remedies as easy to apply. These texts are clearly meant to record practical advice regarding medical treatment, as they describe easily applicable

⁶ The "Wörterbuch der tibetischen Schriftsprache" is an ongoing project at the Bavarian Academy of Sciences and Humanities. For more details, see (Maurer 2018, pp. 129–40).

⁷ (Sørensen 1990, p. 284) translates *rnam shes* as "mind".

⁸ *dpa' zhiing gtsang sbra che ba dang/bdag po la gus bzhiin dge la/stobs dang snying stobs mgyogs dang ldan/de mchod gtor ma la dga' zhiing/rang gi spyod pa'i mtshan nyid ldan/de bzhiin zhi ba'i rang bzhiin can/* (Blo bzang bstan 'dzin 1987, p. 139).

cures. Only one of this group of six manuscripts refers to a basic characterization of horse types, distinguished according to their provenance.

The second corpus presented in detail is the originally Indian, *aśvāyurveda*, ascribed to the famous horse expert Śalihotra. A translator team including the famous Rinchen Sangpo (Rin chen bzang po, 958–1055) translated this source into Tibetan, and later scholars considered it sufficiently significant to include in the Tibetan collection of Buddhist scripts, the Tanjur (*bstan 'gyur*), with the title *rTa'i tshé yi rig byed* (*Medical Sciences for Horses*). Several centuries later, the Mongolian author Sumpa Kenpo Yeshe Paljor (Sum pa mkhan po Ye shes dpal 'byor, 1704–1788) composed the *rGya gar pa'i lugs bstun rta dpyad dpal g.yang* (*Glorious Examination of Horses according to the Indian Tradition*). With their focus on hippological topics, both texts indicate that, originally, scholars compiled them for a different purpose than recording knowledge regarding horse cures. Although translated into Tibetan, they provided evidence of the Indian cultural background in which they originated.

The third body of literature, a collection of Tibetan manuscripts found in Nepal, originated around the 16th and 17th centuries. Horse practitioners and/or scholars compiled these books on equine studies in Tibetan. Scholars discovered them in the 20th century in Nepal.⁹ These comprehensive compilations deal with, I am tempted to say, anything related to equine studies; they contain practical advice on treatment, as found in the earliest manuscripts, and the hippological theories of the sources translated from Indian texts. Additionally, the authors included theoretical knowledge as described in traditional human medicine, with sections on anatomy, physiology and diagnoses, advice on horse races, and so on. Some of the manuscripts are beautifully illustrated, with color or black and white paintings depicting diseases or their treatments. The adoption of theoretical concepts raises the question of whether the authors had a different notion of the horse or if there was a general change in the way that animals, and especially horses, were seen within Tibetan culture.

2. Pelliot Tibétain (PT)

This section outlines the content of the oldest sources on horses, PT 1061–1066, and reflects on the purpose of their composition. The French orientalist Paul Pelliot (1878–1945) discovered these (and other) manuscripts in the Dunhuang caves. Since these caves were closed in the 11th century, this is the *terminus ante quem* for composition of the scrolls. PT 1061–1065 focus on the practical treatment of ailments, and only PT 1066 deals with hippology. These manuscripts are scrolls, and apart from fumigation (a cure often applied to dispel demons) they lack any overt religious context. They do not refer to, or name, any Buddhist or other deities. The style and content of the hippiatric scrolls are examples of the early stages of animal husbandry in Tibet and indicate that horse treatment was not a matter of professional healers but of horse owners and practitioners. They used simple medical care and performed treatments with basic tools. Their medications mainly comprised substances available in any household such as traditional foodstuff, rather than medical plants. Other ingredients are *Dreckapothek*-remedies (which could be rendered “dirt remedies”), such as urine and horse excrement, and leftovers from hunting like antelope hair.¹⁰ The author of the hippological text classifies various horse types related to their origin and thus provides a basic theory that authors of later manuscripts developed much further. Moreover, the text attests the first personal and clan names associated with equine studies that are still preserved in 17th century Nepalese manuscripts. The practitioners wrote these scrolls to preserve their experiences in medical care and hippological classification.

⁹ Most of these manuscripts were transferred to microfilm as part of a long-term project based at Hamburg University, the Nepal-German Manuscript Preservation Project (NGMPP).

¹⁰ For a survey on *Dreckapothek*-remedies in Tibetan medicine, see (Maurer 2017).

2.1. Hippiatric Manuscripts

Pelliot Tibétain 1061–1065 describe horses' ailments, such as fatigue, overexertion, and walking problems (i.e., ailment of the limbs and hooves). Other diseases are related to horses' fodder and/or grazing; these include constipation and poisoning, skin diseases, and swellings such as inflammation of the genital organs, testicles, or stomach. The manuscripts also mention diseases whose origin is ascribed to specific organs, for example, the kidney, spleen, and heart.¹¹

I will now provide a brief survey of the contents of these manuscripts.¹² Pelliot Tibétain 1061 is fragmentary, and the beginning is missing. The author describes only one cure: the treatment of a nasal disease. PT 1062 is a fragmentary scroll of 28 cm and looks worn out. It discusses several diseases, some of which are identical to those treated in manuscript 1064. The text begins with an extensive study of inflammation of the testicles, walking problems, colic caused by food, the treatment of a horse that has fallen after galloping, dental problems due to surplus teeth, problems with the hips, ailments of the kidney, and bad odor. In addition, the author explains how to teach a horse to trot and how to treat a horse that has been overexerted by an excessively heavy rider (Blondeau 1972, pp. 174–217). PT 1063 describes several limb ailments, such as problems with the hooves, front legs, and the *sre long*—a term probably denoting the fetlock joint—as well as problems with the front legs. In cases where treatments prove ineffective, the author offers other cures for this ailment (Blondeau 1972, pp. 218–36).

PT 1064 also refers to various diseases, starting with ailments of the limbs, followed by a skin disease (*rngo*), an ailment of the lungs, and an unidentified disease affecting the limbs, called *lhed*. For the latter, the author offers several cures.¹³ Other ailments are a kind of poisoning (*dug*), an internal tumor (*'bras*) that can also affect other body parts (such as the eyes or limbs), urine blockage, and a disease related to foals. The section ends with an unidentified disease of the lungs, called *ling kho tse* (Blondeau 1972, pp. 238–75).

The last manuscript that includes cures for horses is PT 1065. The text describes muscle problems and the treatment for a weak constitution. The author also refers to the nutrition, care, and training of horses (Blondeau 1972, pp. 276–317).

2.2. Hippological Manuscript

Hippology is a vast topic within the field of Tibetan horse medicine. It includes examination of horses' body parts to determine their function and the animals' employment and use, be it for warfare, as a working animal, or whether or not it is suitable for a king. The hippological section within Pelliot Tibétain 1066 is, however, very basic: the manuscript connects horses with specific families and clans and/or individuals. In relation to that, it describes horses' body shape and behavior. Three of the many names mentioned here are particularly significant: the first is Azha ('A zha), a powerful kingdom near Kokonor that Tibetans conquered in the 7th century; and the second is Garlo (Gar log), commonly identified as Qarlug, a confederation of Turkic tribes in the northwest of Tibet. It might, however, be worth mentioning that Golden considers the tribe called Quriqan or Qoriqan, as "very likely" to be identical with the "people/tribe called qwry (Qori/Quri) in later Islamic sources" (Golden 1992, p. 143). According to Chinese sources, the Qori or Quriy were famous horse breeders who lived to the north of Baikal Lake (Golden 1992, pp. 143–44).

These Old Tibetan manuscripts also refer to several personal names, including Coro Mangzi Kharbu (Cog ro Mang zigs mkhar bu), who was probably a famous horse specialist (Blondeau 1972,

¹¹ Anne-Marie Blondeau has translated these manuscripts and analyzed their contents, see (Blondeau 1972).

¹² For the textual editions with a French translation, see (Blondeau 1972, pp. 174–327).

¹³ Several ailments described in these Old Tibetan sources feature later in certain 17th century manuscripts, such as *lhed*-diseases, that clearly describe motion problems related to certain body parts, such as the *se ra rus*, a term denoting either the knee or the hip.

pp. 318–23). The Nepalese manuscripts still refer to the person of the Old Tibetan clan Cog ro, who resided in northeastern Tibet.

2.3. Summary

These early Tibetan texts on horses clearly focused on medical knowledge. Five texts, Pelliot Tibétain 1061–1065, are probably the results of practical husbandry. The presentation and style of diseases and their respective cures are simple. The descriptions do not follow a theoretical framework; that is, the diseases are not classified or analyzed theoretically. Thus, none of these ailments is explained in relation to the humors, phlegm (*bad kan*), bile (*mkhris pa*), and wind (*rlung*). The texts catalogue possible treatments and often recommend various cures for the same disease, in case the first recommended course of action fails to produce the desired result. Horsemen, with horse care in mind, composed these manuscripts, which represent collections of prescriptions.

The practice-oriented writing style resembles that in the famous German *Roszarzneibücher* (“pharmacopoeia for horses”), books on horse medicine that healers composed beginning in the mid-13th century (Von den Driesch and Peters 2003, pp. 85–92). Tibetan and German authors alike describe a disease together with its symptoms, and then the recommended treatment. They also confirm the passage outlining the cure, using phrases such as “this helps” or “this is good”: in Tibetan, *des phan no*. Eventually, another proposal follows the cure, introduced by the phrase “if this does not help,” which is identical to the phrase *des ma thub na* in the Tibetan texts.

The authors of the Pelliot Tibétain manuscripts recommended simple cures and described basic medical instruments.; these include moxibustion (*me btsa'*), cauterization (*me tshugs*), bloodletting with a lancet (the specific term for bloodletting used in human medicine *gtar ba* or *gtar kha* is not used) or sprinkling with water and fumigation.¹⁴ Other medical tools include a heated stone, as well as a sharp stone used for cauterization and a flat stone used to prepare a hot compress. Moreover, the texts introduce simple medical cures that a healer can apply quickly almost anywhere people live, without spending a long time preparing the treatment. The remedies contain basic ingredients that are available in any settlement, such as foodstuffs like butter, rice, and *chang*, the Tibetan beer that is made from fermented barley. Other ingredients are the so-called *Dreckapotheke*-remedies, such as urine, horse excrement, dried blood mixed with water, and hair from a bat or antelope. Medicine prepared using herbal substances and plants is rare and only includes mushrooms, mustard, aconitum, and indigo¹⁵. In contrast to later Nepalese manuscripts, the classification of horses only follows the regional assignment of horses, without proposing any further theoretical concepts. These texts, being devoid of any theoretical background, resemble manuals for horse treatments that practitioners wrote for other practitioners.

The second type of text that I describe contains quite different content and is aimed at a different group of people. With its focus on hippological topics and only a few chapters on hippiatry, it clearly addresses those who assess horses, such as the attendants of a king or the grooms who probably also took care of the horses.

3. Translated Texts from India

The second body of literature is the sources translated from Indian. There are two texts of Indian origin: a text in the Tibetan Buddhist canon assigned to Śālihotra, the so-called father of *āśvāyurveda*, and a later text by Sumpa Khenpo (Sum pa mkhan po). Both focus on hippological topics. Here I will focus on the Tanjur text, viz., the so-called *Śālihotraśāstra*, in Tibetan entitled *rTa'i tshe yi rig byed*.¹⁶

¹⁴ In Chinese medicine, bloodletting was recommended in springtime to protect horses from heat diseases. For further details, see (Heerde 1999, pp. 43–44).

¹⁵ For cauterization and the application of butter, see for example (Blondeau 1972, pp. 186–87); for the use of *chang*, mustard and aconitum, (Blondeau 1972, pp. 188–91); on bloodletting, (Blondeau 1972, pp. 192–93).

¹⁶ For the contents of the text assigned to Sum pa mkhan po, see (Blondeau 1972, pp. 152–55).

The text itself refers to Śālihotra, the famous legendary figure in the field of Indian horse medicine, also regarded as the protector of horses. The designation of Rinchen Sangpo (Rin chen bzang po, 958–1055) as translator places the text in the 10th or 11th century, the time *ante quem* for composition of the PT manuscripts (Meulenbeld 2000, IIA, p. 576). During the Buddhist revival and its second spread from Western Tibet (*phyi dar*), the topic “horse” was considered sufficiently significant to be translated and inserted into the Tanjur. I assume that this was not primarily due to intrinsic interest in horses or appreciation of animals as sentient beings, but rather the fact that the scriptures came from Buddhist India, and so they inherited a sacred aura that led to their being translated and included in the scriptural collection. In those days, Indian veterinary medicine already enjoyed a long history, a fact that could have contributed to the text’s status in the eyes of Tibetans. During the reign of the Maurya King Aśoka (269–232 BCE), healers clearly treated animals medically. Aśoka’s second rock edict states that there was already medical treatment for humans and animals during his time. In cases of shortage, he demanded that herbs should be planted that benefitted humans and animals or that they be supplied in other ways (Schneider 1978, p. 105). This might have been particularly relevant for animals serving in warfare. Horses, like elephants, were significant in warfare, and in many parts of the world were the mounts of rulers and kings.¹⁷ In India, horse and elephant lore was therefore a section in the *arthaśāstra*. This genre of Indian literature deals with practical and often material topics, such as technology, economy, administration, and politics. Animal husbandry and agriculture, together with forestry, comprised three of the most important economic sectors; the two other main sectors were mining and manufacture and trade. In order to identify the best horse for the king and the most suitable ones for warfare, the Kauṭilyan state employed a superintendent of horses and elephants to keep a tally of these animals. He recorded their number, origin, age, color, physical characteristics, mental qualities, and so on. He was responsible for horse stalls, as well as the animals’ food, training, and treatment (Olivelle 2013, pp. 43, 165–66).

Physical examination of the horses’ bodies served two purposes: by reading the signs of the horse’s coat (i.e., the hairy whorls) and identifying the coat color, he selected the best one for the king in order to contribute to his success in warfare. Secondly, the horses’ physical marks, such as coat color or the hairy whorls in the coat, served prognostication purposes.

Sections related to medical treatment deal with the application of moxibustion and pharmacology. In contrast to the PT texts, the description of diseases follows the theoretical concepts provided in Āyurveda; the author distinguishes diseases according to three humors (*nyes pa gsum*): phlegm (*bad kan,*), bile (*mkhris pa*), and wind (*rlung*).¹⁸ A broad range of topics focuses on hippology or equine studies, but some parts are not concerned with medical treatment. The author explains the hippological topics in extraordinary detail, unlike in any other Tibetan manuscript I have come across so far.

It is notable in this context that equine studies in India are based on another science: divination (Bhat 1987). In order to provide an overview of topics and the significance of physiological examination in this literature, I will describe their content. On the one hand, these chapters reflect a profound knowledge of horses’ bodies, and experts need a detailed knowledge of these in order to recognize and diagnose diseases. On the other hand, the paragraphs hint at a more mechanical adoption of human medical features, such as the names for body parts. The sequence of these hippiatric and hippological topics appears, from a modern perspective, slightly random. Some of the titles do not really introduce the respective subjects. In the 17th century, the emir Abdullah Khan translated the *Śālihotrasāstra* into Persian, and a century later it was translated into English by Earles (1788).

¹⁷ In India, the elephant is another animal for which medical texts were written; see (Edgerton 1931). In China, camels were the subject of such literature.

¹⁸ The author refers to this theory, for example, in the chapter entitled ‘*o ma’i yon tan btsan pa’i le’u*, see (Blo bzang bstan ‘dzin 1987, p. 170). The Greek humors are blood, yellow bile, brown bile, and phlegm. Wind is the element related to blood.

3.1. Survey of the Contents

As a general introduction, the text starts with the origin of the Āyurveda (*tshe'i rig byed byung ba'i tshul bstan pa*), followed by education of students (*mdo'i gnas la slob ma sbyang ba*). The author then turns to specific horse topics, beginning with the etymology of horses' names (*nges pa'i tshig*), the origin of horses (*rta rnams byung tshul*), the conception of horses (*mngal du chags pa*), horses' character (*rta'i rang bzhin drug*), the categories of horses (*rta'i skye gnas*), and the four classes of horses (*rta'i rigs bzhi*) (Maurer 2019). Several chapters deal with their physical and other external descriptions and measurements, for reasons of clarity it will be presented as a list:

- *the characteristics of bodily parts (*yan lag thams cad kyi mtshan nyid*);
- *anatomical descriptions and measurements of body parts (*bstan pa rnams bshad pa, tshad gzhal ba*);
- *the classification of ten bodily parts (*yang la bcu'i cha dbye ba*) as a means of assessing age and average life span;
- *distinctions between beauty and ugliness (*sdug dang mi sdug par phye ba*);
- *the measurement and mixture of horses' nutrition (*chad, zas kyi sbyor ba*);
- *"beauty" (*mdzes pa*): this chapter refers to specific nutrition for strengthening particular body parts;
- *physical characteristics (*mtshan*);
- *coat colors (*kha dog*);
- *blazes and spots on the coat (*zhur mdongs*);
- *assessment of whether they are good or bad (*thig le bzang ngan*);
- *bicolored horses (*sha ra'i mdog*); and
- *piebald horses (*'dres pa*).

The author dedicates chapter 23 to the horse as the mount of the king (*rgyal po'i bzhon pa'i rta'i mtshan nyid*). The next chapters deal mainly with classical hippological subjects and divination:

- *examination of the shape and color of the eyes (*mig brtag pa*);
- *the shape, color, and number of teeth (*so brtag pa*);
- *examination of hair whorls on the horse's coat (*gtsug brtag pa*);
- *establishing the age of horses (*na tshod brtag pa*) by examining their teeth, coats, and other physical characteristics¹⁹;
- *stages of a horse's life (*gnas skabs*): these correspond to the four stages (*gnas skabs*) of a human life which correspond to the paradigm for humans presented in classical Hindu treatises on dharma;
- *examination of odor (*dri brtag*);
- *voice (*skad gsang brtag*);
- *the quality of the gait (*'gros kyi bzang ngan*);
- *the growth of the body (*lus 'phel ba*); and
- *the gallop (*rgyug brtag pa*).

These chapters show that horse experts, equerries, and grooms, most likely at the court of a king, local ruler or prince observed, examined, and analyzed the animals thoroughly. Over time, they learned about the body shapes of horses and their coats with their colors and hairy whorls, along with their process of aging. They conceived and assessed the relations between horses' shape and their versatility for certain tasks. The experts detailed observations and analyses also led to the development of equine prognostication methods that involved interpretation of colors, shapes, hairy whorls, and

¹⁹ These topics were generally common hippological subjects. For the distinction between color, blazes, and spots, along with the examination of eyes and teeth, see, for example, (Jaksch and Glawischnig 1990, pp. 30–33, 82).

behaviors. Simultaneously, the means and methods the experts applied are identical with modern scientific approaches, and so they represent an early phase of veterinary sciences.

The author dedicates three chapters to horses' character and explains the examination of their unpleasant mental (*gra ma can brtag pa*) and physical qualities (*nyes pa chen po brtag pa*). The chapter called *snying stobs brtag pa*, literally "examination of mental strength," distinguishes horse types according to their character. The author revisits the horse's external body and the shine of the coat (*gzi mdangs brtag pa*), and then refers to the investigation of horse breeds (*rigs brtag pa*) and restoratives (*ston ka ba*). Advice on horse examination when the animal is a commodity (*nyo tshong brtag pa*) follows.

Finally, the treatise turns to rather more hippiatric topics, such as quality of nutrition and medical treatments. With regard to nutrition, it deals with questions related to water (*chu*), salt (*lan tshwa*), butter (*mar blod pa*), sesame oil (*til mar*), and milk (*'o ma'i yon tan*). The text explains traditional treatments, such as cauterization (*me btsa'i las kyi cho ga*), laxatives (*mas btang ba'i cho ga*), fumigation (*dugs kyi cho ga*), and contraindications for bloodletting. There is a chapter that describes ailments caused by the application of a lancet (*gtsag bu*). The *Aśvāsāstra* concludes with some pharmacological advice concerning the preparation of certain remedies, such as powders (*phye ma*), clarified butter (*smān mar*), decoctions (*smān khu*), and recipes for indigestion (*ma zhu ba sbyang ba*), and then it refers to specific medicinal plants and fruits, such as myrobalan fruit or Terminalia chebula (*a ru ra*) and frankincense (*gu gul*), but also garlic (*sgog skya*).

The horse experts became acquainted with the horses' anatomy, their behavior, and their mental faculties. They learned how to nourish and cherish the animals and how to tame and train them for certain tasks. In medical treatment, the close monitoring contributed to an improved understanding of the benefit (and possible harm) of the cures and the medical plants that were applied

3.2. Names of Bodily Parts

A more detailed analysis of these chapters' content reveals specific details related to bodily parts. The terminological designation and identification of body parts is a complex subject and was also quite variable in Europe. The Greek physician and philosopher, Galen (ca. 129–216 CE, also known as Galen of Pergamon), for example, studied the bodies of animals from the perspective of religious belief, as human autopsies were forbidden at that time. He transferred the knowledge acquired from this dissection to the human body (Von den Driesch and Peters 2003, p. 115).

With regard to the Tibetan designations, one might assume that the translation from Sanskrit could have intensified the issue of naming the body parts.²⁰ These problems become quite evident in the divinatory chapter on the hairy whorls on the horse's coat, which contains many names for bodily parts. Some of these designations are unclear, whereas others originate in human medicine, as some of the body parts mentioned do not exist in equine physiques. Terms such as *lce'u ldang* and *rtse'u chung* (also written *rtse chung lhed lce chung* or *tse chung lthe lce chung*, *rtse chung lce rtse chung*) are unclear (Maurer 2001, pp. 172–73). *rTse'u chung* can denote the jugular vein. In human anatomy, *lce'u chung* denotes the uvula, a body part that horses lack. Other passages point also to the adoption of human medical terms: Tibetan *mchu sgros* designates the region between the lips and nose, while *mchu ltang* denotes the lower part of the nose. On a horse's body, the nostrils are directly above the lips, and the nostrils are not prominent as in the human nose (Blo bzang bstan 'dzin 1987, p. 103).²¹

In contrast to Pelliot Tibétain, this early text is based on theoretical concepts such as the three humors, phlegm, bile, and wind. In the chapter on the qualities of milk as a therapeutic agent, for example, the author distinguishes between eight types of milk: cow (*ba*), goat (*ra*), woman (*bud med*), buffalo (*ma he*), elephant (*ba glang*), camel (*rnge mo*), mare (*rta*), and sheep. He embeds his explanation

²⁰ The names for the body parts were transferred from the human to the animal world and vice versa. For difficulties with regard to horses' body parts' designation in Sanskrit, see (Maurer 2006).

²¹ (Blondeau 1972, p. 347) translates "bout de nez". There is no term in German to denote these body parts.

of diseases within theoretical concepts applied in Indian human medicine. One of the qualities of milk, for example, is that it heals diseases originating in blood and bile disorders (*khrag mkhris nad ni gzhi byed yin*). Women's milk is considered very sweet and therefore suitable for newborns because it increases production of phlegm (*mngar bad bad kan 'phel bar byed*; Blo bzang bstan 'dzin 1987, pp. 168–69). In the chapter on the medical treatment called '*jam rtsi*', the author also applies the humoral framework to define diseases (including blood and bile diseases), and ailments originating in the phlegm (*khrag nad dang mkhris pa'i nad rnams dang/bad kan gyi ni nad rnams 'byung*); (Blo bzang bstan 'dzin 1987, p. 208).

3.3. Conclusion

This relatively brief depiction of the medical theory underlying Indian equine studies shows that the names for bodily parts were apparently transferred from humans to animals. This could indicate that scholars and authors also equated other human theoretical medical concepts to horse medicine, although it is also possible that they might have applied the theories simultaneously. In elephant studies, the authors appropriated theoretical concepts such as the framework of the three qualities (*guṇa*), basically a philosophical theory, to characterize elephants: “[The elephants] having the character of gods, *ksatriyas*, *gandharvas*, and brahmins are of the nature *sattva*; the *vaiśyas* and *śūdras*, of *rajas*; and the rest, of *tamas*” (Edgerton 1931, p. 76). This application of these theoretical concepts, and the classification of elephants according to the three *guṇa* that originated in the Indian Sāṃkhya philosophy, indicates that Indian veterinary medicine had reached a high level of sophistication. In contrast to early Tibetan manuscripts, Indian authors had applied theoretical concepts in human and veterinary medicine. Moreover, although this clearly hippologically-oriented text appears medically less significant, the reader should recall that the body not only mirrors health but also many internal ailments, not only those of animals or horses but also human ailments. A shiny horse coat signifies good health, while a hoarse voice is a symptom of illness. Yellow eyes indicate liver disease, a fact that points to a connection between the internal organs and the sense organs and thus proves a deeper understanding of horses' bodies.

Whereas the oldest manuscripts described in the first section focus on horse care and husbandry, which describes techniques for administering a kind of first aid for visible and obvious ailments, the original Indian source translated into Tibetan indicates a comprehensive knowledge of the animal. Though this text is also a product of horse husbandry, its content demonstrates very precise observation and detailed studies based on data collection at quite an early stage.

The compilers of the Nepalese manuscripts, which is the next body of literature introduced here, aimed to preserve all of this knowledge for future generations. They combine the medical knowledge of the earliest Tibetan scrolls with the lore preserved in Indian sources. They also contain additional treatments that most likely were transmitted orally. Moreover, they adopt Tibetan human medical theories in horse medicine and include theoretical concepts originating in Chinese medical thought. The hippological sections demonstrate a nuanced development of horse types with highly developed paradigms based on elemental theories. These multi-layered manuscripts structure knowledge on equine studies in 17th century Tibet.

4. The Nepalese Manuscripts

The last source for this study consists of manuscripts found in Nepal. The majority of these were photographed in the 1980s and 1990s as part of the Nepal German Manuscript Preservation Project (NGMPP) of Hamburg University. Like the other two sources, these texts contain hippiatric and hippological sections, with the latter including divinatory chapters. Although they also feature several photocopied manuscripts from Tibet, I will refer to them as Nepalese manuscripts for convenience.²²

²² For a complete survey of the manuscripts' content, see (Maurer 2001, pp. 39–109; Maurer and von den Driesch 1999; Maurer and von den Driesch 2006).

The manuscripts are handwritten in upper case, the so-called “headed letters” (*dbu chen*), and lower case or “headless letters” (*dbu med*), and cursive script (*khyugs yig*). The majority of the texts are compilations of several books with different titles. In particular, the chapters on medical cures often start with a homage to a Buddhist deity, such as Mañjuśrī or the Medicine Buddha (Sangs rgyas kyi sman lha), to deities incorporated into the Buddhist pantheon such as Hayagrīva (a horse-headed tutelary deity called Tamdrin (rTa mgrin) in Tibetan) or Kubera, or to saints, healing experts, or specific horse experts, such as Coro Bumo (Cog ro bu mo).²³ Moreover, some of these manuscripts are styled like Buddhist texts, depicting deities on the right and left sides of folios (Figure 1). In this respect, their layout and style differ from both of the texts described above.

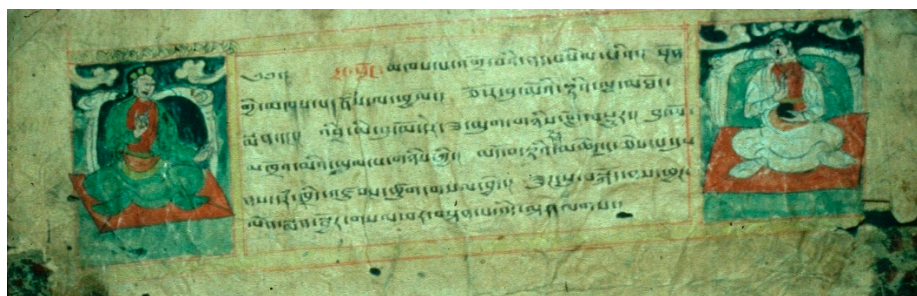


Figure 1. Manuscript in the possession of Pel Gonpo (dPal mgon po), prince of Jharkot (Mustang, Nepal).

As colophons and references to an author are lacking, these are difficult to date. Only one text contains two names that can be used to date these works: the manuscript kept by an individual named Sepo Jigme (Sras po 'Jigs med) in the village of Jharkot (southern Mustang) names a healer called Konchog Pen (dKon mchog phan). This figure may be identical to a certain Konchog Drophen Wangpo (dKon mchog 'Gro phan dbang po), born in 1631, who is mentioned in a compilation of Tibetan biographies (Byams pa phrin las 1990, pp. 356–58).²⁴ Furthermore, the book mentions the book title *Kagyama* (*dKa' brgya ma*), which may refer to a text entitled *Mangag Kagyama* (*Man ngag dka' brgya ma*). Its author is the great healer (*dar mo sman rams pa*) Losang Chödrag (Blo bzang chos grags), born in 1638 (Byams pa phrin las 1990, p. 307). These names suggest that this manuscript should be dated no earlier than the middle or end of the 17th century. As all of the manuscripts filmed by the NGMPP correspond with each other in terms of content and style, this might allow the dating of their compilation to the 17th or 18th centuries. A detailed comparison of these texts with the earlier sources—Pelliot Tibétain and the *Śālihotraśāstra*—reveals several particularities. They look like handbooks: the end of several passages or the backside of some folios show supplements written by another hand. It appears that healers apparently read and used them.

4.1. The Hippological Sections

The hippological chapters of the Nepalese manuscripts cover a broad variety of topics, some of which appear to have been borrowed from the Indian *aśvāyurveda* or Pelliot Tibétain, such as determination of horses' age by teeth examination, examination techniques for the ears, eyes, hooves, and coat, magical practices related to horse races, social classification regarding horses, categories with different criteria for distinct horse types, and finally divinatory practices based on the interpretation of coat colors and whorls. Irrespective of the variety within the order of the topics in the manuscripts, I will present a detailed survey of the main subjects.

²³ For a summary of this deity's (*yi dam*) origin and function, see (Craig 2006, pp. 348–49).

²⁴ I discussed the spelling of the name, which appears as *dkon mchog g.yan*, with Tibetan doctors and healers, who amended it to *dkon mchog phan*.

These manuscripts distinguish various horse types based on their physical characteristics. The main horse types are identical to those found in the *rta dpyad* of the British Museum²⁵, where they are called *mdo ba* (or *'do ba*), *gyi ling*, *byag to gyam shing*, *rong du*, and *mu gyen*.²⁶ Several manuscripts create further subcategories in combination with either colors (such as *byeg to nag po*, *byeg to dkar po*, and *byeg to bar pa*) or elements (such as *gnam gyi gyi ling*, *bar snang gi gyi ling*, and *chu'i gyi ling*). A third subcategory could be influenced by Chinese thought as it distinguishes between light/day (*nyin*) and dark/shadow (*sribs*), categories that could be related to the Chinese *yin* and *yang*. Other texts increase the number of horse types to 72.²⁷ The main types of horses are *mdo ba*, *gyi ling*, *byag tho*, *gyam shing*, *rong ngu*, and *mu gyen*, and could be of Tibetan or Central Asian origin. They ascribe the distinction of these types to an authority named Coro Taken (Cog ro rta mkhan; Maurer 2001, p. 63).

Other hippological subjects include examination of certain body parts, such as horses' ears, eyes, hooves, teeth, and coats. These features are common topics in animal studies. The shape and appearance of horses' ears and eyes are compared with plants, such as buckwheat leaves, or other animals. To quote a few examples: "If the ear looks like the tip of the head of a hoopoe bird, it is good"; "If the ear is big and thick like that of a donkey, it is not good"; "If the eye looks like that of a dead mouse, it is not good"; and "A red-brown eye like that of a goat is not good".²⁸ The examination of horses' teeth is a common method worldwide for determining an animal's age by assessing dental abrasion and changes in the teeth. Apart from this, the text of Sepo Jigme, for example, also compares horses' teeth with other animals' teeth and assesses them accordingly. For example, horses' teeth that are similar to those of a donkey, a Tibetan wild ass (kiang), or sheep are assessed as good, but those that are similar to the teeth of a tiger, camel, or dog are assessed as bad. Of middle quality are horses' teeth that are similar to those of a pig.²⁹

The divinatory sections dealing with horses' various colors and whorls can be traced back to the *aśvāyurveda*, but other domains might also have influenced these sections. Several manuscripts refer directly to Śālihotra, while others mention authorities such as Chasa Trizün (Cha sa khri btsun) or Je Kye'uchung (rJe Khye'u chung), names that could be of Tibetan or Central Asian origin (Maurer 2001, pp. 45, 56, 61, 62).

4.2. The Hippiatric Sections

The dual influence of Indian and Old Tibetan material also emerges in the sections dealing with diseases and their treatments. The hippiatric sections in the 17th century manuscripts are far more elaborate and detailed than those in Pelliot Tibétain and the *Śālihotraśāstra*. They describe a broad variety of diseases comprising various ailments of the limbs and hooves, diseases of the organs and sense organs (Maurer 2001, pp. 46, 51, 66, 77, 90), and other single body parts, such as the throat, stomach, intestines, neck, tongue, and so on. Further ailments are wounds caused by other animals, such as bites by a rabid dog, "water rat", or cattle attacks, or sores caused by a saddle or other skin problems.³⁰ Other topics include birth-related difficulties, infertility, and miscarriage, diseases related to seasons or places, genital diseases, poisoning, and diseases caused by demons. The treatments described are identical to those applied in the field of human medicine: oral administration of remedies and simple physical cures, such as moxibustion, cauterization, and bloodletting. In contrast to the

²⁵ This text refers to a further type, called *sgu ru*. For a survey of the text's content, see (Blondeau 1972, pp. 155–58).

²⁶ On the various horse types and social classes of horses, see (Maurer 2019). I spare a translation of these terms, as this would require a further study on the origin of the horse types.

²⁷ For the various classification of the horse types, see, for example, (Maurer 2001, pp. 41, 45, 50, 53, 54, 59, 142–53).

²⁸ For the Tibetan and German text, see (Maurer 2001, p. 156).

²⁹ Determining horses' age based on their teeth remains a common practice; see (Jaksch and Glawischnig 1990, pp. 31–33).

³⁰ The trope of bite by a water rat is most likely of Greek origin, as it was already mentioned by Aristotle, the first anatomist of the Occident; see (Von den Driesch and Peters 2003, pp. 30, 48, 68).

Old Tibetan manuscripts, the term *gtar ba* is used for bloodletting. The texts mention a special type of moxibustion, Mongolian moxibustion (*hor gyi me btsa'*), that is also applied as a cure for humans.³¹

Linked to these cures are theoretical concepts applied in the field of human medicine, such as the various types of diagnoses (i.e., by examining the pulse, urine, and eyes), and the theory of the moving *bla gnas*, a vital energy that is assigned to a different body part every day.

4.3. Diagnoses

4.3.1. Pulse Diagnosis

The manuscript from Tsum/Nyile, Nepal begins with an evocation to the horse god, Tamdrin (rTa mgrin; Sanskrit Hayagrīva), a horse-headed *yi dam* who controls the *dharmapāla*, the protectors of Buddhism (De Nebesky-Wojkowitz 1993, p. 23). Here, as elsewhere, he is also designated as “Mighty One” (*dbang chen*), an epithet commonly applied to Indra. The healer should call on the deity before he performs a pulse examination:

“May the glorious king of the wrathful deities, the glorious Hayagrīva, protect us”.³²

The best time for pulse diagnosis is early morning, when the sun reaches the mountain peaks. The text depicts the location of the jugular vein as the place at which to diagnose health and illness: it is located four fingers below the first wrinkle of the chest (*brang gi gnyer ma*). The vein of the tail is the location for determining life span. The pulsation determines the gender of the pulse: a male is thick and rough, while a female is thin and twisted. The third category is not, as one might expect, neutral but the “demon-pulse”; this is a pulse that changes from fast to slow and from heavy to light. As in human medicine, the text describes pulsation and assigns it to the seasons, elements, and body organs:

Commonly, during the four seasons, the pulse of the four elements beats. In springtime, it is the liver-wood-pulse. It is thin and fast. In summer, it is the heart-fire-pulse. It is thick and long. In autumn, it is the long-iron-pulse. It is twisted and sunken. In winter, it is the kidney-water-pulse. It is soft, long, and slow. In the seasons between, it is the belly-spleen-pulse. It is considered slow and full.³³

This last assignment of a pulse to the belly and spleen might be mistaken; traditionally, in human medicine, it is the earth-spleen-pulse. This and the following passages indicate Chinese influence, they refer to the relation among the elements as it is known in Chinese divination, which is mother, son, enemy, and friend (*ma bu dgra grogs*).³⁴ These relations correlate the quality of the pulse with the respective prediction of the lifespan of the horse. Moreover, they refer to the distinction between “heat diseases” and “cold diseases,” as found in Chinese medical concepts.³⁵ The enemy pulse is unfavorable for the horse because it predicts, for example, the animal’s death or enemies. The medical diagnosis of cold and heat diseases follows the frequency of the pulse beats:

³¹ This is an external cure. Cumin and oil are wrapped in a cloth, heated in butter, and pressed to the affected body part; see (Parfionovitch et al. 1992, pp. 180, 125).

³² *khro rgyal dpal rta mgrin dpal gyi [b]dag skyong shig*, see (Maurer 2001, pp. 181–82).

³³ The following quotes are drawn from the textbook entitled *rTa 'bum 'thong khol rta nad thams cad 'dzom pa'i sman mdo of bla ma Ye shes rgya mtsho* in Nyile/Tsum, NGMPP Reel No E 2851/25, fol. 16–17: *spyir ni nam zla dus bzhi la/ 'byung ba bzhi yi rtsa l' rgyu ste/dpyil[d] po mchin pa shing gi rtsa/ phra la 'gril bar phar ba yin/ dbyar ka don snying me'i rtsa/sbom la ring bar 'dod pa yin/ ston kha glo ba lcags kyi rtsa/khril sbyor bying por phar ba ni/ dgun kha mkhal ma chu yi rtsa/ 'jams ring dal la 'dod pa yin/ mtha' chung pho ba [m]cher bas (r. ba'i) rtsa/ dal zhing gang ba'i rtsa ru 'dod/.*

³⁴ For pulse examination in Chinese horse medicine and the relation between the pulse and the seasons, see (Heerde 1999, pp. 27–31).

³⁵ Chinese horse medicine distinguishes between “heat diseases” and “cold diseases,” which are connected with *yin-qi* and *yang-qi*, two types of vital energy (*qi*); see, for example, (Heerde 1999, pp. 98, 102, 118, 120).

For the constitution of a sick pulse, one counts the number of pulse beats while breathing: twice while inhaling, twice while exhaling, and once in between. This is a healthy pulse. If it beats six to seven times, it is a “heat disease”. If it beats three times, it is a “cold disease”.³⁶

The text continues by describing the pulsation of several kinds of veins as an indicator of disease:

If the left shoulder vein beats in its own way and the right shoulder vein and both lung veins do not pulsate, and the tail vein pulsates strongly, one says that the kidneys and intestines are croaking.³⁷

The author describes this compilation on pulse diagnosis as the first chapter of the treatise on horses, called the wish-fulfilling jewel (*rta rgyud nor bu dgos 'dod kun*).³⁸ The initial passages, describing the various types of pulsation, resemble those of pulse diagnosis in human medicine and might have originated there. The final passage, dealing with pulse reading at different body parts, may originate from a practical knowledge of equine studies. In the field of human medicine, the pulse at the wrist was taken as a way of diagnosing a disease, and the veins on the other body parts were commonly not involved. In practice, however, pulse reading was usually not performed for diagnosis of horse diseases, although there were exceptions. The illiterate healer Sönam Tsering (bSod nams tshe ring), from Muktinath in western Nepal, however, would have someone read a manuscript to him so that he could learn how to diagnose a disease by reading the pulse on the foreleg of a horse. Methodically, the chapter on pulse diagnosis links hippological, hippiatric, and divinatory aspects.

4.3.2. Urine Analysis

Urine analysis and eye diagnosis are the topics of the next two chapters of this text. As in the field of human medicine, examination of the first urine produced in the morning is recommended. The text describes the urinary excretion, together with its flow rate, color, and the strength of the flow. Moreover, it explains how the healer should analyze horses' bodies and behaviors.

Now here is the examination of urine through vision: One should examine the morning urine. The urine flow is weak, [its color] white, it has a strong smell, and the micturation is easy. This is healthy urine. The urine is green and the micturation difficult, the urine flow is weak, and the [horse's] face looks sad. This is the urine [of a horse] with heart disease . . . The urine is black-red in color, it is difficult to micturate, only a little [urine] flows.³⁹ Lying down and getting up is easy and the horse's tail swirls. A heat-disease is in the colon. Then there is great mortal danger. The urine looks like a brew of lentils. The hind leg limbs; this is kidney-disease.⁴⁰

Pulse diagnosis and urine analysis form two different branches of the medicine tree that illustrates the topics of traditional Tibetan human medicine: the former is a method from the branch of contact (*reg pa'i sdong po*), whereas the latter, like tongue examination, belongs to the branch of visual observation

³⁶ Reel No E 2851/25, fol. 17: *dgra rtsa byung na 'chi zhes grags/ yang na dgra dang kha smras yong(s)// dgra rtsa byung na 'chi zhes grags/ yang na dgra dang kha smras yong(s)/ nad kyi rtsa yi rang [b]zhin ni/ phar ba'i grang kyang dbugs la rtsis/ phar la gnyis dang tshur la gnyis/ bar du cig phar na med rtsa/ drug bdun phar na tsha ba ste/ gnyis dang gsum phar grang ba yin//*

³⁷ The lung vein continues from the spleen vein, the vena epigastrica cranialis.

³⁸ Reel No E 2851/25, fol. 17: *dgra rtsa byung na 'chi zhes grags/ yang na dgra dang kha smras yong(s)// [m]thong rtsa g.yon pa rang lugs phar/ g.yas dang glo rtsa gnyis mi phar/ 'jug rtsa drag tu phar ba na/ mkhal ma rgyu khrog bya ba yin//*

³⁹ These symptoms point, for example, to urolithiasis, the formation of urinary stones. Even today, examination of horse urine, analyzing factors such as color, consistence, smell, and clarity feature in the diagnosis of horse diseases; see (Jaksch and Glawischnig 1990, pp. 199–201), and (Schäffer 1986, pp. 159–60).

⁴⁰ Reel No E 2851/25, fol. 18: *de nas yang [m]thong ba chu la [b]rtags pa ni/ zhog pa'i chu la [b]rtags par bya/ chu shed chung zhing dkar ba dang/ dri ma che zhing gtong ba rla (r. sla)/ de ni nad med chu yin no/ chu mdog sngo la gtong ba bka' (r. dka')/ chu shed chung zhing ngo tshul nag/ de ni snying la nad yod chu . . . chu ni dmar nag mdog can la/ gtong ba bka' (r. dka') la nyung du 'ong/ nyal lang bka' (r. dka') zhing 'jug ma [']tshub/ long la tshad pa bzhugs pa yin/ de ni 'chi nyen chen po'o/ chu ni sran mi (r. ma'i) khu ba 'dra/rkang pa shal la chu dad che/ de ni mkhal ma na ba yin/.*

(*blta ba'i sdong po*). Although the depiction here, with the various descriptions of urine, is highly detailed, an analysis of the imbalance of the humors as described in human medicine is missing.⁴¹

4.3.3. Eye Diagnosis

Diseases of the inner organs—namely the heart, lungs, liver, stomach, spleen, and kidneys—are diagnosed by visual examination. The standard text on traditional Tibetan medicine, the *Four Tantras* (*rGyud bzhi*), together with its commentaries, does not mention this diagnostic method explicitly. It is, however, a common aspect included in the diagnosis of horse ailments in Europe.⁴²

Chapter three of the manuscript found in Tsum depicts this method in detail (Figure 2). The author reads a variety of ailments in horses' eyes. It appears, however, that the passage is incomplete and that a relevant phrase is missing. It should start with the characterization of healthy eyes: "The blood vessels of the sclera are clear, and the sclera is rounded. The eyeball is black, bright, and clear. These are signs of health. The sclera is blue and the eyeball yellow. If tears are dropping, these are signs of a disease in the heart . . . The eyes look sunken. The sclera is white, and the eyeball blue. There is disease in the kidneys. The eye socket is swollen, and the head trembles. The blood vessels of the sclera are red, and the horse pretends to shy. [The animal] is possessed by a demon".⁴³ The passage ends with a prediction of the horse's death that occurs in relation to lung disease when the horse's head points south.

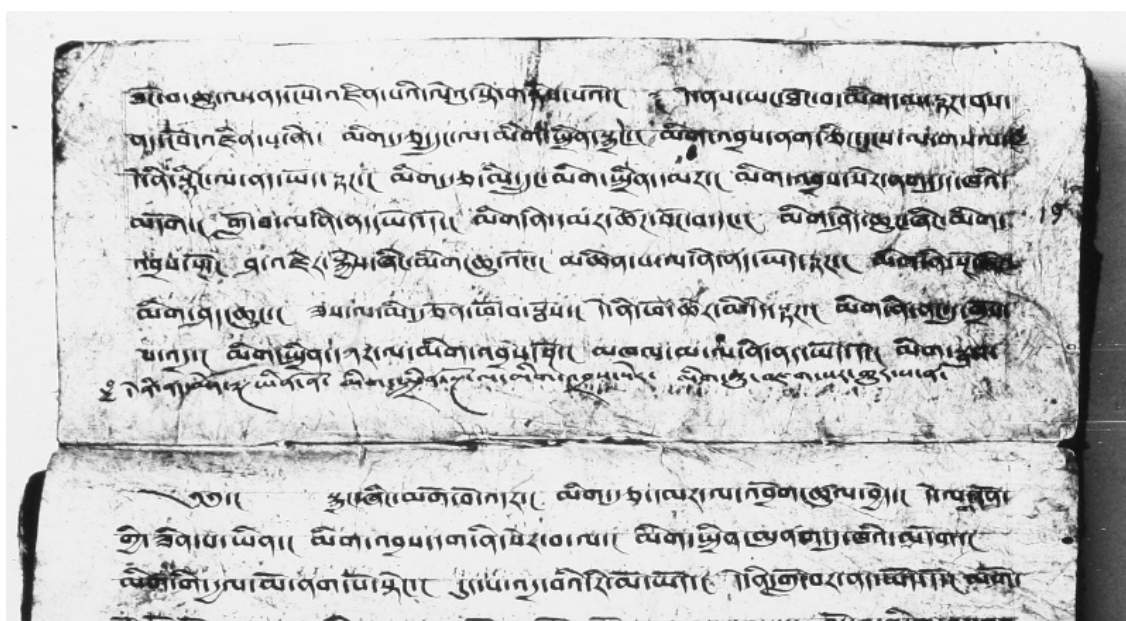


Figure 2. Description of eye diagnosis.

4.3.4. Physiology and Anatomy

Several manuscripts, such as the horse book of Tsering Tashi Lama (Reel No. 412/14), contain chapters on physiology and anatomy. They describe the position, "composition" (*gzhi rgyu*), and

⁴¹ The so-called xylograph Bacot mentioned also refers to horses' excrement as a substance for diagnosing diseases; see (Maurer 2001, p. 98). Examination of the excrement's color, consistency, and smell is another aspect of horse disease diagnosis; see (Schäffer 1986, p. 159).

⁴² See, for example, (Jaksch and Glawischnig 1990, p. 82).

⁴³ I completed the text with a passage from the manuscript from Tsum, Reel No E 2851/25, fol. 19, from the manuscript of Tsering Tashi Lama in brackets; see (Maurer 2001, p. 186): *mig rtsa drung la mig sprin skrang/ mig 'bras nag cing dang la gsal/ [de ni nad med rtags yin no/ mig sprin sngo la mig 'bras ser/ mig chu dzag par gyur pa na/] de ni szing la nad yod rtags . . . mig ni nang du 'gros pa 'dra/ mig sprin dkar la mig 'bras sngo/ mkhal ma la ni nad yod do/ mig sbub skrang zhing mgo bo 'dar/ mig rtsa dmar la 'brog tshul byed/ de la [g]don gyi zin pa yin/*

function of the organs and some physiological specifics, such as the amount of blood, fat, and lymph (which, however, appears to be improbable): a horse is supposed to have four *bre* of blood, one *bre* of fat, and two *bre* of lymph.⁴⁴ Furthermore, the text names six types of wind, depicting either their positions in the body or their function. Commonly, traditional Indian and Tibetan human medicine refers to five types of wind. Due to the distinction between the five full (*don lnga*: heart, lungs, liver, spleen, and kidneys) and six hollow organs (*snod drug*: gall-bladder, stomach, the small and large intestine, urinary bladder, and the “spermatic vessel,” called *bsam se’u*), the content probably refers to Chinese medicine.⁴⁵ It is beyond the scope of this paper to discuss these slightly unsystematic passages further, but I would like to highlight a few peculiarities. The text refers to six full organs and mentions the right and the left kidney separately, as having slightly different functions: it relates the left kidney to water but the right kidney to water and “veins”. The anatomical and physiological section follows a paragraph on the nine full and hollow organs, although there are eleven of these. The organic peculiarity here is the explanation of the gallbladder with its shape: “The gall bladder is the vessel for cleansing. It resembles the eggs of the bird *ga ga ling*”.⁴⁶ Like the names for bodily parts in the text, this adoption appears to originate in India from a relatively theoretical provenance, rather than being based on practical anatomical knowledge. Moreover, the distinction of the five full and six hollow organs does not seem to have been incorporated fully into the Chinese horse books. The Chinese *Horse Classic* contains a chapter on the five full organs (*zang*), naming the liver, heart, lungs, kidney, and spleen, with specific ailments (Heerde 1999, pp. 35–36), but a separate chapter on the hollow organs is lacking. An explanation of the internal connections between the organs follows the anatomical presentation: heart and small intestine, lungs and large intestine, liver and gallbladder, spleen and stomach, left kidney and *bsam se’u*. The right kidney and urinary bladder are missing here (Maurer 2001, pp. 232–37).

The next paragraph describes a connection between the sense organs and the internal organs. Thus, the healer can diagnose internal diseases by assessing the sense organs’ appearance that mirrors the internal organs’ condition. The style of the passages, together with the diagnoses and cures, is notable insofar as it follows that of the manuals in the Old Tibetan sources. The cures also conclude with phrases such as “there is no doubt that this helps” (*de bde ba la the tshom med*), or what to do if the cure proves unsuccessful: “if this does not help after several days” (*de nas zhag ’ga’ skyed ma byung na*).

The healer diagnoses a diseased organ by examining the related sense organ and recommends a treatment. The connection between the outer sense organs and the internal organs is as follows: the left kidney is connected to the left ear, and the right to the right; the spleen to the lips; the liver to the eyes; the tongue to the heart; and the nose to the lungs. If the cure proves unsuccessful, several other suggestions are offered. The text does not, however, retain the order given in the chapter’s introduction. By recommending a succession of cures, the text style implies practical know-how. The elaboration begins in a highly detailed way, with the heart-tongue connection, but omits the linkage between the nose and the lungs.⁴⁷

The depiction starts with a new disease that is relatively easy to cure, and then the text proceeds to discuss more severe cases, recommending all kinds of treatments, usually oral remedies combined with physical cures, such as sprinkling with water, bloodletting, rolling a stick on a certain body part, moxibustion, cauterization, and even the use of a lancet. Despite the similarities among the manuals,

⁴⁴ In Tibet, the measures were unstandardized and might change from one district to the next, but one *bre* corresponds approximately to one pint.

⁴⁵ On the discussion of the organ *bsam se’u*, see (Würthner 2016).

⁴⁶ *’khris pa dangs ma’i snod du ’dod/’khrigs pa bya gag a ling sgong nga gang*, see (Maurer 2001, p. 235). Neither the dictionaries I have consulted, including (Jäschke [1881] 1985), nor any of the medical specialists I have asked could provide any information on the bird *ga ga ling*. Tibetan human medicine compares the gallbladder with a sack full of various spices; see (Parfionovitch et al. 1992, p. 27). In the chapter on pulse examination, for example, the Chinese *Horse Classic* also refers to the gallbladder; see (Heerde 1999, p. 28).

⁴⁷ In Chinese horse medicine, the horse’s mouth is examined to diagnose diseases; see (Heerde 1999, pp. 33–34).

it remains questionable, particularly with regard to the cures involving oral medical administration, if these were performed in the way described. Herbs were already precious in the past, and a horse would need a very large amount. Doubts arise, especially when the reader comes across expensive medicinal mixtures, such as “the six good ones” (*bzang po drug*: nutmeg, clove, saffron, cardamom, camphor, and sandalwood). The veterinarians whom I consulted during my fieldwork in Nepal and Tibet in the 1990s denied following the textual instructions and claimed never to give horses plants or herbs as remedies, because herbs, particularly saffron, were too precious to be fed to a horse in the required large amounts.

4.3.5. The Concept of *bla gnas*

Tibetan medicine incorporates the concept of *bla gnas*. The term *bla* denotes a vital force that moves around inside the body.⁴⁸ If, on a certain day, the *bla* resides in a certain body part, then no treatment by moxibustion or cauterization should be applied to this particular body part, as this was thought to harm the body. Several horse books photographed in Nepal describe the moving *bla gnas*, even with illustrations (Figure 3). The compound *bla gnas* seems to be of later origin, as it is not mentioned in PT. Another source in which to search for *bla gnas* is the *Four Tantras* (*rGyud bzhi*), the main medical treatise of traditional human medicine, but the compound *bla gnas* is not used there either (Gerke 2012, pp. 138–40). In the Old Tibetan manuscripts (PT 1044), the term *bla* occurs in connection with moxibustion. It explains that the place of the vital force called *bla* must be calculated. The idea of a moving *bla* in the body is probably of Chinese origin and seems to derive from the Chinese idea of spirits (*renshen*) moving in the body (Yoeli-Tlalim 2014, pp. 99–100). *bla* and *renshen* move with the moon’s cycles through the body; however, the places they occupy are not the same on a certain date.⁴⁹ It is only from the 16th century onward that we find explanations of the concept of *bla gnas*; for example, in two commentaries on the *Four Tantras*, the “*Oral Tradition of the Ancestors*” (*Mes po zhal lung*) authored by Surkhar Lodrö Gyelpo (Zur mkhar bLo gros rgyal po, 1509–1579), and the *Blue Beryl* (*Vaidūrya sngon po*) by Sanggye Gyatso (Sangs rgyas rgya mtsho, 1653–1705), the 5th Dalai Lama’s regent (Gerke 2012, p. 143). Thereafter, the concept was adapted to the field of horse medicine.

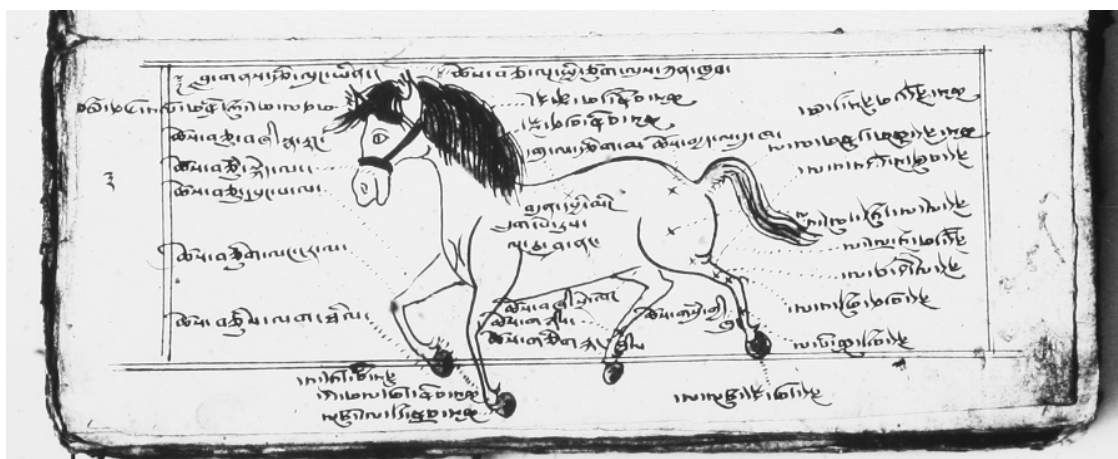


Figure 3. The position of the *bla gnas* in the manuscript from Tsum (Nepal).

The horse healers interviewed in Nepal during my fieldwork in the 1990s were unfamiliar with these treatments’ restrictions. Even those who had learned the basics of traditional medicine denied applying the concept of *bla gnas*, the position of the vital spot, when treating horses. The main

⁴⁸ See, for example, the manuscript of the king of Mustang; (Maurer 2001, pp. 40, 42, 71, 92, 98).

⁴⁹ Chinese horse medicine also knows seasonal and calendric restrictions for cures, including moxibustion, bloodletting, cauterization, and operations; see (Heerde 1999, p. 42).

regulations for treating horses by cauterization—for example the question of which body part was burned—depended on the disease and was unrestricted by the position of the *bla gnas*. Therefore, it appears relatively likely that the concept of *bla gnas* was included in the written treatises from the field of human medicine.

I would like to mention here that these manuscripts were not, to the best of my knowledge, applied for treatment, probably due to several reasons: these manuscripts were not necessarily in the possession of healers, and sometimes belonged to private individuals, who may have inherited them. The majority of the horse healers consulted in the 1990s were illiterate and practiced according to knowledge transmitted by oral teaching and learned through observation. Even those who were literate claimed not to use the manuscripts and kept the books as a family inheritance or a symbol of prestige and status. However, amendments to the original texts, written in others' handwriting, point to some kind of use of these manuscripts.

5. Conclusions

This brief survey of the various types and stages of Tibetan horse books yields the following conclusions: Tibetan horse medicine is clearly not, like other Tibetan sciences, a closed field of knowledge but shows various influences of other medical traditions, such as Indian and Chinese medicine. In contrast to the Indian and Chinese traditions, Old Tibetan horse texts ignored any kind of theoretical concepts and were completely based on practical experience. These were manuals written by and for practitioners. They reflect the knowledge of medical care for horses as practiced in the 8th or 9th centuries and aimed to record the acquired knowledge in horse husbandry. Their structure is simple, and the treatments described are easy to apply, as they require simple instruments and remedies that were more or less available in any household. Their lack of any religious and theoretical background, such as the distinction between the three humors, and their experimental cures recommending other means and methods in case of failure, are reminiscent of the German tradition of the *Rossarzneibücher*, which exhibits a similar style and features.

The books translated from Indian sources are the result of animal husbandry as well, although they originate in another sphere of knowledge: economic activities as the Indian *arthaśāstra* describes them. They aimed to assess the quality of horses in order to determine the best horse for the king and also to identify suitable horses for warfare. Therefore, the horse's treatment has less significance in this context. With their detailed descriptions of the horse's body, for example, these elaborate books testify early data collection. Their purpose predefined their focus on hippology and divination. Like human medical texts, they are embedded within a theoretical framework. Among these texts there is, for example, a distinction between the three or four humors (Tibetan *nyes pa*, Sanskrit *doṣa*) originating from the Indian and Greek medical traditions. As Indian Āyurveda is an old science and rooted in the Veda, these medical theories might have been applied simultaneously to humans and warfare animals (i.e., horses and elephants).

The Nepalese manuscripts, originating from the 17th century onward, apparently include all of the knowledge referred to in the earlier manuscripts, and document once more the various influences of the Tibetan sciences.⁵⁰ The manuscripts also combine several layers of knowledge: lore passed down by practitioners in the form of oral and written knowledge on horse medicine, and theoretical knowledge of the various medical traditions. They describe theories and concepts, such as pulse diagnosis or urine analysis, that are borrowed from human medicine. On the other hand, some of the advice and diagnoses also appear to be based on observation of the animals. Due to the influence of Mongols on Tibetan affairs and the establishment of postal service stations, the significance of horses

⁵⁰ I do not share the view of (Schaeffer 2011, p. 297), who suggests: "it is not coincidental that the major writings of Sangyé Gyatso are dedicated to just those forms of knowledge in which the Indian visitors at the Potala were expert". The medical, astrological, divinatory, and mathematical sciences were strongly influenced by the Chinese sciences.

probably increased from the 12th century onward, and so the value and estimation of horses increased as well. In particular, the 17th century Nepalese manuscripts apparently point to a significant period in the development of Tibetan sciences. They have an encyclopedic orientation; the authors or compilers collected whatever information on horses was available, including traditions handed down over time and medical lore, but it appears that they did not attempt to revise or evaluate their sources. The transfer of names for body parts and organs from humans to animals and vice versa appears to be a common method, without anyone realizing that some are inapplicable for horses. As shown above, this was replicated with regard to Indian and Chinese anatomical studies as well. By contrast, the ancient Greek physician Galen applied a reverse method, as he transferred the names of body parts from animals to humans. These compilations might mirror the spirit of the century, the times of the great 5th Dalai Lama, during which his regent Sanggye Gyatso compiled texts on medicine and astrology.

The inspiration for writing these manuscripts was certainly the aim of preserving knowledge. The Nepalese manuscripts were written during the hegemony of the Ganden Phodrang (dGa' ldan pho brang), the Tibetan government established by the 5th Dalai Lama Ngawang Losang Gyatso (Ngag dbang Blo bzang rgya mtsho, 1617–1682). At that time, scholars collected, compiled, and structured the traditional sciences. They produced these manuscripts at a time when the organization of sciences in Central Tibet was at its peak. Information on hippology and hippiatry was regarded as sufficiently significant to be collected, structured, and theoretically framed, in the style of human medical texts. Some of these works are styled like Buddhist texts, and the medical sections in particular start with an invocation of a deity and/or a buddha, such as Tamdrin (Hayagrīva) or the Medicine Buddha. As the medical treatments remained fairly stable, almost up to modern times, they exemplify the authors' efforts to structure and standardize Tibetans' 17th century knowledge rather than reflect any changes in perceptions regarding horses or other animals. Apparently, most of the books were handwritten manuscripts, and to my knowledge there are, apart from the *Śālihotraśāstra* in the Tanjur, only a few block prints on medical cures for horses. In 1934, long after the use of block printing became common in Tibet, the Tibetan scholar Tharchin Geshe Lobsang (1890–1976), for example, edited this text (Kunz 1992; Maurer and von den Driesch 1999, p. 90). This could indicate that the topic was not considered significant enough for the sort of mass printing made possible by wood blocks.

The question remains whether these manuscripts indicate a change of sentiments or views regarding horses. One might argue that the scholars' perspectives must have changed, insofar as horses were considered sufficiently important to warrant the compilation and structuring of all of the knowledge available about them, together with its adjustment to suit human medical concepts. Apparently, however, there remains a gap between the oral and written traditions—between healers and scholars or monks as the authors of these manuscripts—and between theory and practice. As already mentioned, these texts were not commonly applied or read for practitioners seeking treatments, at least according to the horse healers I interviewed during fieldwork related to the manuscripts in the 1990s in Nepal. The cures applied were based on orally transmitted knowledge. There is no doubt that the high esteem in which horses were held led to their careful treatment but, to the best of my knowledge, the medical cures applied to them remained simple in nature. The 20th century horse healers, commonly illiterate (like practitioners in the European Middle Ages), still applied simple, orally-transmitted cures. The manuscripts therefore indicate the scholar's and healer's disparity: whereas scholars obviously expressed their high esteem for horses by including human medical concepts in the horse books, the healers continued to use the traditional methods they applied for many centuries, generally without considering the adopted theories in the horse books.

Funding: This research received no external funding.

Conflicts of Interest: The author declares no conflict of interest.

References

- Bellezza, John V. 2016. Flight of the Khyung. Available online: <https://www.tibetarchaeology.com/july-2016/> (accessed on 5 April 2019).
- Bhat, Ramakrishna. 1987. *Varāhamihira's Brhat Samhitā with English Translation, Exhaustive Notes and Literary Comments*. Delhi: Motilal Banarsidass.
- Blondeau, Anne-Marie. 1972. *Matériaux Pour L'étude de L'hippologie et de L'hippiatrie Tibétaines (à Partir des Manuscrits de Touen-Houang)*. Hautes études orientales 2. Genève: Librairie Droz.
- Byams pa phrin las. 1990. *Gangs ljongs gso rig bstan pa'i nyin byed rim byon gyi rnam thar phyogs bsgrigs*. Beijing: Mi rigs dpe skrun khang.
- Craig, Sienna. 2006. Windhorses and Dharma Warriors. In *Horses and Humans: The Evolution of Human-Equine Relationships*. Edited by Sandra L. Olsen, Susan Grant, Alice M. Choyke and László Bartosiewicz. BAR International Series 1560; Oxford: Archaeopress, pp. 339–53.
- Daygab Rinpoche, Loden Sherap. 1992. *Buddhistische Glückssymbole im Tibetischen Kulturraum*. München: Eugen Diederichs Verlag.
- DeLapp, Kevin. 2011. The View from Somewhere: Anthropocentrism in Methaetics. In *Anthropocentrism. Humans, Animals, Environments*. Edited by Rob Boddice. Leiden: Brill, pp. 37–57.
- dPa' bo gtsug lag 'phreng ba. 1986. *mKhas Pa' Dga' Ston*. Lhasa: Mi rigs dpe skrun khang.
- Earles, Joseph. 1788. *A Treatise on Horses Entitled Saloter. A Complete System of Indian Farriery in Two Parts*. Calcutta: [George Gordon].
- Edgerton, Franklin. 1931. *The Elephant-Lore of the Hindus. The Elephant-Sport (Matanga-Lila) of Nilakantha*. Translated from the Original Sanskrit with Introduction, Notes, and Glossary. New Haven: Yale University Press.
- Gerke, Barbara. 2012. *Long Lives and Untimely Deaths. Life-Span Concepts and Longevity Practices among Tibetans in the Darjeeling Hills, India*. Leiden and Boston: Brill.
- Golden, Peter B. 1992. An Introduction to the History of the Turkic People. In *Ethnogenes and State-Formation in Medieval and Early Modern Eurasia and the Middle East*. Wiesbaden: Otto Harrassowitz.
- gZi brjid. 1967. 'Dus pa Rin po Che'i Rgyud Dri ma Med pa gzi Brjid rab tu 'bar ba'i Mdo. Dolanji: Tibetan Bonpo Monastic Centre, vol. 3.
- Haarh, Erik. 1969. *The Yar-lung Dynasty*. Kobenhavn: G.E.C. Gad's Forlag.
- Heerde, Michael. 1999. *Pferdebehandlung mit Traditioneller Chinesischer Veterinärmedizin*. Stuttgart: Johannes Sonntag Verlagsbuchhandlung.
- Heller, Amy. 2003. Archeology of Funeral Rituals as revealed by Tibetan tombs of the 8th to 9th century. Ērān ud Anērān. Webfestschrift Marshak. Available online: <http://www.transoxiana.org/Eran/Articles/heller.html> (accessed on 3 April 2019).
- Huber, Toni. 2005. Antelope Hunting in Northern Tibet: Cultural Adaptations to Wildlife Behavior. In *Wildlife and Plants in Traditional and Modern Tibet: Conceptions, Exploitation, and Conversation*. Edited by Alessandro Boesi and Francesca Cardi Milan. Memorie della Societa italiana di Scienze Naturali e del Museo Civico di Storia natural di Milano. vol. 33, pp. 5–17. Available online: <http://www.cwru.edu/affil/tibet/booksAndPapers/Antilope.hunting.in.northern.Tibet.pdf> (accessed on 5 April 2019).
- Jaksch, Walter, and Erich Glawischnig. 1990. *Klinische Propädeutik der Inneren Krankheiten und Hautkrankheiten der Haus- und Heimtiere*. Berlin und Hamburg: Verlag Paul Parey.
- Jäschke, Heinrich August. 1985. *A Tibetan-English Dictionary*. London: Routledge and Kegan Paul. First published 1881.
- Karmay, Samten G. 1975. A General Introduction to the History and Doctrines of Bon. *Memoirs of the Research Department of the Toyo Bunko* 33: 171–218.
- Kunz, Marcellus. 1992. Ein Pferdekundlicher und Pferdeheilkundlicher Text aus Tibet. Dissertation, Faculty of Veterinary Medicine, München.
- Kuznetsov, Bronislav I. 1966. *Rgyal Rabs Gsal Ba'i Me Long (The Clear Mirror of Royal Genealogies)*. Leiden: Brill Verlag.
- Maurer, Petra Helene. 2001. *Handschriften zur tibetischen Hippatrie und Hippologie*. Results of the Nepal German Project on High Mountain Archaeology, Part V. Beiträge zur Zentralasienforschung 8. Bonn: VGH Wissenschaftsverlag GmbH.
- Maurer, Petra. 2006. Pferde haben keine Flügel mehr. Das Kapitel über die Lage der Körperteile eines Pferdes aus einem hippologischen Traktat des Nakula. *Sudhoffs Archiv* 90: 106–19. [PubMed]

- Maurer, Petra. 2013. Pferderennen und ihre Bedeutung in Tibet. In *Nepalica-Tibetica: Festgabe für Christoph Cüppers*. Edited by Franz-Karl Ehrhard and Petra Maurer. Beiträge zur Zentralasienforschung 28. Andiastr: International Institute for Tibetan and Buddhist Studies, vol. 2, pp. 57–74.
- Maurer, Petra. 2015. A ritual from Mustang on the suppression of sri. In *Bulletin of Tibetology*. Edited by Anna Balikci-Denjongpa and Marlene Erschbamer. Special issue. Buddhist Himalaya: Perspectives on the Tibetan Cultural Area 51, no. 1 and 2. pp. 71–98.
- Maurer, Petra. 2017. Feces and the Old sole of a Shoe: Remedies of the Dreckapotheke. *Asiatische Studien/Études Asiatiques* 71: 1247–92.
- Maurer, Petra. 2018. Lexicography of the Tibetan Language with Special Reference to the “Wörterbuch der tibetischen Schriftsprache. *Rocznik Orientalistyczny* 2: 118–45.
- Maurer, Petra. 2019. Horse and Social Status or How to Assess the Quality of a Horse. *Revue d'Étude Tibétaine “Reflections on Social Status in the Tibetan World”* 49. Available online: http://himalaya.socanth.cam.ac.uk/collections/journals/ret/pdf/ret_49_08.pdf (accessed on 25 May 2019).
- Maurer, Petra, and Angela von den Driesch. 1999. “Das hilft; das ist gut”. Pferdebücher aus dem tibetischen Himalaja. *Sudhoff's Archiv* 83: 73–108. [CrossRef]
- Maurer, Petra, and Angela von den Driesch. 2006. Tibetan ‘Horse Books’ from the High Himalayas. In *Horses and Humans: The Evolution of Human-Equine Relationships*. Edited by Sandra L. Olsen, Susan Grant, Alice M. Choyke and László Bartosiewicz. BAR International Series 1560. Oxford: Archaeopress, pp. 355–61.
- Meulenbeld, Jan G. 2000. *A History of Indian Medical Literature*. Groningen: Egbert Forsten, vol. IIA Text, vol. IIB Annotation.
- De Nebesky-Wojkowitz, René. 1993. *Oracles and Demons of Tibet. The Cult and Iconography of the Tibetan Protective Deities*. Kathmandu: Tiwari's Pilgrims Book House. First published 1956.
- Ohnuma, Reiko. 2017. *Unfortunate Destiny. Animals in the Indian Buddhist Imagination*. New York: Oxford University Press.
- Olivelle, Patrick. 2013. *King, Governance, and Law in Ancient India: Kautilya's Arthaśāstra. A new Annotated Translation*. New York: Oxford University Press.
- Parfionovitch, Yuri, Gyurme Dorje, and Fernand Meyer. 1992. *Tibetan Medical Paintings. Illustrations to the Blue Beryl Treatise of Sangye Gyantso (1653–1705)*. London: Serindia Publications.
- Blo bzang bstan 'dzin. 1987. *Drang srong chen po sha li ho tras yang dag par bsdus pa'i rta'i tshe yi rigs byed mtha' dag rjes su bstan pa*. Lhasa: Bod Ljongs mi dmangs dpe skrun khang.
- Sax, Borira. 2011. What is this Quintessence of Dust? The Concept of ‘Human’ and its Origin. In *Anthropocentrism. Humans, Animals, Environments*. Edited by Rob Boddice. Leiden: Brill, pp. 21–36.
- Schaeffer, Kurtis. 2011. New Scholarship in Tibet, 1650–1700. In *Forms of Knowledge in Early Modern Asia. Explorations in the Intellectual History of India and Tibet, 1500–1800*. Edited by Sheldon Pollock. Durham and London: Duke University Press, pp. 291–310.
- Schäffer, [Johann]. 1986. Zur Semiotik und Diagnostik in der Pferdeheilkunde der Spätantike. *Pferdeheilkunde* 2: 139–60. [CrossRef]
- Schmithausen, Lambert. 1997. The Early Buddhist Tradition and Ethics. VI. The Status of Animals. *Journal of Buddhist Ethics*. Available online: <http://online.sfsu.edu/rone/Buddhism/BuddhismAnimalsVegetarian/animalstatus.html> (accessed on 8 April 2019).
- Schneider, Ulrich. 1978. *Die großen Felsenedikte Aśokas*. Wiesbaden: Harrassowitz.
- Smith, Paul Jakob. 1991. *Taxing Heaven's Storehouse: Horses, Bureaucrats and the Destruction of the Sichuan Tea Industry*. Harvard-Yenching Institute Monograph Series 32; Cambridge (Massachusetts) and London: Harvard University Press.
- Sørensen, Per. 1990. *Divinity Secularized. An Inquiry into the Nature and Form of the Songs Ascribed to the Sixth Dalai Lama*. Wiener Studien zur Tibetologie und Buddhismuskunde 25. Wien: Arbeitskreis für tibetische und Buddhistische Studien.
- Sørensen, Per. 1994. *The Mirror Illuminating the Royal Genealogies. An Annotated Translation of the XIVth Century Tibetan Chronicle: rGgyal Rabs Gsal ba'i me Long*. Asiatische Forschungen Band 128. Wiesbaden: Harrassowitz Verlag.
- Tonutti, Sabrina. 2011. Anthropocentrism and the Definition of ‘Culture’ as a Marker of the Human/Animal Divide. In *Anthropocentrism. Humans, Animals, Environments*. Edited by Rob Boddice. Leiden: Brill, pp. 183–99.

- Von den Driesch, Angela, and Joris Peters. 2003. *Geschichte der Tiermedizin, 5000 Jahre Tierheilkunde*. Stuttgart and New York: Schattauer.
- Würthner, Isabella. 2016. A Preliminary Study on the Function, Anatomy and Origin of the Term *bsam-sevu* in Tibetan Medical Literature. *Curare. Zeitschrift für Medizinethnologie. Journal of Medical Anthropology* 39: 42–55.
- Yoeli-Tlalim, Ronit. 2014. Medicine, Astrology and Divination. In *Bodies in Balance: The Art of Tibetan Medicine*. Edited by Theresia Hofer. New York: Washington University Press, pp. 90–104.



© 2019 by the author. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).