

Greek and Chinese Horse Medicine: Déjà vu All Over Again

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The Chinese have always had mixed feelings about the horse. It was a source of great pride for them during such periods of national greatness as the Han 漢 (206 BC–220 AD) and Tang 唐 (618–906); the former with its magical Ferghana horses known from literary descriptions and tomb art; the latter with pedigree dancing horses celebrated by the poets of the time.² But at the same time the horse was also a symbol of weakness even during the periods when it was most celebrated. The Chinese have, for much of their history, lacked adequate horse pasture to keep their horses, no matter how esteemed, healthy and active. Alfalfa a hay crop in much of the world, and the most ancient recorded feed given to horses, was an early introduction, but it was never grown widely enough nor was it suitable for cultivation everywhere. Other feeds were even rarer. Oats, for example, often the feed of choice for war horses in Medieval and Early Modern Europe, were completely unavailable in old China.³

There was an added issue in so far as the Chinese caring for their horses: veterinary medicine was little studied and little developed. In this respect China lagged far behind the contemporary West, the Middle East and India. Much of the veterinary medicine that they did have, it will be suggested, was apparently imported.

The many military problems of the Song Dynasty 宋 (960–1279), particularly Southern Song (1125–1279), reflect the difficulties the Chinese had in maintaining and caring for horses. The Song mobilized far larger and technologically better equipped armies than their Mongol rivals but was defeated again and again as they tried to defend fixed fortresses against a highly mobile enemy.⁴ Part of the problem was a physical lack of horses, but Song attitudes towards the kind of specialized knowledge represented by horse managers and horse veterinarians were also an issue. After the failure of the reforms of Wang Anshi 王安石 (1021–1086) and his allies, the only knowledge that truly mattered was Confucian. All military knowledge, including veterinary knowledge used for the care of battle horses, was suspect. Also, bold cavalry or other movements were not a part of Song strategy. Thus, Song horses were neglected and of little use to its embattled armies.

In this paper we will explore one aspect of China's veterinary history, its key horse medicine, and some of the ideological issues associated with it, and we will suggest some of the major convergences with Western and Middle Eastern traditions. We will also suggest that

- 1 We would like to thank Gene Anderson and Philippa Alderton for reading and criticizing earlier drafts of this paper. Needless to say, all errors are strictly our own.
- 2 For an introduction to the horse in China see Bill Cooke, ed., *Imperial China, The Art of the Horse in Chinese History*, Exhibition catalogue, Lexington: Kentucky Horse Park, 2000, and for Tang the relevant sections in Edward H. Schafer, *The Golden Peaches of Samarkand*, Berkeley: University of California Press, 1963. The whole history of the horse and of horse medicine in China will be the subject of our forthcoming book, *The Horse and the Origins of Horse Medicine in China*.
- 3 On the problems of obtaining, transporting and maintaining horses during Northern Song (960–1125) see Paul Smith, *Taxing Heaven's Storehouse: Horses, Bureaucrats, and the Destruction of the Sichuan Tea Industry, 1074–1224*, Cambridge, Mass., and London: Harvard University Press, 1991.
- 4 See the summaries and discussions of the Song-Mongol wars in Paul D. Buell, *Historical Dictionary of the Mongolian World Empire*, Lanham, Md., and Oxford: The Scarecrow Press, Inc. (Historical Dictionaries of Ancient Civilizations and Historical Eras, No. 8), 2003.



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while Chinese horse medicine developed in characteristically Chinese ways, it did so with major and fundamental borrowings from many other traditions, most probably Greek, including Greek medicine as mediated by Arabic translations, of which there were a great number.

Chinese Horse Medicine: The Sources

Veterinarians are among those medical officials mentioned in the *Zhouli* 周禮, a work, essentially, of Han 漢 times, but relating to late Zhou 周 (1122–256 BC).⁵ There are also hints of specialized knowledge dealing with horses in particular in other sources (e. g., the Bo Le 伯樂 tradition found in the *Zhuangzi* 莊子).⁶ Nonetheless, the vast bulk of the available veterinary literature is quite late. The most important works date only from the Ming 明 Dynasty (1368–1644).

The earliest surviving veterinary texts are a few stray horse recipes found among Dunhuang 敦煌 documents largely from Qin 秦 (255–206 BC) and Han 漢 times.⁷ They indicate that treatment was overwhelmingly herbal, which would parallel the main focus of Chinese medicine for humans down to the present as well. Later, the popular 6th century manual *Qimin yaoshu* 齊民要術 included its selection of veterinary recipes.⁸ They were not just for horses, but for other animals, as well.

In these early texts, a clear development is evident. For the first time in Chinese veterinary medicine, although possibly not in human,⁹ bleeding and cauterization are called for, although bleeding and cauterization are clearly not the treatments of choice. The treatments of choice remained herbal.¹⁰ There is also some evidence that a theoretical system was either being

- 5 Angela von den Driesch, and Joris Peters. *Geschichte der Tiermedizin, 5000 Jahre Tierheilkunde*, 2nd edition, Stuttgart and New York, Schattauer, 2003, 59.
- 6 Wang Shishun 王世舜 et al., editors, *Zhuangzi yizhu* 莊子譯注, Shandong jiaoyu chubanshe 山東教育出版社, Jinan 濟南, 1983, 159–167.
- 7 See Xie Guihua, “Han Bamboo and Wooden Medical Records Discovered in Military Sites from the Northwestern Frontier Regions,” translated by Vivienne. Lo, in Vivienne Lo and Christopher Cullen, eds. *Medieval Chinese Medicine: The Dunhuang Medical Manuscripts*, London and New York: RoutledgeCurzon (Needham Research Institute Series), 2005, 78–106
- 8 See the full translation of the horse portions of the veterinary texts in David Ramey and Paul Buell, “Equine Medicine in sixth Century China: *Qimin yaoshu*,” in Peter Rosedale and Rachel Green, editors, *Guardians of the Horse*, II (2001), 154–161
- 9 All this depends upon when the texts currently making up the *Yellow Thearch's Inner Canon* were written. A Han date is claimed but existing versions go back no farther than Song or Tang. On bleeding in these texts see Epler, D.C., “Blood-letting in Early Chinese Medicine and its Relation to the Origin of Acupuncture,” *Bulletin of the History of Medicine*, 54 (1980), 337–367.
- 10 The following are typical of the horse recipes in the text (Ramey and Buell, 2001, with minor corrections):
 Recipe for horse sweat chill: Take a *sheng* 升 [Chinese pint] of fermented black beans prepared with ginger, and a *sheng* of “good” [distilled?] liquor (in the summer put it into the sun, heat in the winter). Soak the fermented black beans and make a juice. Take hold with the hands. [Squeeze] filter to remove the dregs. Irrigate the mouth of the horse with the juice. If a sweat is produced, the horse will then recover.
 Treating a horse when the excrement and urine do not pass: the horse cannot sleep and is going to die and one must treat it quickly. If there is no treatment, the horse will die in a day. Daub the hand with fat. Seek for grain in the alimentary canal. Remove the impacted feces. Put salt into the urinary tract of the horse. It will quickly be able to urinate. The condition will then have to get better.
 Recipe for treating cattle stomach swelling when the animal is going to die: Take a woman’s pubic hair. Wrap in grass and give it to the animal to eat. It will then recover. This is to treat *qi* 氣 swelling.

developed for veterinary medicine or, more likely, that the strictures of human medicine were now being applied to animals, primarily in several references to *qi* 氣. Still, such references are still a very minor tradition in the *Qimin yaoshu* 齊民要術, although not the case later.

Where the “new” ideas in the text came from is unclear. The obvious source is the application of the human medicine of the time to animals. Furthermore, a good deal of that medicine may have been imported. The Toba Wei 魏 (386–535) period, during which the *Qimin yaoshu* 齊民要術 was written, was not only a time of foreign rule in north China, but was also one of great foreign influence, especially through the medium of Buddhism. Buddhism was associated with its own healing paradigm through its Buddhas and Bhodisattvas but also with Indian Ayurvedic¹¹ and other Western medical traditions. How much that was new entered China at the time is still unclear. Nevertheless, the cauterization called for in *Qimin yaoshu* recipes, for example, had little or nothing to do with moxocautery, the indigenous tradition of cauterization already established in China. Instead it may represent something entirely novel, an introduction from somewhere else.

During the period after the appearance of the *Qimin yaoshu*, specialized veterinary texts are known to have existed, since they are mentioned in bibliographies. Unfortunately, none appear to have survived, except perhaps as fragments in later sources.¹² Veterinary information does occur in other sources in passing, for example, in at least one Song military manual.¹³ Nonetheless, with the possible exception of an early treatise on camel medicine, which apparently only survives in late, edited form,¹⁴ the first surviving work in Chinese specifically devoted to veterinary medicine only dates from 1384. This is the *Simu anji ji* 司牧安驥集 (*SMAJJ*), “Collections for Pacifying Stallions when Administering Flocks.” This book is actually not a single work, but a compendium of texts of various sizes from various periods. Judging from internal evidence, most of the texts are apparently from the 11th and 12th centuries but some may be later. In particular, some of the individual texts show the signs of the developed correspondence theory that first came to fruition in human medicine during late Song, Jin 金 (1125–1234) and Yuan 元 (1260–1369) times. Most of the texts are probably northern in origin (China was disunited at the time) although some, probably those added last, may have been Southern Song.

The *SMAJJ* has a preface dating from 1135 but this text is not the original preface for the compendium. Rather this preface has simply been reproduced from another work, a collection of horse recipes (which the existing *SMAJJ* is not) with a similar name, the *Anji ji* 安驥集, purporting to be a new edition of an earlier work, the *司牧安驥集方*, “Recipes of the Collection for Administering the Pasturing and Pacification of Stallions,” under the auspices of the Qi 齊 Dynasty of Shandong 山東. This was a Jin 金 Dynasty (1125–1234) puppet state.

11 Just how strong this tradition is has now been shown by Chen Ming 陳明. See Chen Ming, *Yishu yaofang: chutu wenshu yu xiyu yixue* 異殊藥方出土文書與西域醫學, Beijing 北京, Peking University Press, 2005. I am extremely grateful to Prof. Chen for providing me with a copy of his outstanding study.

12 See, as an introduction, the discussion in Zhou Jiezheng 鄒介正, “Tangdai di zhenlao shu 唐代的針烙術,” *Nongshi yanjiu jikan* 農史研究集刊, volume 3, 1960.

13 See von den Driesch and Peters, 2003: 60.

14 Discussion in Herbert Franke, “Zur traditionellen Kamelheilkunde in China,” *Sudhoffs Archiv*, 81, 1 (1997), 84–98. We do not share Franke’s views on the early dating of this text.

Preface to the Newly Printed and Revised *Anji Ji* 安驥集

The Military Department of the Secretariat, [on] Fuchang 阜昌 fifth year [1135], 11th month, 24th day, authorized the central dispatch of the instructions of Feng Changning 馮長寧, the memorializing-the-court irregular grandee, secretary of the Population Department of the Secretariat, simultaneously acting vice-president [of the Department], and acting vice-president of the Military Department and others, to be communicated to the Chief Ministry [Executive Council]. The Gentleman-of-Perfected-Loyalty Imperial City Administration authorized the dispatch of the acting Chief Governing Official of the Chief General Administration, simultaneously Acting Commander of the Foot and Horse Before The Imperial Tent, Lu Yuanbao 盧元寶, to present as a petition the *Simu Anji Ji Fang* 司牧安驥集方 [“Recipes of the Collection for Administering the Pasturing and Pacification of Stallions”] in four books. An edict of Qi was received permitting it and that there was to be careful attention to publishing and distributing the book. This was a priority regulation. Chang[ning] and the others had reviewed the Zhouli Xia Kuan 周禮夏官 [“Summer Officers of the Zhou Rituals”]. The offices of breeder, shaman, herdsman, intendent, and groom were set out and compared. Spoken of there was taking advantage of the number of lictors, stables, intendents, the business of cutting hay, feeding horses grain, and of abundant breeding, taking advantage of the suitabilities of regulation, medicine and nurture, along with the rituals of offerings and sacrifices, and the seasons of attack and planting. Each was regulated in detail. The *Liji Yueling* 禮記月令 [“Monthly Regulations of the Record of Rituals”] also records the administration of horses of various colors: now at the time of nurturing to maturity during middle summer, they therefore herded separate herds [while] wandering. They tied up mounting colts, in order to distribute the administration of abundant breeding. At the time of early autumn forbidding air, they therefore taught hunting and field sports and practiced the five weapons. They therefore distributed the administration of military affairs. This is because knowledge of horses is something of great use for the dynasty, and is a precondition for warfare. Ma Yuan 馬援 said: the horse is the root of military power. Shi He 史和 of Tang said: the horse is required for the military. Inquiring about ancient profit or loss of horses, difficulties were due to the times. It was also a matter of herding and nurturing finding the right method. At the beginning of the Han 漢 period, due to the Son of Heaven being unable to provide good teams of horses, generals and ministers sometimes had to ride ox carts. When they advanced an order to go to war and renew troops, the people with horse transportation were to muster three soldiers, and they also trained pack horses for broad use. By the beginning of the time of Emperor Wu [Wudi 武帝 of Han 漢], market places and markets had horses, highways in every direction gave rise to herds, [stallions] mounting mares was arranged and they could not throng. During that time Dongmen Jing 東門京 created a copper horse method. The emperor ordered that it be set up in the Golden Horse Gate [Jinma Men 金馬門]. After that, [Ma] Yuan and Dong were good at distinguishing famous horses. Ma Yuan obtained in Jiaozhi 交趾 [northern Vietnam] the bronze drums of the Loyue 駱越. They were cast in the form of horses. Various bone physiognomists were called. The emperor ordered that they be positioned below the Xuande 宣德 Palace. At the beginning of Tang 唐 they got 1,000 Turkish horses. They also got Sui 隋 horses at Chianze 赤岸澤. After the Zhenguan 真觀 period [of Tang, 627–650], 700,000 horses were positioned in 8 subdivisions. The horses of the 8 subdivisions had 48 inspectorates. Because of this there were officials administering the herding of mares, herd herding, and stables. After Zhang Wansui 張萬歲 lost his office, [Tang] horse administration was gradually abolished. When Wang Maozhong 王毛仲 held the office, the horses were gradually restored. They were initially 240,000, but by the 13th year [of the Zhenguan 真觀 period] they were 430,000. After the Tianbao 天寶 period [of Tang 唐, 742–756], the military horses of the various armies existed in the tens of thousands. Someone think-

ing about this would say: From Qin 秦 and Han 漢 on down, [horses] were greatest in number under the Tang. Although it cannot be otherwise that profit and loss is due to the times, it is all the more a matter of herding and nurturing finding the right method! After our dynasty succeeded perished Song 宋, with the masses in the remnants of mud and ashes, wearing thorns and brambles, washing sores and ulcers, raising wood and fire and putting aside wolf and tiger, there has been no choice but to avail of weapons to pacify the people and bring the masses into harmony. Among the roots of a strong army, cavalry is foremost. Therefore officials were sent to purchase horses in Lungyou 隴右 [Kansu 甘肅]. Bonds and ties [on horses] arrived successively. The numbers of horses gradually became manifold. In addition, there was consideration of bearing and giving birth not on the basis of breeding. The emperor issued an edict to regulate horse administration. There was first an order that the authorities pay careful attention to the printing of the *Simu Anji Ji Fang*, in order to propagate it widely so that it may be that [horse] marketers will examine it in order to know worn out horses and stallions, veterinarians will investigate it in order to use drenches and needling, herdsmen will look at it in order to accord with the arrangement of water and herbs. Aiding the advantages of those managing like this, the methods for regulating horses will then not just be discussed in the *Zhouguan* 周官, and herding in good order and abundant herding will not be especially fine in terms of the Tang period. Now we revise and write out to create printing blocks to deliver to the emperor, requesting that there be careful deliberation and that they be sent down to print and distribute the book. Our ministry subsequently memorialized and petitioned everything and placed the memorials and petitions before the emperor. A Qi 齊 edict was received and we have acted in accordance with it (*SMAJJ*, Zhonghua shuju 中華書局, Beijing 北京, 1957: 5–6).

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The *SMAJJ* also includes a text with its own preface dating to 1192,¹⁵ indicating that the present edition continued to gather parts, probably down to the time that it was published in early Ming (1368–1644) times, even though a great deal of the material in it is clearly much older.

What is most interesting about the texts in the *SMAJJ* is the clear evidence within for the development of Chinese veterinary medicine over time, equally clear indications of the increasing application of human medical theory to animals, and the unmistakable dominance of ideology over practical science. For example, the Confucian system of organs and bodily systems known from the *Yellow Thearch's Inner Canon* is applied to the horse in several texts contained in the collection including discussion of the horse gall bladder. However, horses lack gall bladders, indicating that the interest here is primarily ideological rather than medical.¹⁶

Conspicuously absent from the *SMAJJ*, and for that matter, from all pre-modern Chinese horse veterinary texts is any reference whatever to what even remotely can be considered acupuncture, (despite claims of its antiquity in animal practice in China). The term *zhen* 鍼, “needling,” (better “incision,” “penetration”), incorrectly translated “acupuncture” as a mat-

15 *SMAJJ*, 179–180.

16 The Chinese certainly did dissect animals, including horses, as is clear from points made in the veterinary manuals, and knew better but persisted in this error. A parallel in human medicine is the excellent anatomical knowledge evident from Chinese forensics texts, also based upon real looks at the body, but without any equivalent whatever in the official anatomy of the *Yellow Thearch's Inner Classic*, for example. See Joseph Needham and Lu Gwei-Djen, edited by Nathan Sivin, *Science and Civilization in China, Volume 6: Biology and Biological Technology, Part VI: Medicine*, Cambridge: Cambridge University Press, 2000, 175–200.

ter of course, *is* used to describe insertions for purposes of cauterization and bleeding, and later, major and minor surgeries. Acupuncture is totally absent in one of the more important texts found in the *SMAJJ*, the *Bo Le zhenjing* 伯樂鍼經, “Bo Le’s Needling Classic,” to be discussed in more detail below. Also found in the *SMAJJ* is very short *Bo Le Hualuo tu ge jue* 伯樂畫烙圖歌訣, “The Song Secrets of the Diagram of Bo Le’s Branding,” which is very similar to material found in veterinary works from the Western world, as will also be seen below.

Following the *SMAJJ*, Chinese works on veterinary medicine become far more abundant. An important, but relatively short, Korean text, written in Chinese, from the end of the 14th century is the first separate treatise, as opposed to collection, on horse medicine to survive.¹⁷

The most important of all Chinese horse texts to survive, the *Yuan Heng Liaoma ji* 元亨療馬集 (*YHLMJ*), “Yuan and Heng’s Collection for Treating horses,” was first published in 1608, and is supposedly the work of two brothers who were horse specialists. In fact, this is not likely to have been the case as the Korean scholar Kang Myun Hee 姜冕熙 has shown.¹⁸ The *YHLMJ* as it exists today is actually a new edition of an earlier text that lacked any reference to Yuan and Heng, the two brothers who supposedly offer their lore in the manual. Although emphasized in the preface to the 1608 edition, this fraternal tradition is suspect not only because the collection seems to have been circulated previously, simply as the *Liao ma ji* 療馬集, “Collection for Treating Horses,” but also because the two characters Yuan 元 and Heng 亨 can be taken as a reference to the Qian 乾 chapter¹⁹ of the *Yijing* 易經, “Book of Changes.” In any case, the book is unlikely to be derived from the veterinary practices of two known individuals, as tradition holds, as it had circulated before the attribution to the two brothers and has been compiled from a variety of existing sources.

Spurious attribution notwithstanding, the collection is an extraordinarily rich work. It is in six books and includes detailed discussion of such topics as horse physiognomy; horse whorl lore, a kind of divination based upon close examination of the configurations assumed by a horse’s hair that is also found outside of China;²⁰ horse diagnosis and physiology; horse pathology, including a consideration of the eye diseases of the horse; taboo and propitious days for treatment; correspondences; and a huge section, comprising all of books 3 and 4, on specific horse conditions and the treatments preferred for them. At the end of the book, there is also a detailed listing of herbal medicines and preparations and their specific applications, just as occurs in contemporary Islamic treatises that may have provided a model. Among such treatises is the Chinese *Huihui yaofang* 回回藥方, “Muslim Medicinal Recipes,” a Ming copy of a Yuan encyclopedia once comprising nearly 5000 large manuscript pages and once

17 The text in question is the *Xinbian jicheng mayi fang* 新編集成馬醫方, “Newly Printed and Collected Recipes for Horse Medicine,” republished in China in 1634, later in Japan, but originally published in Korea, in 1399. The authors are given as (reading their names in Chinese) Quan Zhonghe 權仲和 and Han Shangjing 韓尚敬.

18 Kang Myun Hee 姜冕熙, “Kankoku jūigaku genshi to Kanpo jūigaku no eikyō 韓國原始獸醫學と漢方獸醫學の影響,” *Nihon Jūishigaku Zasshi* 日本獸醫學雜誌, 23, March 1988, 34–45.

19 The Qian chapter, the first in the book, begins: *Yuanheng li chen* 元亨利真, “the originating benefits the propitious.” In this case the “originating” refers to the originating of the 10,000 things, particularly those comprising part of the biological world. Despite the preface to the 1608 edition, it is unlikely that any literate Chinese would have failed to note the reference.

20 See, for example, von den Driesch and Peters, 2003: 68.

including just such a detailed listing of *material medica* as we know from a surviving table of contents to the second half of this otherwise fragmentary work.²¹

More prominent in the *YHLMJ* than in the *SMAJJ* are references to needling of every sort although, again, nothing that is recognizable as acupuncture. Despite the fact that there is evidence of an effort made to accord treatment with the same kinds of theories found in acupuncture treatises, such theories, judging from a detailed consideration of the practice sections of the collection, find no real application here. Basically, three types of “needling” are called for: cutting for purposes of bleeding, application of cauterization tools (“fire needling”), and “miraculous needling,” that is, surgical intervention, some of it quite major. Specific portions of the collection dealing with “needling” include a discussion of needling points (*mingtang* 明堂, the human term) attributed to Bo Le 伯樂 (*Bo Le mingtang lun* 伯樂明堂論), followed up by large illustrations showing points for fire needling, bleeding, branding, and surgical intervention, as well as a Needling Point “Song,” summarizing the points. Also included is a picture of the three *yin* 陰 and three *yang* 陽 points having a connection with internal systems, paralleling Western and Indian ideas, and a consideration of propitious days for horse treatments such as bleeding (such consideration is a major area of interest in the text). Later in the text, there are several other sections concerned with “needling,” including a detailed discussion of all the needling points on a horse and general principles for needling, and another section on ten special positions on a horse or “gates” for an unspecified kind of needling, presumably for cauterization or bleeding, which was general practice in the other sources of the time.

Later, in the 18th century, an entirely new edition was made of the *YHLMJ*. This is the edition that is still in general use today (the Ming first edition is extremely rare). Editions based on this new edition have continued to be made down to the present each, as a rule, with changes to suit different times, making the use of modern editions of the text problematical at least. The 18th century reworking was by Guo Huaixi 郭懷西 and was published in 1732 in his collection *Xinke zhushi ma niu to jing da quan ji* 新刻注釋馬牛駝經大全, “Newly Printed and Annotated Horse, Ox, and Camel Classics.”

Another major horse text of the Ming period is the *Xinke ma shu* 新刻馬書, “Newly Printed Horse Book,” from 1594, by the Ming literatus Yang Shiqiao 楊時喬 (d. 1609), who is also the author of a treatise on Ming horse administration, the *Mazheng ji* 馬政記, “Record of the Horse Administration.” While the latter work is mostly devoted to official pronouncements on the subject, this not the case with the “Horse Book.” Yang’s “Horse book” is in 13 books and does not come down to us complete. The text is highly literary and is replete with quotations from classical sources and copies out whole documents in some cases. Topics discussed include physiognomy and general aspects of judging horses, general methods for treatment, correspondence theory (the fullest discussion of this in the veterinary literature), physiology, pathology, diagnosis, and bleeding and cauterization, with some consideration of specific pathologies. Book 12 is lost and book 13 is in fragments only; the latter deals with the treatment of donkeys. One chapter reproduces a treatise on “difficult issues” already known from the *SMAJJ*.²² Throughout the book, where treatment is called

21 Kong, S.Y. 江潤祥, et al., *Huihui yaofang* 回回藥方. Hong Kong: Hong Kong Zhong Bianyi Yinwu Youxian Gongsì 香港中編譯印務有限公司, 1996

22 This is the *Zaofu Bashi yi Nan Jing* 造父八十一難經, “Father Zao’s Classic of 81 difficult issues,” in the form of poetic couplets.

for, the emphasis is herbal. Bleeding and cauterization is more prominent than in the Korean *Xinbian jicheng mayi fang* 新編集成馬醫方 of 1399, for example, possibly indicating that this form of treatment, which is also important in the *YHLMJ*, had gained in its acceptance.

These texts, including major revisions, as in the *YHLMJ*, set the tenor of Chinese horse medicine down to the present. Their style is also closely imitated by a rich manuscript tradition, including the texts from various periods collected by David Ramey. In fact, little changed in China in the basic treatment of horses until the introduction of modern veterinary practices under the Nationalist and Communist regimes, including, from the 1960s, the first true veterinary acupuncture practiced in China. This has since been taken up not only in China but throughout the world including the United States and Europe, where it has achieved some popularity.²³

Horse Medicine in the West (and Connected Parts)

Initially, China had little to draw upon but itself in creating its horse medicine. Later, as we will suggest, China borrowed from foreign traditions, probably drawn from Eurasian competitors and distant cultures situated along the Silk Road. Conversely, Western veterinary medicine has far deeper roots. The earliest surviving Western texts are Egyptian and from Mesopotamia,²⁴ where we know quite a bit about an early “cattle doctor.” Many of the later mainstream practices, including cauterization and apparently some bleeding, were already established in both Egypt and Mesopotamia.²⁵ Nonetheless, most of what we know about veterinary medicine in the ancient world comes to us through Latin and Greek texts, including foreign adaptations of the latter in Arabic and other languages.

Greek horse medicine was apparently alive and well in Hellenic times, and may go even farther back. There are also a few general texts dealing with keeping horses from early times. The first mention of *hippiatroi*, “horse doctors,” is only in an inscription of *circa* 130 B.C.²⁶ Most of the existing sources are much later although the material in them is clearly much older, as citations of many earlier authors make clear. In addition, the general context in which Greek horse medicine was practiced has so many assumptions in common with the Greek schools of human medicine associated with Hippocrates of Cos (?460–?377 BC) and his school that common roots, not just borrowings, are suggested.

Above all, what survives today reflects the difficult environment of Hellenistic times, an era of warfare and turbulence when so much was lost, including most early veterinary literature, and the reality of Imperial Rome as a major consumer and compiler of veterinary

23 Actually, the use of acupuncture on animals appeared in Europe before it appeared in China, in the early 19th century and veterinary acupuncture, like human acupuncture, has been heavily influenced by French physicians and ideas. We hope to examine this topic in a separate paper.

24 Johann Schäffer, “Abil-ilišsu – “Rinderarzt” in Sippar, Babylonien (um 1739 v. Chr.),” in Cornelia Becker, Henriette Manhart, Joris Peters, and Jörg Schibler, eds., *Historia Animalium ex Ossibus, Beiträge zu Paläoanatomie, Archäologie, Ägyptologie, Ethnologie und Geschichte der Tiermedizin, Festschrift für Angela van den Driesch zum 65. Geburtstag*, Rahden, Westf.: Verlag Marie Leidorf, 1999, 429–435

25 On the earliest animal medicine see van den Driesch and Peters, 2003: 12–37. See also Simon Hornblower and Antony Spawforth, ed. *The Oxford Classical Dictionary*. Third Edition. Oxford: Oxford University Press, 1996: 1592–93.

26 Hornblower and Spawforth, 1996: 1592

knowledge, for obvious reasons. It needed it to maintain itself and Imperial Rome was a far more permanent entity than any Hellenistic kingdom.

While there were a few noteworthy exceptions, Apsyrτος of Prusa (middle-third, to early fourth century), a Greek servicing the late Roman emperors, being the best known, most early Western horse doctors were amateurs and not even horse specialists (in fact, mules and donkeys, not horses, were the real focus of Roman veterinary medicine). Nor was there a consistent body of veterinary knowledge that could be passed on. For example, special schools, set aside for the purpose, simply did not exist. Such a body of knowledge and specialized schools of veterinary medicine are, in fact, an entirely modern idea. As Adams²⁷ makes clear when speaking of the Roman world, most veterinarians were not professionals; some were little more than owners of prized horses and other animals; however, those working for the Roman army generally worked on a full-time basis and amassed considerable skill. And although veterinary lore, judging from the surviving texts, was anything but a consistent body of knowledge, there was, nonetheless a usable literature. Much of it was quite well done, as the surviving Byzantine selections of various Greek veterinary writers make clear.

In Greece, horse medicine seems to have been closely associated with the general literature on horsemanship that dates back to the 5th century B.C., or earlier. Among early Greek exponents were Simon of Athens, whose work is now lost save for a small excerpt in a Byzantine manuscript, and Xenophon and Aristotle, including the extensive material relating to all domestic animals in the latter's *Historia Animalium*. Real veterinary works seem to have appeared no later than the end of the Hellenistic period but only quotations survive now, mostly in various Latin works, in encyclopedias, and in works on agriculture, of which there is a rich tradition in Latin.

The first substantial Greek veterinary texts to survive, all obviously the product of a well-established and long tradition, are reproduced in the early Byzantine collection known today as the *Corpus Hippiatricorum Graecorum* (CHG).²⁸ These texts date to middle and

27 Adams, J. N., *Pelagonius and Latin Veterinary Terminology in the Roman Empire*, Leiden, New York, Köln: E. J. Brill, 1995: 66ff and passim).

28 See Hornblower and Spawforth, 1996: 1592–93. On the various manuscripts and recensions of the CHG see Anne-Marie Doyet-Huguet. "The Hippiatrica and Byzantine Veterinary Medicine." In John Scarborough, ed., *Symposium on Byzantine Medicine*, Washington, D.C.: Dumbarton Oaks Research Library and Collection (Dumbarton Oaks Papers number 38), 1984, 111–120. See now also Anne McCabe, *A Byzantine Encyclopaedia of horse Medicine, the Sources, Compilation and Transmission of the Hippiatrica*, Oxford: Oxford University Press (Oxford Studies in Byzantium), 2007. The currently available edition (Eugenius Oder, and Carolus Hoppe, *Corpus Hippiatricorum Graecorum*. 2 volumes. Stuttgart: Teubner, 1971 [1924–1927]) is based upon the Berlin manuscript Berolinensis Graecus 135 (Recension B), from the 16th century, and omits material, some of it unpublished, found in other recensions as well as information helpful in classifying the excerpts. A new edition is urgently needed. The Berlin manuscript reproduces excerpts from seven main Greek writers: Apsyrτος, Anatolios, Eumelos, Theomnestos, Hippocrates, not Hippocrates of Cos, Hierocles, and Pelagonius, the latter material being a Greek translation of the redactions of Pelagonius' Latin. Of these writers, Eumelos is apparently the earliest, since he is quoted by Apsyrτος. Of the others, Hierocles uses Apsyrτος extensively, and clearly came after him, as does Pelagonius who originally wrote in Latin, while Theomnestos, who also quotes Apsyrτος, was apparently a younger contemporary. Not much is known about the other two writers but the Hippocrates mentioned is clearly not the famous Hippocrates and Anatolios probably wrote during the fourth or fifth century A.D. Also found in Recension B are excerpts from an anonymous collection entitled *Prognoseis kai iaseis*, "Prognoses and Remedies," and from a veterinary work by Tiberius, who probably wrote after Apsyrτος and Anatolios,

late Roman times, from the middle or late third to the early 5th centuries. The most famous of these texts are the extensive fragments of Apsyrtos. Extensive veterinary materials from much earlier times are also contained in book 16 of the 10th century Byzantine agricultural handbook, the *Geoponica*. Furthermore, at least one of the now lost major Greek works of the same period, otherwise known only from fragments in the CHG, survives in an Arabic reworking (e.g., Theomnestus).²⁹ No doubt much other Greek material survives in Arabic literature as well, since Arabic works do not always directly indicate their sources.

Supplementing the large amount of Greek material are various Latin works. These include two redactions, one in a recently discovered and still unpublished manuscript, of the commentaries (4th century?) of Pelagonius, the title of which has not survived,³⁰ the *Mulomedicina*³¹ *Chironis*, in 10 books, a translation, not always successful, from contemporary Greek works, and probably dating from the mid- to late 4th or early 5th century, and the *Mulomedicina* in four books by Vegetius, probably dating to the late 4th century. This work later became the first printed veterinary manual in the West (Basle, 1528). Although not veterinary handbooks, various agricultural writers preserve a great deal of what is apparently Hellenistic Greek veterinary medicine. Particularly important are two dedicated works, Varro's *De re rustica* from 37 B.C., and Columella's 1st century *De re rustica*, and the substantial material in the 1st century *Historia Naturalis* of Pliny.

We are thus very well informed regarding the veterinary medicine – above all the horse medicine, a focus for obvious reasons – of late antiquity, its practitioners, amateur and a few professional, and its roots. We have a mass of original material to work with that is perhaps a thousand years older than anything equivalent in China. The information that is available indicates a clear split between those interested in theory, perhaps in addition to

and other unidentified minor texts of uncertain provenance. In addition to these excerpts, the D Recension includes texts by Julius Africanus (third century A.D.), some excerpts on human medicine, and material on horse breeding, including the only known fragment of Simon of Athens. Manuscript L of Recension D includes a short treatise on the vulture, a piece of ornithology fairly unique in Byzantine sources, and additional Tiberius excerpts. All of this material has been edited in the Oder and Hoppe edition. Recension M, the Paris manuscript, includes only the seven main Greek writers but in alphabetical order with each except clearly identified, thus providing useful information in understanding Recension B. The last, Recension RV (two manuscripts R and V), is well illustrated and includes, among other new texts, a horse medicine treatise attributed to Galen and Hippocrates, which Oder and Hoppe published only part of. Other unpublished material include various brief summary treatises or epitomes, some short discussions of chronic fever, and other specific problems including some ophthalmic material, more hippology, and a treatise of determining the age of horses (published separately).

29 See Ferruh Dinçer. "Evaluation of Veterinary Medicine with the Historical Context of the Turks," In Nil Sari, ed., *History of Medicine, Pharmacology, Veterinary Medicine in Anatolia and Turkic Cultures* (38th International Congress on History of Medicine), Istanbul, 2002, 83–110. See also Adams, 1995: 83–4.

30 As an introduction see Adams, 1995.

31 Although the first element of this term is cognate with English mule, we know from inscriptions and other sources that a *mulomedicus* was the exact equivalent to the Greek *ippiatros*, "horse doctor." Our veterinary, Latin *veterinarius*, also existed in the terminology of the time but referred only to a military officer in charge of the *veterinae* or baggage animals. In addition to *mulomedicus* as a general term, since horse doctors are in the greatest demand in any case, descriptive terms also existed in the Latin word including *medicus veterinarius*, "baggage animal veterinary," *medicus iumentarius*, "cattle veterinary," *medicus pecuarius*, "cattle veterinary," and *medicus equarius et venator*, "horse veterinary and hunter" (Walker, 1973: 312–313; Adams, 1995: 51ff).

practical medicine, and those who were primarily practical in orientation.³² Sources also seem to be split between a more scientific and factual approach and one in which magic was a primary component, or in which the scientific aspects of veterinary medicine were either misunderstood or neglected (Vegetius). Sympathetic magic played a role in almost all of the veterinary medicine of the era, even when the authors of some of the treatises tried to downplay its value in favor of a more rational approach.³³

For horses and other large animals a generalized bleeding (*depletura*), purging, clipping (of the mane), hoof care, cauterization, drenching,³⁴ and surgical intervention³⁵ where necessary, were the most common treatments, although specific responses to injuries were common as well. Almost as important were specific procedures connected with breeding and delivery of foals,³⁶ care for them just after birth, and nutritional concerns. Although not purely a medical issue, there is great attention paid to conformation, that is, determination of the quality of an animal from its physical characteristics, a form of physiognomy, in our sources. With the exception of clipping, all of this could equally be said of Chinese horse medicine except, of course, the sources for it are generally much later.

In terms of theory, and this is the case in Chinese veterinary medicine as well, what is significant is a conscious effort in the theoretical portions of surviving texts to express veterinary medicine in terms originally related to human medicine,³⁷ including the Hippocratic humoral system (e. g., in Vegetius) and Galen's anatomical principles. These human principles were generally known at the time that most of the existing veterinary literature was written, although the detailed knowledge of animals was based clearly on their dissections. The association of human theory with animal medicine was a practice that apparently started with the Greek Democritus (5th century B.C.)³⁸ and continued with Aristotle and others.³⁹ Galen also dissected animals in studying humans so that his anatomy was directly applicable and accurate.⁴⁰

Of the specific treatments employed, many, as indicated, were not in response to specific health problems of the horse, but were a part of long-term horse management. One prime example was bleeding. It was primarily performed in the spring as a means of removing "corrupted" blood and to counter chronic ailments, including such symptomatic diagnoses as indigestion, fatigue and humoral imbalances. Bleeding not only drew off the blood, but also supposedly relaxed the veins by reducing the tension and constriction created by the old blood. While bleeding was primarily from a jugular vein under these circumstances, bleeding could also be accomplished through the palate to respond to perceived tension in the head.

32 See R.E. Walker, "Roman Veterinary Medicine," in J. M. C. Toynbee, ed., *Animals in Roman Life and Art*. Ithaca, N.Y.: Cornell University Press, 1973: 302–334 (314), and Adams, 1995: 66ff.

33 Adams, 1995: 20–34.

34 See Carola Enderle, Carola. "Buch X der *Mulomedicina Chironis*. Übersetzung und Besprechung," unpublished dissertation, Ludwig-Maximilians-Universität, München, 1975.

35 See Ludwig Amann, "Ausgewählte Kapitel über Chirurgie und Pferdezucht im *Corpus Hippiatricorum Garecorum*. Übersetzung und Besprechung." unpublished dissertation. Ludwig-Maximilians-Universität, München, 1983.

36 See Lamprecht, Wolfgang, "Die geburtshilflichen und gynäkologischen Probleme in der *Mulomedicina Chironis*," unpublished doctoral dissertation. Ludwig-Maximilians-Universität, München, 1976.

37 Walker, 1973: 332–33, Adams, 1995: 34–54, 239–360, and passim.

38 Walker, 1973: 315.

39 Hornblower and Spawforth, 1996: 92, Walker, loc. cit.

40 Hornblower and Spawforth, 1996: 1610. For a detailed discussion of the anatomy of Pelagonius see Adams, 1995: 361–429.

As later in China, jugular vein bleeding took place at a specific point, in Roman times using a *sagitta*, "arrow." Penetration was carefully controlled, lest damage be done to the horse, and methods for closure were employed involving the use of dung as a plaster, cautery, and bandaging with treated or untreated wool.⁴¹

Another management technique was purging. While modern definitions of the term purging generally pertain to evacuation of the bowels, usually with medicinals (purgatives), Roman sources indicate a broader use of the term, referring to a more general evacuation of an area, sometimes using non-drug methods. This would include *purgationes capitis*, "purgings of the head," as a preventive against a great variety of ailments believed to be associated with the head, but also affecting the rest of the body. Purging could occur by bleeding or cauterization, or through sweating an animal, in a bathhouse, for example. Purging of the intestines using medicinals was common, but the nasal cavity was purged, as well. In the case of *purgationes capitis*, the primary purpose was to rid the head of the ubiquitous corrupted blood. Purging focusing on other parts of the body had much the same function. Unlike bleeding, usually done through the jugular vein or via the palate, various veins could be selected for purging, depending upon the bodily system.⁴² This is entirely like the use of bleeding in Chinese medicine.

Tonsurae, "clippings," were not just for looks but also for therapeutic purposes, since the mane was considered to sap the strength of the horse. Cutting it thus could have a beneficial effect in the ancient view.⁴³ There may be references to similar practices in the *Qimin yaoshu* 齊民要術.

Another major area of treatment was hoof care (*aptaturae pedis*). Hooves were an area to which much attention was given, by virtue of there being many hoof-related problems in horse medicine, many of which continue to this day. A common treatment was based on special ointments to sooth worn hooves, something that is also known from China. Hooves were also cut down, supposedly to strengthen the hoof, in yet another variant of purging. Various cuts were employed, some of which have been later shown to be detrimental.⁴⁴ Also, less directly, hoof care included bleedings and lancings near the hoof, sometimes with a protective shoe of iron (*solea ferrea*) or basketry (*solea spartea*). Laminitis, a serious condition involving the connections between the hoof and bone that still plagues modern horses, was described. Herbal treatments were also used.

Other treatments were those in response to specific problems: injuries, for example. Common treatments in such cases were bleeding, but also bathing and the application of medicinals to the afflicted area. Also employed was cauterization by hot iron, used to stanch bleeding and in an attempt to prevent infection of wounds (although not very effectively). Bandages were also used, some times with medicinals, including axle grease, also used for the same purpose in Chinese veterinary medicine. Fractures were also treated to the extent that they could be. Other types of injury were harness related, with heated onion poultices a treatment of choice. Still other medicines were used for calluses and sores.⁴⁵

41 Walker, 1973: 319–20, 332.

42 Walker, 1973: 320–21.

43 Walker, 1973: 321.

44 Walker, 1973: 321–22.

45 Walker, 331–332.

Among the other specific treatments for specific problems were surgical, including obvious treatments such as castration and the draining of abscesses and accumulations of intestinal fluids (see below). Other, more serious operations were also performed, including removal of the spleen in animals, mentioned by Columella. Prolapse of the rectum was also cured by surgical intervention. It is likely that other operations were performed but details are lost.⁴⁶ Surprisingly, given China's lack of a surgical tradition, much of this veterinary surgery was known there as well, although in much later sources.

The Arabs, as is well known, translated and built on all aspects of Greek medicine. Greek veterinary medicine was no exception. Through the Arabs, Greek veterinary medicine was transmitted far afield, even finding influences in India. The full details of what was involved are beyond the scope of this paper but suffice it to say here that the Arabs were well informed about the horse medicine of the Greeks and Romans. For example, at least one complete treatise was translated, an entire book by Theomnestus, which otherwise survives only in fragments in the *CHG* and elsewhere. Indeed, the Arabic translation, completed in the ninth century by Ḥunayn ibn Ishāq includes twenty chapters that do not appear in the *CHG*.⁴⁷ In general, in fact, most Arabic veterinary treatises were based heavily upon Greek and Roman knowledge, even when the debt was not directly acknowledged. Most importantly, the theoretical system of Arabic veterinary medicine is more or less identical to that of the classical West and even specific treatments, including herbal preparations were borrowed. If Greek and Roman ideas reached China, as we suspect that they did, it was most likely through the Arabs, although we cannot rule out a Tibetan agency as well since Tibetan medical treatises are very much aware of Arabic, as well as Ayurvedic medicine, and are quite early (including Dunhuang material).

Convergences between Greek and Roman and Chinese medicine are many and detailing all of them would require a large book and a lifetime of study. Here we want to give a few examples only, namely Bo Le and his bleeding and cauterization charts, and their possible Western antecedents, his branding and its parallel in the Arabic literature, and some of the surgery ("miraculous needling") found in the *YHLMJ*.

Convergences:

1. Bo Le 伯樂 and his Charts

The Man:

No one is more celebrated in Chinese veterinary myth than the famous physiognomist Bo Le 伯樂, the supposed inventor of a great many practices, including, spuriously, veterinary acupuncture. The literature associated with Bo Le's name is late, the first references appearing well over 1200 years after his death, and we have no actual work attributed to him until Ming times. While Bo Le conducts examinations and performs interventions at "points," this does not, as will be seen, have anything to do with acupuncture.

46 Walker, 1973: 333–34.

47 On the Arabic translation of Theomnestus and its Greek antecedents see Robert G. Hoyland, "Theomnestus of Niceopolis: Ḥunayn ibn Ishāq and the beginnings of Islamic veterinary science," in Robert G. Hoyland and Philip F. Kennedy, eds., *Islamic reflections, Arabic musings: studies in honour of Professor Alan Jones*, Cambridge: Gibb Memorial Trust, 2004, 150–169.

Bo Le, if he was real, probably lived in the 7th century BC, in the state of Qin 秦. Horses were becoming more and more important in Qin military life at the time, and Bo Le apparently helped care for them, thus his great posthumous reputation.⁴⁸ Be that as it may, myth seems to have grown up rapidly about Bo Le, with each era making its own contributions, turning Bo Le 伯樂 into the horse magic man of all horse magic men.

The earliest easily datable source to refer to his myth, in fact it is the earliest source to refer to Bo Le at all, is the *Huainanzi* 淮南子, “[Treatise] of the Philosopher Huainan,” a work purporting to reflect the philosophy of Liu An 劉安 (died 122 BC), Prince of Huainan 淮南, but which, like most early Chinese philosophy works, probably includes much material added after Liu An’s death. In the *Huainanzi* 淮南子, Bo Le carries on a conversation with Duke Mu 穆 of Qin (r. 660–621 BC) regarding how to choose a good horse from its external attributes,⁴⁹ an ability for which Bo Le was famous in later times as well; however, there is nothing about horse medicine in this text.

For horse medicine, we have to look at another early Chinese philosophical source mentioning Bo Le, the *Zhuangzi* 莊子. Technically, this work is older than the *Huainanzi* but the passage in question is found in the apocryphal “Mati” 馬蹄, “Horses Hooves,” chapter that may date as late as the first centuries AD, *i. e.*, probably considerably later than the *Huainanzi* passage.⁵⁰ The *Zhuangzi*,⁵¹ in any case, shows a myth that has already added many new elements. There, Bo Le is no longer simply someone who is good at recognizing good horses, but in managing them in detail, or perhaps over-managing, since his ministrations, like those of the sage, are treated as ultimately destructive to the horses involved. Nonetheless, this is the earliest Chinese text associating Bo Le with any practices that could be considered therapeutic, including, possibly, cauterization, although the reference is very unclear (the term here is *shao* 燒, “burn,” not the usual one). The same is true for the branding referred to in the same passage. This might be considered therapeutic, and this is certainly the case with the later *Bo Le Hualuo Tu Ge Jue* 伯樂畫烙圖歌訣 (“The Song Secrets of the Diagram of Bo Le’s Branding”). This will be discussed in more detail below.

By Tang 唐 times, the Bo Le myth had grown again and the bibliographical sections of the *Suishu* 隋書, “Standard History of The Sui,” written under the Tang, makes Bo Le not just a horse magic man, but an author as well.⁵² Six books, all lost, are cited there attributed to him on general equine medicine, with contents probably typical of the one early surviving set of materials on this topic,⁵³ and another book, also lost, dealt with the selection of horses. More interesting, in terms to the next stage of the Bo Le 伯樂 myth, is another work cited in the bibliography, the *Majing kongxue tu* 馬經孔穴圖, “Diagram of Openings and Indentations for the Horse Classic.”

48 At the time, the main if not exclusive focus of horse use was chariot warfare, and not riding, a fact that seems to be ignored in much of the Bo Le tradition, another indication of how late it is. For a capsule history of the horse in early China see Cooke, 2000: 29–38.

49 Chen Guangzhong 陳廣忠 editor, *Huainansi yizhu* 淮南子譯注, Zhongguo gudai mingzhu jinyi congshu 中國古代名著今譯叢書, Jilin wenshi chubanshe 吉林文史出版社, Changchun 長春, 1990, 568

50 On this chapter and its history see, as an introduction, A.C. Graham, *Chuang-tzu, The Inner Chapters*, London, Boston, Sydney: Unwin Paperbacks, 1989 (1981), 197ff.

51 Wang Shishun 王世舜 et al., editors, *Zhuangzi yizhu* 莊子譯注, Shandong jiaoyu chubanshe 山東教育出版社, Jinan 濟南, 1983, 159–167.

52 See the discussion in Zhou, 1960.

53 See Ramey and Buell, 2001.

What this diagram showed is unclear, since it is lost. Quite probably it was an early attempt to establish locations for various therapeutic interventions. If so it is extremely important in the history of Chinese horse medicine. What the “Horse Classic” mentioned is uncertain but its mention suggests that this diagram was not an independent work but was associated with a larger “Horse Classic” going into more detail. In any case, because of the 800 years that separate this earliest mention of a “needling” text attributed to Bo Le and the existing *Bo Le zhenjing*, first published in 1384, it is dangerous to assume that the later *Majing kongxue tu* is in fact the same text.⁵⁴ The connection is tenuous at best and the existing *Bo Le zhenjing*, as it now exists makes more sense taken in terms of the cultural exchanges of early modern times than of the pre-Tang era.

The “Needling Classic”

The *Bo Le zhenjing* as it is found in the *SMAJJ* is in two parts. Part one, and this may be the oldest part of the book, is a “Map of Indentations”⁵⁵ (*xueming tu* 穴名圖), showing 78 places on a horse, each named, for therapeutic intervention (Figure 1).

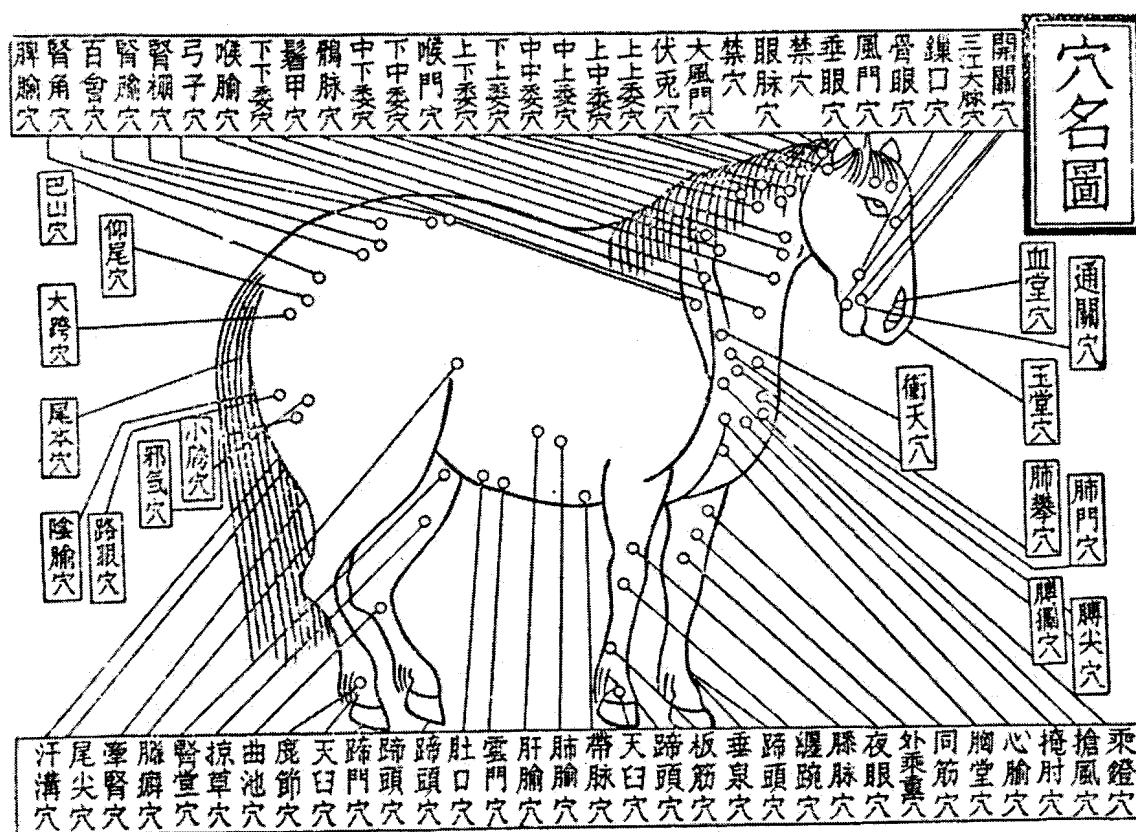


Figure 1: “Map of Indentations”⁵⁶

54 Zhou, 1960: 161–62.

55 Note the terminology. There is no reference to the *kung* 孔, “openings” of the text mentioned in the *Suishu* 隋書.

56 *SMAJJ*, 28.

There follows the *Bo Le Zhenjing* 伯樂鍼經 proper. The first part is a general theoretical consideration of “needling.” The language is very much influenced by the theory of human acupuncture, to be sure, although, as we shall see, the actual practice indicated is not:

In general when one needles, one must first know the relative position of the indentation [*xue* 穴] and then one must discern methods [for determining whether the disease] is superficial or deep and [whether the needling] is to tonic or leak [*qi*]. This is to avoid [having the treatment] missing and damaging. One takes the needle in the right hand and one holds down the indentation with the left hand, and before one penetrates with the needle, [one should consider] avoidance of great rain or great wind. The calamity and harm accompanying the wind and rain is [that which] cuts off life. When *yin* 陰 and *yang* 陽 are divided and conflicting, one cannot needle. When one uses a needle one must follow the path of the indentation, take into consideration whether the disease is superficial or deep, and [how] tonic treatment and leaking [of *qi* 氣] correspond to one another. One removes *qi* to create deficiency, and one adds *qi* to make replete. Turn the needle to the left to provide a tonic, and turn to the right to provide leaking. Then manipulate the needle to achieve a moderate tonic. After that, needle to moderate leaking [*qi*]. If one is off in the slightest, it is better not to have needled at all. If there is the separation of a hair, it is like the separation of a great mountain. One should very carefully, and meticulously, needle against a disease so that there is no grief due to failure to cure.⁵⁷

By contrast, the following are typical of the actual interventions called for in the next section of the text (numbers are from a complete translation of all items):⁵⁸

[1.] Eye Pulse Indentation [*Yanmo xue* 眼脉穴]: [This is] four fingers behind the eye. One needles two *fen* 分 [tenth of Chinese inch] deep at this indentation. Bleed. It cures liver and organ heat, eye swelling, and crying disease.

[18.] Liver Main Conduit Indentation [*Gan chu xue* 肝膈穴]: [It is in] the left inside kernel bank [*zuo lijenpan* 左裡仁畔], the inside of rib number 5 from the rear, 1 *chi* 尺 [Chinese foot], 5 *cun* 寸 from the spine. One fire needles at this indentation 1 *cun*. It treats all diseases associated with the liver.

[21.] Great Wind Gate Indentations [*Da fengmen xue* 大風門穴]: [They are located] one finger behind the bases of the two ears. One cauterizes at this indentation with a branding iron, and a round brand. The depth is 3 *fen*. One applies oil. It treats a sudden seizure, destroying wound wind, or various wind diseases.

[25.] Two Opening the Pass Indentations [*Kaiguan xue* 開關穴]: [The indentations] are in the mouth, the swollen place above the two jaws. One cauterizes at these indentations two *fen* with a knob or a brand. Add salt and rub in. Drench animal with a cooling medicine. It treats obstructed *qi* of the upper burner, and swallowing water, herb difficulty disease.

[33.] Heart Main Conduit Indentation [*Xin chu xue* 心膈穴]: [This is] on the breast bone. In the case of this indentation, if there is suffering from heart jaundice disease, one uses white needle [scalpel] barbs, 10 or more needles, to needle and produce yellow water and blood. Take a *qian* 錢 [Chinese ounce] of salt and rub into the needle wound. Draw out the yellow water and poison *qi*. If there is no treatment, an ulcer will form that will penetrate to the heart and lung.

57 SMAJJ, 29.

58 SMAJJ, 29–34.

Thus, the actual content of the treatment portions of the book have little to do with the introduction. Rather than anything resembling acupuncture, treatments are primarily either bleeding, or cauterization, or variations, some involving a complex process. While, probably for prestige reasons, someone has sought to link the treatments discussed with the then greater world of acupuncture, through a somewhat disassociated theory, the treatments themselves know little of this. Indeed, the bleeding, cauterizations, and other interventions called for in the Bo Le text seem part of a greater Eurasian world of equine medicine well documented in the ancient Greek world and carried on in the Medieval world. Interestingly, so seems the diagram itself, which has many Western equivalents.⁵⁹

Horse diagrams in the West:

One of the fascinating chapters of the Western history of veterinary medicine is the existence of diagrams virtually identical to those attributed to Bo Le 伯樂 in the *SMAJJ*, although somewhat later. One example is a German Augsburg diagram (Figure 2) published in 1608 showing 79 points for diagnosis and therapeutic interaction, one more than the Chinese diagram attributed to Bo Le. Many of the points are different but a large number are clearly the same, a remarkable parallelism given the distances involved between China and Europe and the relative arbitrariness of the systems involved (different charts show some variations, including more points). Still, this suggests a common origin. In any case, the diagrams look very much as if part of the same medical system, although the Chinese is rationalized in terms of *qi* 氣 and the Western in terms of humoral theory (although some observers, e. g., Ten Rhinje, saw little real difference between European humoral medicine and what the Chinese were practicing⁶⁰). Note that the Western diagrams can be strongly diagnostic as well as indicating places for intervention such as bleeding or cauterization. But diagrams with diagnostic functions also exist in China, splitting off diagnosis as a separate category, for example among the diagrams in the later *YHLMJ*.⁶¹

There are a great number of these diagrams in the European veterinary works of the period. Most of those discussed by Stork come from the 16th, 17th and 18th centuries but, as she makes clear, there are somewhat simpler but recognizable manuscript antecedents from the 14th and 15th centuries too, thus putting the tradition at least back to the Middle ages. It may, in fact, be much older since Greek veterinary texts are very specific about where bleeding or cauterization is to take place. Thus Ippokrates, probably a Roman-period doctor, tells us, in describing additional treatments for horse liver disease (the treatment of choice mentioned is herbal):

59 Also having Western equivalents are the “needles” themselves, as illustrated in early Japanese sources based upon earlier Chinese traditions, for example. We hope to examine this in a future paper.

60 See R.W. Carrubba, and J.X. Bowers, “The Western World’s First Detailed Treatise on Acupuncture: Willem Ten Rhijne’s *De Acupunctura*,” *Journal of the History of Medicine and Allied Sciences*, 29, October 1974, 371–398.

61 *Xinkan zuan tu yuan heng liaoma ji* 新刊纂圖元亨療馬集 (*YHLMJ*), Siku quanshu cun mu congshu 四庫全書存目叢書, zi bu 子部, 2, 26a–b, 28a–b, 40a. Diagrams can also simply show the main features of a horse with diagnostic discussion in mind. See, for example, the *YHLMJ*, 1, 6a–b, with physiognomy in mind, and, a Middle Eastern example, the horse chart illustrated in Jasmine Dum-Tragut, *Kilikische Heilkunst für Pferde – Das Vermächtnis der Armenier*, Hildesheim: Editorial OLMS Verlag, 2005, 101.

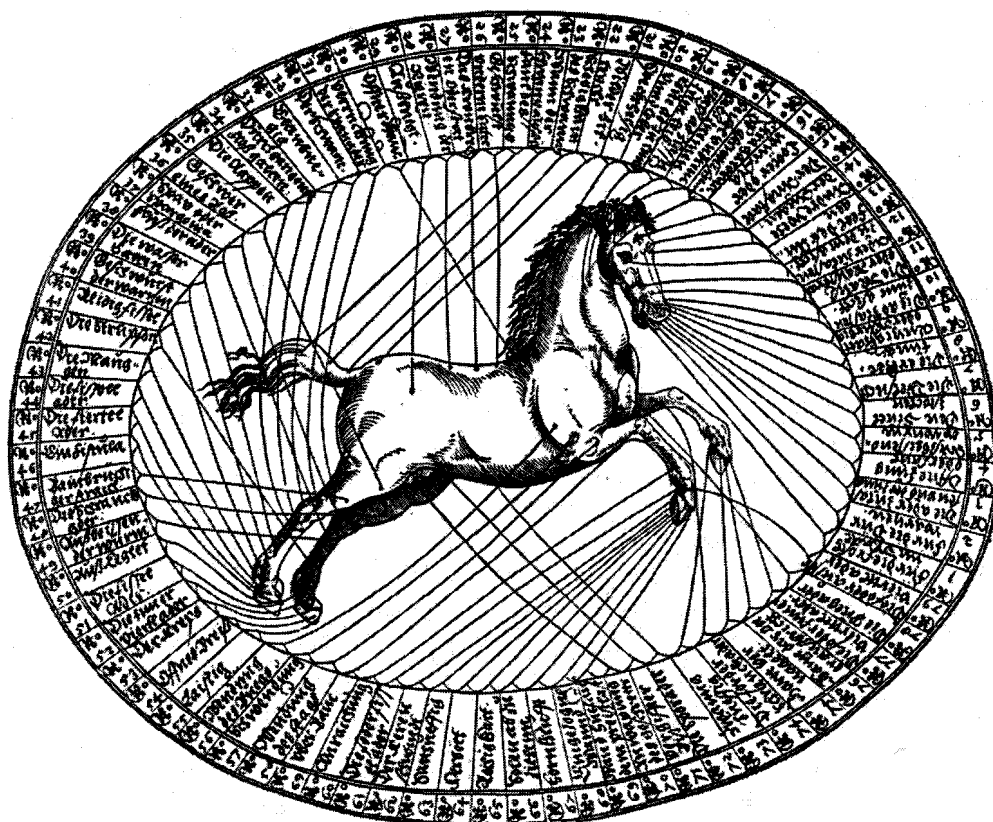


Figure 2: Figure from *Künstlicher Berich Vnd aller zierlichste Beschreybung*⁶²

... When the animal does not thus become healthy, take blood from the back legs below the gonads. When the animal does not thus become healthy, burn on the third rib above the axilla at the middle of the rod [extension] of the ribs, leaving a gap of four fingers between the cauteries.⁶³

Thus, the tradition indicated by such diagrams appears old in the West and well based in the general veterinary theory of the late Classical world. Similarly, even if the first published version is only from 1384, the ideas present in *Bo Le Zhenjing* 伯樂鍼經 appear old as well. Still, the use of bleeding and cauterization to cure horse and other animal ailments is certainly documented far earlier in the West than in the East, maybe at least half a millennium before similar practices are known from China. Bleeding, for example, is taken for granted by Apsyrtos and the *CHG* includes a whole section discussing bleeding in all its intricacies.⁶⁴ Thus, almost undoubtedly, the Greeks were prior to China in their emphasis on bleeding and, for that matter, cauterization. Nevertheless, the practices are still older than the Greeks, and may have been generalized in the Mediterranean world and in the Middle East and elsewhere, e. g., the Skythian world, where one would expect an advanced interest

62 From Marlies Stork, "Lehrschemata in europäischen Tierheilkundebüchern des 16. bis 18. Jahrhunderts: Lassrösslein –Krankheitsnamenferd –Fehlerpferd," *Zentralblatt fuer Veterinaermedizin*, Reihe A, Vol. 18, 1971, 661–707

63 *CHG*, I, 162 (Hipp. Berol. XXXII, 4–5).

64 *CHG*, Hipp. Berol. IX, 1–6. X, 1–12. Bleeding is called for commonly in connection with other ailments too, the discussion in the specialized chapters is regarding bleeding in general.

in horse medicine, into the first millennium, if not before. How such ideas got to China is unclear but similar notions were apparently present in India. It is reasonable to suspect the agency of Buddhism, especially when we note that bleeding and cauterization first seem to have become important in China just as it was washed over by a wave of Buddhist medical influence of various sorts. Nonetheless, we cannot rule out a later Arabic influence providing a more direct experience of the world of Greek medicine for East Asia.⁶⁵

2. Branding

On the other hand, Arabic influence does, in fact, seem extremely likely in terms of another therapeutic tradition associated with Bo Le 伯樂, his branding, as expressed in the *Bo Le Hualuo Tu Ge Jue* 伯樂畫烙圖歌訣, which also appears in the 1384 edition of the *SMAJJ* (Figure 4). It is comprised of a horse diagram showing the 12 places to apply the brands⁶⁶ with the next double page including the titles for 12 brand songs, along with the therapeutic designs to be employed, with the individual texts discussing them placed below (the songs):

Song Secrets of the Bo Le Branding Diagram

Song For Branding the Shoulder Dragon Bone. [Character in seal script] Yong ["use"]
It is difficult to move [eliminate] shoulder dragon bone swelling pain disease. This must be because there is a receipt of noxious danger due to blow injury. When fire branding, one must use the *yong* character. When the medicinal needling amply transfers heat, it will be extremely extraordinary.

Song For Branding the Adverse Wind Bone. [Character in seal script] Tian ["heaven"]
The adverse wind bone greatly influences the foundations. Everything is due to snapping injury, this is the causing circumstance. Use a fire burning iron and brand a *tian* character. [The condition] will get better of itself, of that there can be no doubt.

Song For Branding The Transfer Bone. [Diagram of forked three]
Pain of the transfer bone makes the feet drag. There can be no harmonization due to twisting breaking. If one brands a forked three at this bone joint, at that time the [feet] will be light and strong, and they will accurately sharpen [adjust] themselves.

Song For Branding the Ink Stone Bone. [Character in seal script] Zhi ["gardenia nut"]
The ink stone bone is very much a cause [of disease], and there is thus a great deal of blow wound swelling. One uses a fire branding iron and brands a *zhi* character. One will thereby avoid causing neglect, and one will be able to attain a proper arrangement.

Song For Branding the Large Thigh [Bone] [Diagram based on the character shih, "ten"]
Swelling pain of the large thigh bone limits foot movement. One who knows that this is the evidence of it is able to be brilliant. One brands in three spots above the bone indentation. If one adds in addition a *shih* character, then [the condition] will be peaceful and reposed.

65 As Cyril Elgood makes clear, at least one Arabic work of the thirteenth century makes reference to the "points" of a horse. See Cyril Elgood, *A Medical History of Persian and the Eastern Caliphate*, Amsterdam: APA-Philo Press, 1979 (1951), 319.

66 The 12 places are (from top moving clockwise): 1. "The Ink Stone;" 2. "The Fore Leg Bone;" 3. "The Adverse Wind [Bone];" 4. "The Shoulder Dragon [Bone];" 5. "The Knee Cap Bone;" 6. "The Transfer Bone;" 7. "The Fish Net Hoof Bone;" 8. "The Fathering Sinew Bone;" 9. "The Fox Bone;" 10. "The Bird Sinew Bone;" 11. "The Seizing Grass Bone;" 12. "The great Thigh Bone."

Song For Branding the Seizing Grass Bone. [Diagram of “hemp leaves”]

There are many seizing grass bone pains and injuries. The basic reason is because bone swelling implicates the feet in difficulty. After branding with “hemp leaves,” they should be entirely even and firm. Daub with oil, and needle to treat, and the troublesomeness will then dissipate.

Song For Branding the Knee Cap Bone. [Diagram showing a circle]

Knee cap swelling pain is very difficult to tolerate. [The horse] plants the foot in emptiness, and there is a false evading, and [this] defeats longevity. The fact is to be emphasized that one must produce blood in the knee indentation. If one fire brands in a [in a circle] around it, one can bring about a setting into repose.

Song For Branding the Transfer Bone. [Diagram]

Illnesses come down from the transfer bone and encroach into the knee. When the horse moves it has straight legs, and there are many missteps. When one fire brands, one also returns to the coarseness. Using herbs to heat and dissipate is the most important thing.

Song For Branding the Box Bone. [Diagram]

Box bone swellings influence the foundations. All the transmitting of injuring, this is the cause of it. The tendon part corresponds to the hooves. It must dissipate and disperse. There can be no doubt that it will become better of itself.

Song For Branding the Bird Sinew Bone. [Diagram]

How to provide a treatment for Bird Sinew [Bone] swelling illness? When the sinew transmits, it receives noxious danger. Brand a *shi* [“ten”] character surrounded by a fence. When, after daubing with oil, it dissipates and disperses, this is remarkable.

Great Song For Branding the Sinew Gathering Bone. [Character in seal script] *quan* [“river”]

The gathering sinew bone is very much a cause [of illness]. When there is loss of a joint, this is the basis for it. One fire brands applying heat in a *quan* character, and rubs in medicine. This will then truly be the miraculous hand of a doctor.

Song For Branding the Fish Net Hoof Bone. [Diagram]

Swelling of the fish net hoof bone is very difficult to treat. Because of the injured tender bone[s], this is fundamental. Pierce slightly with a needle in the hoof gate indentation. One must take the branding iron and draw a moth eyebrow.

Here, a special kind of cauterization, branding, either with specially shaped brands, the likely interpretation, or with “fire irons” intended to write out and build up the proper shape, are used to produce a therapeutic brand at specially determined points (respectively) capable of responding to the given condition. This is certainly *not* moxocautery. In each case, these are swellings and other conditions associated with bones. Thus the tradition constitutes a very special kind of treatment that is not found in this precise form elsewhere in the Chinese veterinary literature for the horse, although the *YHLMJ* does contain a related diagram showing branding spots, without the detail.⁶⁷

In fact, the closest early parallel⁶⁸ to the Bo Le 伯樂 diagram and the whole tradition associated with it can be found in the Arabic veterinary literature, namely in the veterinary manual of the Mamluk veterinarian Abu Bekr, a book dating from the first third of the

67 *YHLMJ*, 2, 35a–b.

68 In fact, as an illustration in von den Dreisch and Peters makes clear (2003, 97), similar practices and nearly identical brands were found in Europe in the early 19th century.

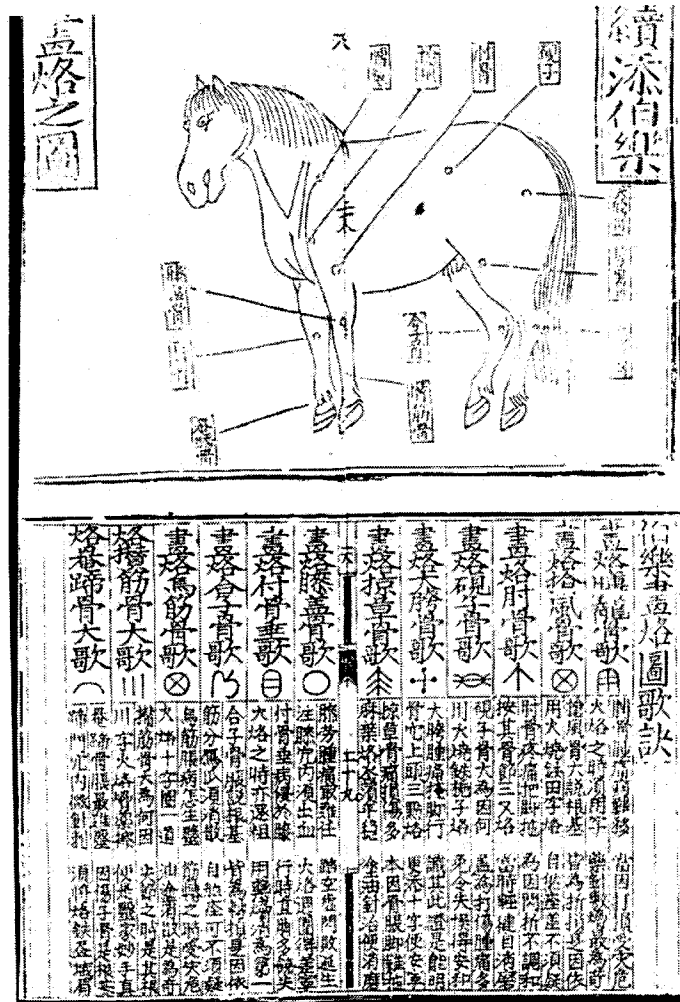


Figure 3: 伯樂 Branding Diagram⁶⁹

14th century.⁷⁰ Some 23 special cauterization brands are given in the text against various ailments in addition to one special cut for use against muscle tears. Virtually all of the brands are used against conditions associated with the bones, also a characteristic of the Bo Le text. Interestingly, a number of the marks (3, 4, 5, 6, 7, 8, 12, 16, 22), although some are turned on their sides, appear identical or closely related to those given in the Chinese text. The Arabic marks are reproduced below (Figure 4).

69 SMAJJ, 48–49

70 Reinhard Froehner, *Die Tierheilkunde des Abu Bekr ibn Bedr*, Leipzig: Verlag Walter Richter (Abhandlungen aus der Geschichte der Veterinärmedizin, vol. 23), 1931

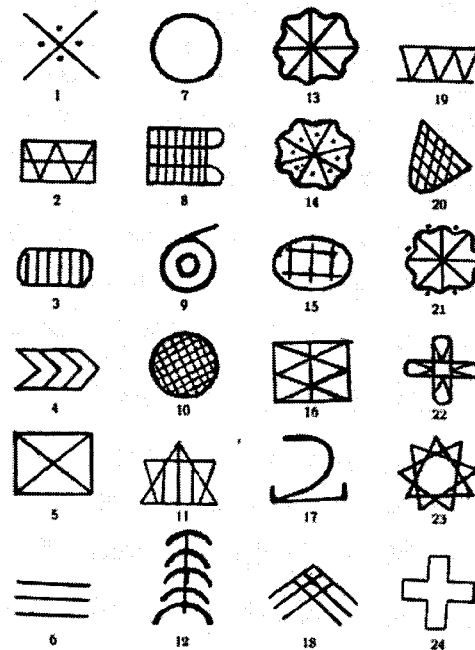


Figure 4: Abu Bekr's Cauterization Brands⁷¹

3. Surgery

Another area of apparent convergence between the Chinese and Western veterinary literature is in connection with animal surgery. Surgery of any sort, while not unknown in China, was certainly unusual there. What there was of it tended to be extremely simple, probably both as a reflection of a limited anatomical knowledge in China (in spite of a few dissections) and of the high risk of any kind of surgery in pre-modern times. This was a great deal less true in the Greek and Roman West where a number of animal surgeries were not only known, but also apparently performed regularly.⁷² Some of these, as we shall see, were even carried over into the Arabic texts, although surgery was less common in the Arabic world. In any case, the following treatment as described in the *YHLMJ* seems quite exceptional for China:

Horse Suffers from Retained Liquid Settling at the Navel, # 18.

When they discuss retained water settling at the navel, what is this? Now water is the source for nourishing life. For some reason it accumulates in the navel and gives rise to distress. This is all because [in the case of] an emaciated mule or a starved horse, the *qi* 氣 and blood are ruined and defeated and the care for the animal loses its coordination. The animal is long thirsty and does not drink, and when it drinks the horse drinks to great excess. It also goes [freely] without being led. It is stationary and does not rotate. Water becomes abundant and fire is weak. They cannot move and transform. Therefore [this condition] is called [that of] retained water settling at the navel. This means a pathocondition of delayed storage and retained water.

71 Froehner, 152 (Figure 7).

72 As an introduction see Amann, 1983. See also Walker, 1973: 302-334.

Physical symptoms: the hair is dried and the juices are drawn off. The female [horse] has fine fat emaciation. The essential spirit is short and slow. The ears are raised and the head is lowered.

Vein quality [pulses]: the two ducks are slow and fine. The mouth color is green yellow.

The song says: [omitted].

Shi Huang 師皇 says: “The horse avails of the fresh *qi* in heaven and must drink clean and pure water. Any and all bad and cloudy water it should avoid drinking on an empty stomach.”

Zun Dao 遵道 says: “When a horse excessively drinks cloudy water on an empty stomach after being thirsty for a long time, the hair dries up and the horse severely emaciates and the water settles in the navel.”

Wang Liang 王良 says: [A horse] should not be allowed to drink muddy water when resting. [If it does] the horse’s very rich coat acquires a dried-up color and although one does not notice it at the time,⁷³ [the horse] does not put on fat during the day.”

Qi Po 岐伯 says: “As for delayed [absorption] of retained water, the moist muddiness settles below the navel. Whenever this is treated, one strengthens the spleen and warms the kidney. One fertilizes the spleen and tonics *yin*. One coordinates and combines blood *qi*. One penetrates the retained water at the ‘Cloud Gate’.”

Treatment method: puncture and penetrate the “Cloud Gate” and release the retained water. Drench the animal with “Fortifying the Spleen Medicinal Powder.” The “Cloud Gate” depression is [located] before the horse’s navel. In a large horse, it is a depression of 3 *cun* 寸. In a small horse it is of 2 and a half *cun*. Use a “white needle” to barb and open the skin. Put into it a goose coat⁷⁴ plume tube. Penetrate the stomach with it. The water will follow the plume tube and be released. This is a miraculous “needling” [method]. Employ the “needle” delicately in the hole. One cannot be quick and disordered lest one wound the abdomen and stomach. It will then turn into a major distress. A doctor should be careful of this. Now the goose coat tube has some coarse parts. Cut [these] away [starting] from the hollow places.⁷⁵ Only leave a section of hollow tube. Take the top of the plume removed from the goose’s coat. It should be shiny. You take that shiny top part and cut four small holes in it. Take the part with the holes and penetrate with it into the “needle eye” at the “Cloud Gate” depression. Slowly twist it as it goes forward. The shining end of the plume tube, [that is], the top part of the stomach tube, will have four small holes in it. The water [in the stomach] will leak out through the small holes. This is a wonderful method.

Healing: Feed and maintain in a warm stable. Add vegetable materials [to the horse’s food]. Give it cooked rice soup once each day. Constantly water it with the urine of a young boy.

Prohibitions: You cannot tie [the horse] outside on a cold night. And when it drinks water don’t let it get too much. Train it [to take] chill water on an empty stomach.

Fortifying the Spleen Medicinal Powder: It treats deficiency weakness of horse spleen and stomach, failure to absorb and retention of fluids, and starving-emaciation disease.

Ingredients: *Angelica sinensis*, cassia twigs, liquorice, *Acorus calamus*, water plaintain, grains-of-paradise, magnolia [bark], white *Poria cocos*, *Atractylodes macrocephala*, immature orange peel, Mandarin peel, *Schisandra chinensis*. Make a fine powder together of all the ingredients. Each dose is 2 *liang* 兩. Decoct, bringing to a boil three times, together with 2 or 3 slices of ginger, a pinch of roasted table salt, a *jin* 斤 of yellow

73 That is, immediately.

74 Chinese think of the feathers of a bird as its coat.

75 That is, where it starts to become hollow at either end.

liquor. Wait until warm and drench the horse [with the decoction]. After 5 to 7 doses [the horse] will be completely healed.

Angelica sinensis Soup for Enlivening the Blood: It makes the kidneys moist and is a tonic for *yin*, it makes good⁷⁶ for fat pathoconditions.⁷⁷

[Ingredients:] *Angelica sinensis*, *Ligusticum wallichii*, *Paeonia suffruticosa*, *yünling*,⁷⁸ water plaintain, Mutung (*Akebia quinata* and *Aristolochia mandschuriensis*), *Eucomia ulmoides*, talc, plaintain seeds, Chinese foxglove, *Cornus officinalis*, Chinese yam, *Morinda officinalis*, fennel, grains-of-paradise, *fencao*,⁷⁹ citrus peel, magnolia bark. Make a fine power together of all the ingredients. Each dose is 2 *liang*. Decoct, bringing to a boil three times, with five slices of ginger. Add a cup of a boy child's urine. Combine into a drench and dose 5 to 7 times. It adds to fat and strengthens bone.⁸⁰

In this fairly complex discussion, the symptoms and conditions (probably, given the descriptions, either of chronically inadequate nutrition or end-stage disease with accompanying protein loss) are first described in detail. Then the treatment, a true operation, is described, followed by a discussion to follow up to speed recovery from the operation and restore the health of the horse. The interesting thing is that there is nothing like this elsewhere in the Chinese horse medicine literature but there are strong parallels in earlier Greek and Arabic sources.

Greek horse doctors, for example, knew quite well how to deal with such complex problems as hernias using surgical clamps⁸¹ and could use deep cauterization to penetrate to and reduce swellings.⁸² Surgery is also frequently called for in the Latin horse literature, including eye surgery, although the texts, particularly the important *Mulomedicina Chironis* have been little investigated in regard to their surgical techniques, which are many.⁸³ Abu Bekr also knows many surgical interventions. These are listed by Froehner.⁸⁴ Among them is one almost identical to the procedure in the *YHLMJ*, although the herbs, what you would expect, given the distance between Egypt and China, are different. The passage in question reads as follows:

Illnesses of the Stomach and Navel

...

Istiskâ zikkî [French. Ascite, hydropsie or hydropsie peritoneal, Intestinal dropsy⁸⁵]. Intestinal dropsy involves an accumulation of water which the veterinary empties through incisions in the area of the navel. The symptoms are a thickening of the stomach with extension upward and to the sides. The stomach sashes like a full skin and one hears

76 That is compensates for them.

77 Not "fat" pathoconditions but pathoconditions related to the fat of the animal.

78 This is apparently another name for *Poria cocos*.

79 This is uncertain, could be *Pulsatilla chinensis* or *Saussurea romuleifolia*.

80 *YHLMJ*, 3, 23b–25a. Compare, however, the very different version of the text in the *Yuan heng quan tu niu ma tuo jing ji* 元亨全圖療牛馬駝集, "The Yuan and Heng Completely Illustrated Collection for Treating Oxen, Horses and Camels," Sanyi tang zang 三義堂藏, Guangxu 光緒 [period] *jichou* 己丑 [year] [1889], 3, 43b–45a.

81 Amann, 1983: 82–86

82 Amann, 1983: 92.

83 Adams, 1995: 146; Angela von den Driesch and Peters, 2003: 49.

84 Froehner, 1931: 14–15.

85 Actually, here and above the condition being treated may not be dropsy at all since the procedure described would not be effective for it. Perhaps the real culprit is a parasitical infestation of some sort.

the sound of water inside the body. The cause of the dropsy is drinking after great exertions. The water seeps in between the skin and the cells of the tissue.

Treatment: Healing consists in the application of means that are suitable to cut out the water again. The ancients have transmitted to us the following two drug combinations; 1) one takes the dung of chickens and doves, 1/3 *rotl* of each, and mixes it with syrup, oil and carbonated natron. That one provides in the form of an enema and as a drench. 2) Or one gives the sap of the donkey cucumber [*Momordica elaterium*], one measure [of that] and two measures of syrup, for drinking lukewarm. Another medication: One mixes *Mentha pulegium* and the seeds of *Plantago psyllium* in with fodder barley and in addition one provides milk to drink into which one has spread opopanax, sneezing herb [*Helleborus orientalis*] and aloe in equal parts. That creates an open body. One proceeds in the following manner in treating dropsy [through pricking the stomach]: with the tip of the lance one makes an incision three fingers below the navel. One introduces a copper tube into the opening, through which one allows the yellow liquid to flow out until most of the liquid is gone and the region *hypogastrica* falls. After that one scatters a powder for drawing together upon the place of the incision, one that is held firm by a compress and a band that goes over the back of the horse. When the horse drinks it must have the bit in the mouth so that it will not drink too much water, wherefrom the stomach would fill up again. The animal should be kept under a warm cover and put out into the sun a great deal so that as much water as possible will be transpired. Besides barley, the horse should be offered goats horn and erve, in order to eliminate the illness fundamentally.⁸⁶

Still nearer to China, India was apparently another source of animal surgical traditions for China, but these have been even less studied than the Western.⁸⁷ Above all, Indian traditions of animal ophthalmology made their way to China and these are well represented in the *YHLMJ*: more “miraculous needling.”⁸⁸ The equivalents for human medicine are well documented as primarily Indian; the veterinary traditions appear Indian, too.⁸⁹ But Indian (or Tibetan) influence on Chinese horse medicine is another topic entirely, one that is quite beyond this brief survey.

Conclusion

In this brief examination in comparative terms of Chinese and Greek veterinary medicine, and Greek veterinary medicine as represented in the Arabic tradition, a number of convergences have been noted and discussed. These are by no means the only convergences appar-

86 Froehner, 1931: 132–133. Compare an even older version of this operation found in a 13th century Armenian horse manual. See Dum-Tragut, 2005: 185.

87 On Indian veterinary medicine see, as an introduction, von den Driesch and Peters, 2003: 71–76. See also the relevant sections (64–70) of the same book on Tibetan horse medicine, a more immediate influence, and Blondeau, Anne-Marie. *Matériaux pour l'étude de l'hippologie et de l'hippiatrie tibétaines (à partir des manuscrits de Touen-houang)*, Genève: Centre de recherches de l'histoire et de philologie de la IV^e section de l'École pratique des Hautes Études II (Hautes Études Orientales 2), 1972 and P. Maurer and Angela von den Dreisch, “‘Das hilft; das is gut’ Pferdebücher aus dem tibetischen Himalaja,” *Sudhoffs Archiv*, 1999; 83: 73–108

88 *YHLMJ*, 5. 14a–19a.

89 See Jürgen Kovacs and Paul Unschuld, translators and editors. *Essential Subtleties on the silver Sea, the Yin-hai jing-wei: A Chinese Classic on Ophthalmology*, Berkeley, Los Angeles, London: University of California Press, 1998.

ent from our sources; there are whole areas of potential inquiry that must be omitted here for simple lack of space. While we can never rule out independent invention, the types of convergences discussed here makes independent invention unlikely. In each case discussed there are indications of earlier Western applications before the traditions discussed appeared in China. Therapeutic veterinary bleeding and burning, for example, seem far older and better established in the West than in China and appear there during a period of maximal Western influence in the wake of the establishment of regular Silk Road traffic in Han 漢 times and the coming of Buddhism, which brought Indian and other medical traditions with it. The surviving diagrams of “points” associated with them are at best contemporary in the West and China but are clearly related and probably, like veterinary bleeding and branding itself, were earlier in the West (although older diagrams have simply not survived). The convergence in therapeutic branding is particularly striking and even if the Egyptian system is only slightly older than the Chinese, complex cauterization with special tools was a well-known system in the West long before Abu Bekr wrote about it. Outside of the Bo Le chart and text, in fact, the best-known example from China is found in the *Huihui yaofang* 回回藥方, which is, after all an encyclopedia of Islamic medicine.

Finally there is surgery, and while only one example was presented and discussed here, there is not a lot of “miraculous needling” in the *YHLMJ*. What there is conspicuously different from anything else known in the Chinese veterinary tradition, and there are more foreign parallels than not. Surgical interventions are very old in Western horse medicine, but late and uncommon in China. Again, a dissemination from outside, certainly true for the ophthalmic examples, is highly likely. More research is needed to establish exactly what influences are likely to have been present.

In conclusion, a strong case, even from these few examples, can be made for a great deal of foreign influence on Chinese horse medicine. There are very strong parallels with Greek horse medicine and Greek horse medicine as represented in Arabic tradition. How all of this got to China, if it did, is unclear but we think that inquiries should be focused on two major eras of China history. One is the era of Han and the Southern and Northern Dynasties, followed up by Tang 唐, when either Central Eurasia was well represented in China, as well as India, or China was strongly present in Central Eurasia and even beyond. The second is the Mongol period. Books physically walked from one part of the Mongol world to the other; Chinese medical and other works went to Iran and were translated and adapted there while Islamic works, and some Tibetan ones, were translated and adapted in China, including the *Huihui yaofang*, which is clearly based on a Persian-language original. In any case, it is conspicuous that so much new horse medicine literally pops up, including the first publication of the Bo Le charts, just after the end of the Mongol era in China. Much more remains to be said in this fertile area on potential inquiry.

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