

From Balkh to Baghdad: Indian Science and the Birth of the Islamic Golden Age in the Eighth Century

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Abstract

This paper explores the evidence for the intellectual and cultural connections between North-West India, Bactria (or Tokharistan), and Baghdad especially through the study of the history of medicine.

Key words: Bactria, Baghdad, Balkh, Barmakids, Caṅkuṇa, Caraka, Central Asia, Dioscorides, Hariścandra, Hospitals, Isidore of Charax, Kalhaṇa, Kashmir, Mediterranean, Parthia, Periplus of the Erythrean Sea, Pramukha, Tokharistan

1. INTRODUCTION

The late first-century BCE caravan route from Antioch on the Mediterranean to Kandahar in modern Afghanistan provided opportunities for the exchange of medical knowledge between north India and the Parthian and Mediterranean worlds. Sanskrit literature provides evidence for the existence of Indian physicians in Balkh. The Islamic invasion of Balkh in Tokharistan in about 725 CE, resulted in the relocation of the originally Buddhist Khālid ibn Pramukha (b. 709, d. 781–2) from Balkh to Abbasid Baghdad. Ibn Khālid had a cultural background can be connected with the Sanskrit and specifically ayurvedic education that his father received in Kashmir. These cultural influences had a bearing on the medical treatises that were translated from Sanskrit into Arabic in eighth-century Baghdad, and may have informed the building of one of the first Islamic hospitals in Baghdad.

2. THE PARTHIAN STATIONS

The march of Alexander the Great (356 BCE–232 BCE) across the Middle East and to the

Indus River is familiar to all historians (Majumdar, 1988, v. 2, pp.43–51). The later Graeco-Bactrian kingdoms of Gandhara produced art, coins and inspired literature such as the famous philosophical discussion between the Buddhist Nāgasena and the Greek Menander, recorded in *The Questions of King Milinda (Milindapanha)* in the centuries preceding the Common Era (Narain, 1957; Rhys Davids, 1890–1894; Trenckner, 1880).

But even after the decline of the Graeco-Bactrian communities in the centuries that followed Alexander's invasion, communications between North India and the eastern Mediterranean continued. In the first century BCE, the Greek author Isidore of Charax (fl. 26 BCE – 0 CE) wrote a short treatise describing the caravan route joining the Mediterranean to Afghanistan. Isidore lived during the reign of the Roman emperor Augustus (63 BCE–16 CE), and the emperor had commissioned him to write a geographical work derived from his son's military travels to Armenia. The *Parthian Stations* may be an extract from this work. The route that Isidore

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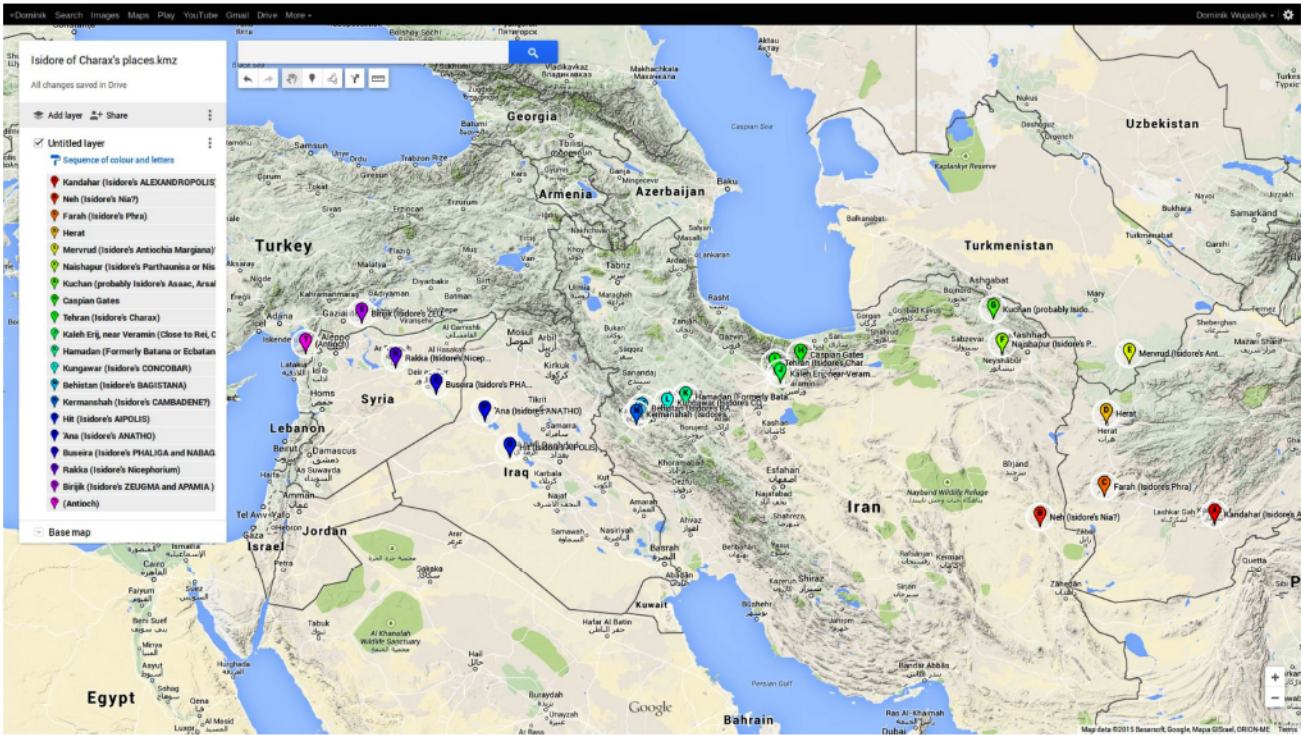


Fig. 1. The Parthian Stations: Antioch to Kandahar, 1st Century BCE¹



Fig. 2. Roman trade in the subcontinent according to the *Periplus Maris Erythraei*, 1st century CE

¹Google map by Dominik Wujastyk, at <http://tinyurl.com/parthianstations>

described started from Antioch, modern Hatay in Turkey, near the Mediterranean coast. Then, the route proceeded to Birijik, thence down the Euphrates to Hit and across to Seleucia on the Tigris, a short distance below Baghdad; thence by the modern caravan route from Baghdad to Hamadan, Teheran and Nishapur, thence southward to Herat and Lake Helmund, and finally eastward to Kandahar (Schoff, 1914).

This overland route described by Isidore predates the sea route from the Red Sea documented from the *Periplus of the Erythrean Sea* and later sources (Schoff 1912). It establishes a direct physical link between India and Bactria at the time when we think the early form of the medical encyclopedia today called the *Carakasamhitā*, or *The Compendium of Caraka*, was taking its earliest form.²

One piece of verifiable medical communication from India to Greece that took place at this time was the transmission of plant lore that appeared in the *Materia Medica* of Pedanius Dioscorides in the first century CE.³ Dioscorides lived in the city of Anazarbus, very close to Antioch, just a few hours journey north, today, on the Turkish Mediterranean coast from the starting point of Isidore's caravan route. Perhaps the earliest known illustrations of Indian medicinal plants are those preserved in the Vienna Dioscorides manuscript created in 512 CE and presently in the National Library in Vienna.⁴ The artist of the Vienna Dioscorides manuscript probably based his illustrations on those from the *Rhizotomicon* of Crateuas of Pergamon (1st century BCE).⁵

However, in spite of the evident opportunities for cultural exchange, detailed comparisons of Hippocratic and Ayurvedic



Fig. 3. A page from the Vienna Dioscorides MS, 512 CE. *Solanum nigrum*: Black Nightshade. Image source: <http://tinyurl.com/UofVirginia>

medical concepts do not show clear verifiable evidence of borrowings of major concepts or practices in either direction. This is quite different from the situation with astrological and astronomical literature in Sanskrit, where Greek borrowings in the second century CE onwards are well documented (Duke, 2005, 2007; Pingree, 1976, 1981).

3. EARLY PHYSICIANS IN BALKH

Bactria, however, the country of the city of Balkh and the surrounding area, was well within the geographical and cultural ambit of the earliest Ayurvedic authors.

² On the dating of the layers of the *Carakasamhitā* see Meulenbeld 1999–2002: IA, pt. 1 ch. 10

³ Edition: Wellmann 1907–1914, tr.: Beck 2005. Accessible online tr. Osbaldeston and Wood 2000.

⁴ Codex Vindobonensis med. gr. 1. See Mazal 1998–1999.

⁵ Further research is needed into the Indian plants cited in the *Materia Medica*. On Dioscorides' sources, see Allbutt 1921: 366–70, *et passim*.

This will be relevant to a later argument.

4. CARAKA ON THE INHABITANTS OF BALKH

The *Compendium of Caraka*, for example, that reached its present form in about the second century CE, included the opinion of physicians from Balkh in its discussions. For example, when discussing dietary habits, the *Caraka* described the medical features of salt, and noted that:

If it is used too much, it brings about lethargy, slackness, and weakness, in the body.

The people of those villages, towns, cities, and regions where it is used all the time are extremely exhausted, and have slack flesh and blood. They are unable to bear suffering. For example, people from **Balkh**, Saurāṣṭra, Sindh and Sauvīra. They even consume salt with milk.

In those regions of the earth that are excessively saline, plants, shrubs, trees and forests will not grow, or will have little lustre, because it is damaged by salt.

For that reason, salt should not be used too much. Because even people who have a great natural affinity for salt go bald, grey, completely hairless, and have premature wrinkles (*Carakasaṃhitā, vimānasthāna* 1.18 Ācārya, 1941, p. 234).

In another passage, the Caraka describes how a number of sages gathered to enjoy themselves, this time in the beautiful forest of Caitraratha (Ca. Sū.26; Ācārya, 1941, p.135). One feature of this debate is that some of the sages are briefly characterized, and amongst them is “Kāṅkāyana the best physician from Balkh.” Their discussion, characterized as a tale (*kathā*), discussed the number of essences (*rasa*) that may be thought to exist. The main arguments of the debate can be summarized as follows.⁶

- Bhadrakāpya asserted that there is only one essence: water.
- Śākuntēya said there are two: eliminating and pacifying.

- Pūrṇākṣa said there are three: eliminating, pacifying, and equalizing.
- Hirāṇyākṣa, four: tasty and healthy, tasty and unhealthy, nasty and healthy, nasty and unhealthy.
- Kumāraśīrā Bharadvāja, five: derived from earth, water, fire, wind, space.
- Vāryovida, six: heavy/light, cold/hot, oily/dry
- Nimi, seven: sweet, sour, salt, pungent, bitter, astringent, alkaline.
- Baiśa of the Dāmārgava family, eight: Nimi’s seven, plus an unmanifest one.
- **Kāṅkāyana**, innumerable, because the underlying factors such as substrate, property, action, and taste are innumerable.
- Punarvasu Ātreya asserted that there are six essences. In a tangled passage he managed to bring all the answers of the previous interlocutors into relationship with his assertion of six essences, thereby including everyone’s answer. Ātreya then delivered a lecture about the essences.

At the time of the events recorded in the *Caraka*, then, Balkh was unproblematically part of the cultural sphere, and physicians from Balkh were perceived as valid authorities and participants in medical debate and opinion.

5. HARIŚCANDRA OF BALKH

The Kick (Skt. *Pādatāḍitaka*) of Śyāmilaka is a comic monologue written in Kashmir probably in the second half of the fifth century (Dezsó and Vasudeva 2009: xvii–xix.). It is of interest to us in the present context because the author makes several references to Bactria.

The protagonist of *The Kick* meets a physician in the street called Hariścandra.

⁶Paraphrase from Ca.sū.26.3 ff.

Hariścandra is called “a man from Balkh (Skt. Bālhika)” and the son of Īśānacandra, the descendant of Kānkāyana (Schokker, 1966, p.87; Schokker and Worsley, 1976, p.13).⁷ See the family lineage in Fig. 4.

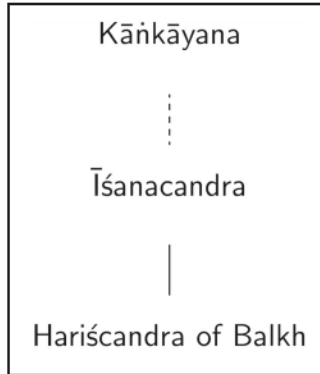


Fig. 4. Hariścandra’s lineage

This is interesting for two reasons. First, the name Hariścandra is a name to conjure with, since a Hariścandra was amongst the earliest commentators on the *Compendium of Caraka*, and was much quoted and praised by later authors (Meulenbeld, 1999–2002: 1A.187–90.). But his work was lost, and only a few fragments survive in manuscript form. The date of this commentator Hariścandra is hard to pin down, but citations by other authors prove that he must have lived before CE 600 and perhaps even before Dṛḍhabala, a redactor of the *Caraka* who lived in the period CE 300–500 (Meulenbeld 1999–2002, p.141). This Hariścandra is often titled “Bhaṭṭāra” or “Bhaṭṭāraka,” titles that are commonly associated with northerners from Kashmir or Bactria.

Given the elasticity of the dates that can be reconstructed for the commentator Hariścandra and the author Śyāmilaka, it is possible, and

in my view likely, that they refer to the same person.

6. THE RIVER OF KINGS

The historical chronicle of Kashmir, the *River of Kings* (*Rājatarāṅgiṇī*) by Kalhaṇa (fl. ca. 1100–1150), also described a physician from Bactria who visited Kashmir.⁸ This event is placed during the reign of King Lalitāditya Mukṭāpīḍa.⁹ King Mukṭāpīḍa flourished in the period CE 699–755 (Stein, 1900: 1.88). In the *River of Kings*, a Bactrian called Caṅkuṇa arrives in Kashmir, where, according to Kalhaṇa, he founded a Buddhist stūpa and two monasteries (*viḥāra*), one of them in Śrīnagar (Stein, 1900: 1.90). Caṅkuṇa was also a magician (Stein, 1896: 19). His brother Kaṅkaṇavarṣa was an alchemist (Bladel, 2011: 70). Kalhaṇa himself said that he had visited Caṅkuṇa’s Viḥāra in Śrīnagar, and saw the Buddha statue there that King Mukṭāpīḍa had caused to be transported from Magadha on the back of an elephant (Stein 1896: 20). Pleasingly, Caṅkuṇa’s visit to Kashmir was separately recorded by the Chinese Buddhist pilgrim Wūkōng (悟空, d. CE 812), who visited Kashmir during CE 759–763. Twenty-seven years after returning home from Kashmir, he narrated his travels and observations to the monk Yuen-tcha, who wrote it as a book that has survived (Lévi and Chavannes, 1895). In Kashmir, Wūkōng took vows and devoted himself to pilgrimages and the study of Sanskrit for four years. He observed more than three hundred monasteries in the Kashmir valley, nine of which he names. One of these, he said, was called the Caṅkuṇaviḥāra, “Caṅkuṇa’s Monastery” and was built by the Caṅkuṇa of Tuhkhāra (Stein, 1896: 20 ff. and *Rājatarāṅgiṇī* IV 211–16, 246–64, 361 (Stein, 1900: 1.143–7, 3.52–4)). The sources note

⁷ Deszó and Vasudeva, 2009, p. 46-47: *Eṣa hi sa Bālhikaḥ Kānkāyano bhiṣag Aiśānacandrīr Hariścandraś ita evābhivartete*

⁸ The authorship of the *River of Kings* is more complicated than suggested here. See Obrock and Einicke 2013 for recent scholarship.

⁹ Stein (1900: 1.88–93) surveyed the king’s life and importance

that the Bactrian royal family had founded many Buddhist sacred places.¹⁰ Wūkōng also mentioned two other monasteries in Kashmir that were founded by Tokharian nobles (Stein, 1896: 21 f.). These events suggest that strong connection existed between Tokharians, that is Bactrians, and the Kashmir valley and its Buddhist culture.

It is not only literary evidence that shows connections between Ayurveda and the physicians of Balkh, or the diaries and chronicles that describe Bactrians visiting Kashmir to study Sanskrit and build *vihāras*. We also have physical evidence of manuscripts. Bladel (2011, p. 56) has noted that, “The Sanskrit manuscripts at Shahr-i Zohak, a ruined castle 15 kilometres east of Bamiyan, included medical texts.”¹¹

7. BARMAKIDS AND PRAMUKHAS

In a path-breaking scholarly contribution, Bladel (2011) has provided a definitive clarification of the Bactrian background of the Barmakids. As he has reminded us, the Barmakids were a family of senior administrators and district governors who functioned at the heart of the

Abbasid court in Baghdad, during the crucial early centuries of Islam.¹²

Thanks to van Bladel’s research, we now know that the frequent references in older literature to the Barmakids being Persian or Zoroastrian are imprecise.¹³ They were, rather, Buddhist Bactrians. Gibb and Kramers (1986–2002: v.2, p.17) state the history succinctly, and more or less correctly when they say:

The Barmakids [q.v.] are usually described as Persians, but they were of a very different kind from the Khurasanian rebels who followed Abu Muslim. Their religion before conversion to Islam was neither Zoroastrianism nor any of its heresies, but Buddhism, and they belonged to the aristocratic, landowning priesthood of the Central Asian city of Balkh, an ancient capital whose imperial and commercial traditions provided a fund of experience to the ruling class of its citizens. It was after the foundation of Baghdad that Khalid al-Barmakī appeared as the right-hand man of al-Mansūr, and thereafter he and his descendants developed and directed the administration of the Empire, until the dramatic and still unexplained fall of the Barmakids from power under Harun al-Rashīd in 803.

Pramukhas		Caliphs	
“The” Pramukha			
		al-Saffah	650
Khālid		al-Mansūr (fl. ca. 714-775)	700
Yahya		al-Mahdi (r. 775-785)	
al-Fadl	Ja’far	Harūn ar-Rashīd (r. ca. 786-809)	800

Fig. 5. Barmakids and Caliphs

¹⁰ Stein (1896: 1.90) noted that details of Wūkōng’s evidence are probably supported in Chinese documents and inscriptions from the same period. He referred to Lévi and Chavannes 1895; Stein 1896 for further discussion.

¹¹ Bladel refers to Pauly (1967) on this point.

¹² van Bladel uses especially al Kirmānī’s account of the time (Bosworth 1994).

¹³ Such assertions are widespread in secondary literature. E.g., Takim 2006: 51: “The Barmakids were a Persian family of secretaries and wazirs who served the early ’Abbasid caliphs in different administrative capacities.”

Fig. 5 shows how the family generations of Barmakids and Baghdad Caliphs were imbricated. The historical memory of this multi-generational collaboration between Caliphs and Barmakids became the stuff of legend and is transmitted, through *The One Thousand and One Nights* even to the present, in the figure of Walt Disney's Jafar, the evil magician and vizier appearing in the 1992 film *Aladdin* (Fig. 6).¹⁴



Fig. 6. Disney's Jafar, the evil vizier. *Aladdin*, 1992

8. A NOTE ON "PRAMUKHA"

Ever since the article "*Iranica*" by Bailey (1943), it has been generally accepted that Arabic "Barmak" (برمك) is to be derived from Sanskrit "*pramukha*." According to Sircar's authoritative *Indian Epigraphical Glossary*, a *pramukha* is a rank term known from Kalachuri-Chedi inscriptions (6th–12th centuries) as the name of "a

member of the executive committee of a corporation".¹⁵ Sircar also noted that the term is "probably the same as *pradhānin*,"¹⁶ which in turn is the same as *pradhāna* (Sircar, 1966, p. 254). Sircar's *Glossary* cited epigraphical evidence showing that the term *pradhānin* could mean, in different contexts, "a governor, minister or president; noble or courtier," "a high executive officer, same as *pradhāna*", or "a village headman" (Sircar, 1966, p.254). The title *mahāpradhānin* often meant "the chief minister or administrator; same as *Mahāpradhāna* and *Nāyaka*" (Sircar, 1966, p.254).

According to the *Corpus Inscriptionem Indicarum* 4, (Mirashi, 1955: 1.clxx, 2.612, 614, 616n) "*pramukha*" is equivalent to "*kāryacintaka*" "one who worries about duties" [= "a member of the executive committee of a corporation" (Sircar, 1966, p.150.)].

The Kalachuri grant mentioning the title *pramukha* is datable to 19 March CE 573 (Mirashi, 1955: 2.613).¹⁷

The title "Pramukha" continued in use in India for at least a millennium. Gode described evidence that one Kṛṣṇabhaṭṭa Bakhale was the leader (*pramukha*) of Karhāḍe Brahmans in Benares between 1550 and 1600 (Gode n.d.: 16.).

The family known to Arabic authors as "al-Barmakī" was in fact a family of hereditary Pramukhas, administrators of the Nava Vihāra in Balkh. Captured during the Arab expansion into Bactria, and transported via Syria to Baghdad, they rose to positions of power at the Abbasid court second only to the Caliphs themselves.

¹⁴ An accessible account of this history is provided by Marozzi (2015: ch. 2).

¹⁵ Sircar 1966: 256, referring to *Corpus Inscriptionum Indicarum* v. 4.

¹⁶ Citing *Epigraphia Indica* v. 28.

¹⁷ The grant, called "Nagardhan Plates of Svamiraja: (Kalachuri) Year 322" (no. 120, plate XCIX)," consists of three copper plates, discovered in 1948 in Nagardhan, a small village near Ramtek in the Nagpur district. Coordinates N 21.34423, E 79.31699

9. INDIAN MEDICINE IN BAGHDAD AND THE FOUNDATION OF THE BĪMĀRISTĀN

Van Bladel has also shown much more precisely than was previously understood that the Khalid al-Barmakī's father was educated in Sanskrit *śāstrika* knowledge in Kashmir, probably before 709 CE, and that this included studies in philosophy, astrology and medicine (Bladel, 2011, pp. 69–72).

Van Bladel's second major discovery is that the al-Barmakī family's first language was Bactrian.

There can be little doubt that, before arriving in Syria, Khalid's first language was Bactrian, the language of both his parents, and that his first religion was that of the Nawbahar, Buddhism (Bladel, 2011, p.72).

At the Baghdad court, successive caliphs commissioned successive Barmakids to develop Sanskrit scholarship in Baghdad. This involved bringing both scholars and Sanskrit texts to Baghdad, and translating these works into Persian and Arabic. In a more recent contribution, van Bladel (2015) has explored the reasons why the caliphs of Baghdad in the eighth century would have thought it a good idea to bring Sanskrit pandits to Baghdad. Van Bladel's suggestion is that they were strongly influenced by the model of the Chinese Tang court, that was the major power on the caliphs' eastern border. The Chinese government at this time had endowed Indian scholarship, in particular astronomy, with special status. It was this that al-Manṣūr, the Caliph in Baghdad, was emulating.

In the global history of medical institutions, the history of hospitals is particularly important. One of the most famous early hospitals in western medical history was the Bīmāristān founded in Baghdad in the eighth century. Shefer-Mossensohn and Hershkovitz (2013, 282 ff.) have surveyed the historical explanations surrounding the founding of this Bīmāristān of Baghdad (cf.

Dols, 1987). First, it has been explained as an Umayyad institution. Second, it has been explained as an 'Abbāsīd institution founded by Hārūn al-Rashīd. One concept here is that the 'Abbāsīd's were interested in providing an Islamic answer to Christian charitable institutions. Building on van Bladel's work, Shefer-Mossensohn and Hershkovitz have presented a compelling third argument that considers the Indian cultural influence at the Abbāsīd court to have been pivotal for the creation of the famous Bīmāristān hospital of Baghdad (Shefer-Mossensohn and Hershkovitz, 2013). Shefer-Mossensohn and Hershkovitz propose that the Bīmāristān of Baghdad was an 'Abbāsīd institution established by the Barmakids. The authors give evidence that there were in fact two early hospitals in Baghdad, one aligned with the second explanation, and personally patronised by Hārūn al-Rashīd, and another set up under the aegis of the Barmakids.

Shefer-Mossensohn and Hershkovitz draw on evidence from within the Islamic tradition, especially the writings of the biographer al-Nadīm (d. 995 or 998, Baghdād, wrote *Kitāb al-Fihrist*), to show that Yaḥyā had invited Indian physicians to Baghdad to work in the hospital that he founded (Dodge, 1970). From al-Nadīm and also the earlier judge and author Ibn Qutayba (828–889) we discover that Indian medical texts such as the *Compendium of Caraka*, the *Compendium of Suśruta* and the *Siddhasāra* of Ravigupta were translated in Baghdad under Yaḥyā's patronage.

In particular, the *Compendium of Caraka* was translated by an Indian physician called Manka (or Maṅkha), during the reign of Harūn ar-Rashīd (r. ca. 786–809) (Meulenbeld, 1999–2002: 1A, 116). This was just the time at which the first hospitals were built in Baghdad. And we know that Caraka's compendium actually contains a description of how to build and equip a hospital.

Here is the *Compendium of Caraka's* description of how to build and equip a hospital,

that dates at the latest from the second or third century CE:¹⁸

I shall now point out in brief the various supplies. Thus, an expert in the science of building should first construct a worthy building. It should be strong, out of the wind, and part of it should be open to the air. It should be easy to get about in, and should not be in a depression. It should be out of the path of smoke, sunlight, water, or dust, as well as unwanted noise, feelings, tastes, sights, and smells. It should have a water supply, pestle and mortar, lavatory, a bathing area, and a kitchen.

After that, one should select the staff of soup and rice cooks, bath attendants, masseurs, people to help patients with getting up and sitting down, and herb grinders. They should be good-natured, clean, well-behaved, loyal, practical, and pious. They should be skilled in nursing, and accomplished in all treatments. They should not be reluctant to work. The attendants should be able to sing, play instruments, and perform recitations, as well as being skilled in verses, songs, stories, legends, and ancient lore. They should be pleasant and able to anticipate. They should know the where and when of things, and be generally sociable. There should be bustard-quails, grey partridges, hares, black-buck, Indian antelope, black-tails, chinkara, sheep, and a nice, healthy milk cow with a live calf and good arrangements for grass, shelter, and drinking water.

There should be dishes, cups, water barrels, jugs, pots, pans, saucepans, large and small jars, bowls, platters, spoons, straw mats, buckets, an oil pan, churns, leather, cloth, thread, cotton, wool, and so forth. There must be beds and seats, and so on, with vases and receptacles placed near them. Their coverlets, quilts, and pillows should be neatly made, and they should have bolsters. These are to make it easier to apply treatments involving lying down, sitting down, oiling, sweating, massage, balms, showers, massage ointments, vomiting, purges, decoction enemas, oil enemas, purging the head, urine, and faeces. There should be smooth, rough, and medium grinding stones with well irrigated uppers. Knives and their accessories must be supplied, as well as pipes for smoking, tubes for enemas and douches, a brush, a pair of scales, and a measuring instrument. There must be supplies

of ghee, oil, fat, marrow, honey, sugarcane treacle, salt, kindling, water, mead, molasses rum, liquor, fermented barley-water, fermented bean-husk water, blended liquor, spirits, curds, sour cream, watered buttermilk, The fermented rice-water, and urine. There must also be supplies of śāli rice, sixty-day śāli rice, mung beans, green gram, barley, sesame, poor-man's pulse, cottony jujube, grapes, white teak, phalsa, myrobalan, emblic, belliric myrobalan, as well as the various kinds of drugs used during oiling and sweating.

There should be drugs for throwing up, soothing, and those which have both effects [purging and emetic], as well as medicines well-known for constipating, for kindling the digestion, digestives, and those which remove wind.

All these supplies, as well as anything else that might be needed in an emergency, should be reckoned up and provided for the purpose of treatment. And items of food over and above the prescribed diets should also be laid on.

Later verses in this chapter turn to the detailed treatment of the patient, and show that the patient is being treated on a bed, attended by family and professional staff.

Descriptions also show the patient being taken to a draught-free room where he is asked to lie down, and is given instructions about maintaining good health through a balanced lifestyle (v.15). It is assumed that the patient will be present for several days, since there are treatments prescribed for “the evening or the next morning” and detailed descriptions are given for the contents of twelve consecutive meals (v.16). It is only after seven more nights that the patient may once again meet his friends and family and be permitted to resume his normal duties (v.17).

Through a ring of cultural influences from Kashmir to Balkh through the Buddhist Pramukhas, we can trace the movement of Caraka's hospital description to Baghdad, where it is likely to have formed the blueprint the earliest Islamic hospital.

¹⁸ Ca.sū.15.6–7 (Ācārya 1981: 93–4). For the full arguments regarding the date of Caraka's *Compendium*, see Meulenbeld 1999–2002: 1A: 105–116

10. CONCLUSIONS

- The *Compendium of Caraka* demonstrates a clear knowledge of physicians from Balkh, who form part of the senior experts who discuss and form Ayurvedic conceptions.
- The Pramukhas of Navavihāra in Balkh were originally Buddhists, trained in Sanskrit *śāstras* in Kashmir.
- When in Baghdad, the Pramukha lineage of viziers maintained connections with India and invited Indian scholars to Baghdad to translate Sanskrit *śāstrika* works, including Ayurvedic treatises, into Arabic or Persian.
- The works known to the Pramukha viziers would have included the *Compendium of Caraka*, that contains a description of how to build and equip a hospital.
- The Baghdad hospital built and run by the Pramukha lineage was almost certainly inspired by the blueprint provided by the *Compendium of Caraka*.

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