



Early Muslim Medicine and the Indian Context: A Reinterpretation

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Abstract

The past few decades have witnessed a remarkable shift in the way scholars study the field of sciences in Muslim societies. Up to the 1980s, research focused on Muslim scientists' role as transmitters of science to the West, and as contributors to Western science. The Muslim world was commonly viewed as a link between ancient Greece and Latin Christendom, its scholars serving as translators of Greek treatises, and as preservers of Greek knowledge. Recently, the theme of Indian-Muslim cultural-scientific relations has attracted growing attention. Following this trend, we maintain that the eighth and ninth centuries reveal an interaction between Indian and Muslim medicine and physicians. Building on the past work of scholars such as Michael W. Dols and more recently Kevin van Bladel, we reinterpret medieval Arabic sources to reveal that the interest in Asian science was not a brief and untypical phenomenon that lacked long-lasting implications. By rereading Arabic chronicles and biographical dictionaries, we will portray how a rather brief contact between 'Abbāsid Iraq and India proved to yield enduring influences. We will focus on two aspects of Muslim medical practice for demonstrating the Indian connection: the presence of Indian physicians in Baghdād in and around the 'Abbāsid court, and the emergence of early Muslim hospitals.

Keywords

'Abbāsid, Barmakids, Byzantium, hospitals, India, Islam, medicine, medieval, transmission of knowledge

The past few decades have witnessed a remarkable shift in the way scholars study the field of sciences in Muslim societies. Up to the 1980s, research focused on Muslim scientists' role as transmitters of science to the West, and as contributors to Western science. The Muslim world was commonly

viewed as a link between ancient Greece and Latin Christendom, its scholars serving as translators of Greek treatises, and as preservers of Greek knowledge. This notion was challenged in a 1987 article by A.I. Sabra.¹ In his article, Sabra advocated shifting the focus of inquiry to the Islamic context. One of his key arguments was that a Greek text, once translated, became part of Islamic culture, and should be studied as such.² Recent scholarship similarly emphasizes the idea that translation produces a new cultural artifact, and that the knowledge transmitted takes on fresh meanings in its new context.³ This idea brings to the fore a different discourse, which emphasizes the translation of scientific texts as a cultural category, the reciprocity between science and society, and the relativity of knowledge, in the sense that any process of systematization reflects the time and place of its production.⁴ Scholars have also turned to examine the development of sciences in their new contexts, shedding light, for example, on the social environment that gave rise to a translation movement during the early 'Abbāsid days.⁵ Within this framework, it is customary to emphasize the Galenic roots of medieval Muslim medicine, leading to the Byzantine context receiving much attention. Our contribution here is to add yet another context to the evolution of medieval Muslim medicine, namely the Indian one. We demonstrate how Muslim medicine evolved into a coherent and complex medical system precisely during the period defined as the "Indian half-century of Islam."⁶

The theme of Indian-Muslim cultural-scientific relations has recently attracted growing attention. One example is Kim Plofker, a historian of Indian mathematics, whose book on the history of Indian mathematics,

¹ "The Appropriation and Subsequent Naturalization of Greek Science in Medieval Islam," *History of Science* 25 (1987), 223-243.

² See Jamil Ragep's analysis of Sabra's article in: *Tradition, Transmission, Transformation Proceedings of Two Conferences on the Pre-Modern Held at the University of Oklahoma*, eds. Jamil Ragep and Sally Ragep (Leiden: Brill, 1996), xvii.

³ Scott Montgomery, *Science in Translation* (Chicago, IL: University of Chicago Press, 2003), 4.

⁴ See, for instance, the ideas presented by Doyle McCarthy, *Knowledge as Culture, The New Sociology of Knowledge* (London: Routledge, 1996), 1-3; Peter Burke, *A Social History of Knowledge from Gutenberg to Diderot* (Cambridge: Polity, 2000).

⁵ The proceedings of the conference in Oklahoma University cited in n. 2 provide a good example of this trend.

⁶ Christopher I. Beckwith, *Empires of the Silk Road: A History of Central Eurasia from the Bronze Age to the Present* (Princeton, NJ: Princeton University Press, 2009), 153, 413, n.76.

based on Sanskrit texts, includes a chapter on the interactions between India and the Islamic world, pointing to the ways both cultures struggled to understand one another.⁷ Furthermore, Johan Elverskog, an expert on Asian religions with a special emphasis on Buddhism, discusses the wider context of Buddhist-Muslim interactions. Elverskog highlights the constant, varied and at times quite easygoing encounters and interconnections of Buddhism and Islam in central Asia, from the earliest contacts during the seventh and the ninth centuries until the nineteenth century. He explores several domains, including religious thought, economic regimes, artistic production, and everyday activities such as cooking and making a living.⁸ He argues that the common image of these two civilizations as adversaries and as diametrically opposed reflects popular imagination more than actual historical experience, and is in part the product of nineteenth-century Orientalism. In his most recent book, Christopher I. Beckwith goes one step further, suggesting that the crucial elements of medieval European scientific culture are rooted in Buddhist Asian civilization transmitted from East to West by Central Asian and Arab Muslims. To establish the Eurasian link, he refers to the recursive argument method, a scholastic method based on disputed questions, and the European college as and the precursor of the universities as a social institution of high learning and an architectural form. The recursive argument method and the college were typically considered indigenous to European science, but in fact, according to Beckwith's argument, were developed in 1st-2nd century AD Buddhist India, passed into Islamic civilization, and then thrived in the Latin world since the 13th century (the college was a metamorphosis of the Islamic *madrasa*), and became key to the developing medieval Latin scientific culture.⁹

While we are not convinced that Islam and Buddhism "are actually very much the same,"¹⁰ we do maintain that the eighth and ninth centuries reveal an interaction between Indian and Muslim medicine and physicians. This interaction has attracted Michael W. Dols' attention, in his classic

⁷ Kim Plofker, *Mathematics in India* (Princeton, NJ: Princeton University Press, 2009), Chapter 8, "Exchanges with the Islamic World," 255-278.

⁸ Johan Elverskog, *Buddhism and Islam on the Silk Road* (Philadelphia, PA: University of Pennsylvania Press, 2010). The authors thank Professor Zvi Ben-Dor for referring them to this new study.

⁹ Christopher I. Beckwith, *Warriors of the Cloisters: The Central Asia Origins of Science in the Medieval World* (Princeton, NJ: Princeton University Press, 2012).

¹⁰ Elverskog, *Buddhism and Islam*, 8.

essay on the origins of the early Muslim hospital.¹¹ However, since at that point Dols was interested primarily in exploring the give and take between Muslim hospitals and Byzantine medical institutes, he was satisfied with merely outlining a possible circle of Arab-Muslim intellectuals who may have been interested in Indian medicine, without exploring this point any further. In 2010, Kevin van Bladel did just that. He unearthed an astonishing amount of evidence in Arabic and Persian regarding the Persian and Buddhist background of one elite Muslim family, the Barmakids, circa 800 CE, pointing to their interest in Asian science.¹² Van Bladel, however, presented this phenomenon as brief, and as having no long-lasting implications.

However, at least in the case of medieval Arabo-Muslim medicine, this rather brief contact between Baghdād and India proved to yield long-term results. Building on previous literature, we would like to offer a new interpretation of these contacts that have so far been rather marginalized in the scholarship. We will focus on two aspects of Muslim medical practice in order to demonstrate its Indian connection: the presence of Indian physicians in Baghdād in and around the 'Abbāsīd court, and the emergence of early Muslim hospitals.

Indian Physicians in and around the 'Abbāsīd Court

The end of the eighth and the beginning of the ninth century marked a time during which Indian medicine enjoyed considerable status in the 'Abbāsīd court. The capital Baghdād was cosmopolitan, home to a highly diverse mix of ethnic, social, and religious groups co-existing within it.¹³ One such group was Indian physicians.

Al-Jāhīz (died 868-869), the famous Arab writer of *adab*, was interested in knowledge from various sources, including that of contemporary Indian

¹¹ Michael W. Dols, "The Origins of the Islamic Hospital: Myth and Reality," *Bulletin of the History of Medicine* 61 (1987), 385.

¹² Kevin Van Bladel, "The Bactrian Background of the Barmakids," in *Islam and Tibet-Interactions along the Musk Routes*, eds. Anna Akasoy, Charles Burnett and Ronit Yoeli-Tlalim (London: Ashgate, 2011), 43-88. We thank Dr. Ronit Yoeli-Tlalim for referring us to this paper when it was just published.

¹³ On the social and cultural characteristics of early 'Abbāsīd Baghdād, see Françoise Micheau, "Baghdad in the Abbasid Era: A Cosmopolitan and Multi-Confessional Capital," in *The City in the Islamic World*, eds. Salma K. Jayyusi, Renata Holod, Attilio Petruccioli and André Raymond (Leiden: Brill, 2008), 221-245.

physicians. He relates an anecdote about them transmitted to him by Ma'mar Abū al-Ash'ath (d. 830-831), a theologian who might have been associated with the Mu'tazila.¹⁴ Abū al-Ash'ath told al-Jāhīz about a conversation he had with an Indian physician by the name of Bahla in the times of Hārūn al-Rashīd (reigned 786-809). Abū al-Ash'ath engaged Bahla on a philosophical topic, and enquired what eloquence meant for the Indians. Bahla answered that he was not knowledgeable in this art. He knew there was a special text (*ṣahīfa*) that discussed eloquence, but he could not translate it since he never learned the subject, and therefore his translation would not be adequate.¹⁵ Al-Jāhīz mentions the names of other Indian scholars who came to Iraq around the same time as Bahla, some of whom seem to be mythical figures rather than historical ones. Other names, like Manka, appear in additional 'Abbāsīd sources and in later ones as well, and can be historically verified (see below).

The first association of the 'Abbāsīds with Indian medicine is attributed already to al-Manṣūr (r. 754-775), the second 'Abbāsīd caliph, and founder of their capital Baghdād. The historian and Quran commentator Al-Ṭabarī (d. 923) mentions an Indian doctor being invited to al-Manṣūr. In this case, as in later invitations of Indian physicians to the court, the medical entourage of the caliph was unable to suggest a solution to a grave medical situation, and the caliph had to look elsewhere for an answer. According to al-Ṭabarī, al-Manṣūr was unable to digest his food and asked the doctors to bring him digestives. They claimed that the digestives would only intensify the illness, and recommended the caliph eat less. But then a nameless Indian doctor appeared; he confirmed that digestives could indeed aggravate the problem, yet prepared a drug for the caliph: a digestive powder with hot spices and medicament to ease his pains. Al-Manṣūr took it and was subsequently able to digest his food, for which he highly praised the doctor.¹⁶

Hārūn Al-Rashīd invited yet another Indian physician to his court. At the recommendation of a Persian courtier, the caliph summoned one Kanka

¹⁴ Abū 'Utmān al-Jāhīz, *Al-Bayān wa'l-Tabyīn* (al-Qāhira: Maktabat al-Khānjī, 1985), 91; Josef van Ess, *Theologie und Gesellschaft im 2. und 3. Jahrhundert Hidschra: Eine Geschichte des religiösen Denkens im frühen Islam* (Berlin: de Gruyter, 1991), 2:37-38; Van Bladel, 80.

¹⁵ Al-Jāhīz, *Al-Bayān wa'l-Tabyīn*, 92.

¹⁶ *Ta'rīkh al-Rusul wal-Mulūk*, 10:387-888. For an English edition, see *The History of al-Ṭabarī*, vol. 29 (*Al-Manṣūr and al-Mahdī*); trans. and annot. by Hugh Kennedy (Albany, NY: State University of New York Press, 1990), 89.

from India to treat him when he fell ill. Some confusion surrounds the identity of Kanka, as the sources also mention an Indian physician by the name of Manka (who will also feature later in this essay). At least one modern-day commentator, namely Dodge, translator and annotator of Ibn al-Nadīm's *Fihrist* (died 995 or 998, Baghdād), identifies Kanka and Manka as one and the same man.¹⁷

One piece of information that allows us to identify Kanka as a real physician operating in the Harunid court is revealed by al-Nadīm. According to the latter, Kanka was employed as a translator for Ishāq Ibn Sulaymān ibn 'Alī al-Hāshimī.¹⁸ Ishāq Ibn Sulaymān was a prominent member of the 'Abbāsīd administration under the reign of Hārūn, during which Ishāq acted as governor of several regions, including Madina, Sind, Egypt, Basra, and Armenia. His marriage to al-Manṣūr's daughter, whose mother was an Umayyad princess, both explains and demonstrates his strong position within the family. Yet as governor he seems to have been rather ineffective, and he disappears from the records after 810, when he was dismissed from the governorship of Homs, following a local rebellion against him. According to the eleventh-century *Ta'rikh Baghdād*, Ibn Sulaymān passed away in the 'Abbāsīd capital.¹⁹ The twelfth-century scholar al-Bayhaqī attributes to

¹⁷ See Ibn al-Nadīm, *Fihrist* (Muṣṭafā Muḥammad ed. Cairo: al-Maktaba al-Tijāriya al-Kubrā, 1929), 342 (for Manka), 378 (for Kanka). For an English version see Bayard Dodge (ed.), *The Fihrist of al-Nadīm: A Tenth Century Survey of Muslim Culture* (New York, NY: Columbia University Press, 1970), 2: 589 fn. 69. Ibn Abī Uṣaybi'a, *Uyūn al-'Anbā' fī Ṭabaqat al-'Aḥbāb* (Frankfurt: Ma'hid Ta'rikh al-'Ulūm al-Islāmiyya, August Müller, ed., 1995 rep.) contains an entry for Manka (p. 33) and one for Kanka (p. 32); Ibn al-Qiftī, Jamāl al-Dīn Abū al-Ḥasan 'Alī b. Yūsuf b. Ibrāhīm b. 'Abd al-Wāḥid al-Shaybānī, *Ikhbār al-'Ulamā' bi-Akhbār al-Ḥukamā'*, J. Lippert, ed. (Leipzig: Dieterich, 1903), 265-267. The Ayyūbid author Al-Qiftī, another important biographer of physicians, mentions Kanka only, with very little biographical information. Most of the biography is dedicated to an anecdote discussing the characteristics of kings of different nations.

¹⁸ Ibn al-Nadīm, 289. This piece is reiterated by Ibn Abī Uṣaybi'a, a thirteenth-century n important biographer of Muslim physicians: Ibn Abī Uṣaybi'a, *Uyūn al-'Anbā'*, 33. Interestingly, this piece of information is not mentioned in Ibn al-Qiftī.

¹⁹ *Ta'rikh al-Rusul wal-Mulūk*, 10: 442-443, 603, 607, 609, 629; 11: 777. For English editions, see *The History of al-Ṭabarī*, vol. 29, 149; vol. 30 (*The 'Abbāsīd Caliphate in Equilibrium*); translated and annotated by C.E. Bosworth (Albany, NY: State University of New York Press, 1989), 97, 104, 109, 139, 305; vol. 31 (*The War Between Brothers*); trans. and annot. by Michael Fishbein (Albany, NY: State University of New York Press, 1992), 43; Ibn al-Jawzī, *Al-Muntazam fī Ta'rikh al-Mulūk wal-'Umam* (Bayrūt: Dār al-Kutub al-'Ilmiyya, 1412 hijri/1992), 9: 3; al-Khaṭīb al-Baghdādī, *Ta'rikh Baghdād* (Bayrūt: Dār al-Kitāb al-'Arabī, 197-), 6: 329. The

him certain medical dicta regarding dietary regimens, the usefulness of clay, and general health.²⁰ The profile of such a person at the heart of the 'Abbāsid court fits well with the cultural activities that were attributed to him by al-Nadīm, specifically those regarding early patronage of translations in general, and medical translations in particular. Ibn Sulaymān's choice of patronizing Indian medicine was not unique in the context of the Hārūnid court; in fact, he was thereby following caliphal tastes, as we will now demonstrate.

In the court of Hārūn al-Rashīd, Greek and Indian medical theories were regarded as alternatives of equal merit. We find such a portrayal in the biography of one Šālīḥ ibn Bahla (apparently the same Bahla mentioned by al-Jāḥiẓ, this time portrayed in a more Arabic and Muslim garb, or maybe even the Indian's Bahla Arabized-Abbasid son?²¹), who was invited to treat one of al-Rashīd's relatives when all other doctors had failed. Šālīḥ ibn Bahla is explicitly described as practicing Indian medicine, in contrast to Jibrīl Bukhtīshū', another leading court physician, who was presented as practicing Greek (*rūmī*) medicine. The text is formulated in a way that presents the two doctors as peers who enjoyed similar status. The way they are compared suggests there was some competition between them as well—one in which the Indian physician prevailed: the anecdote recounts how he succeeded in curing a person whom the Galenic physician had already pronounced dead and advised preparing for his funeral.²²

In Arabic sources, the Bukhtīshū' family would become synonymous with the hegemony of Hellenized medicine in the 'Abbāsid court and Muslim society in general, eventually prevailing in power and recognition over their Indian counterparts.²³ Yet at this stage, around 800, the victory seems uncertain, to say the least. Furthermore, al-Ṭabarī presents Indian medicine as entering the court earlier than Greek medicine. He mentions al-Manšūr extending an invitation to Indian physicians, yet does not men-

authors wish to thank Dr. Leah Kinberg of Tel Aviv University for her help in locating Ishāq Ibn Sulaymān in the sources.

²⁰ Ṣāḥīḥ al-Dīn al-Bayhaqī, *Ta'rikh Ḥukamā' al-Islām*; taqdim wa-taḥqīq Mamduḥ Ḥasan Muḥammad (al-Qāḥirah: Maktabat al-Thaqāfah al-Dīniyah, 1996), 32.

²¹ This possibility was raised by one of our anonymous readers. We thank him/her for the suggestion.

²² Ibn al-Qiftī, 215-217; Ibn Abī Uṣaybi'a, 2:34.

²³ D. Sourdel, "Bukhtīshū'," *Encyclopaedia of Islam, Second Edition*. Brill Online, 2013. Available online at http://referenceworks.brillonline.com/entries/encyclopaedia-of-islam-2/bukhtishu-SIM_151430 (accessed 30 March 2013).

tion similar invitations to Greek-Christian physicians. Thus, for example, he does not mention Jurjis b. Jibrīl b. Bukhtīshū', the first of his family to be invited to Baghdād, curing al-Manṣūr of his stomachache in 765—an incident referred to by later sources.²⁴ It could be that sources later than al-Ṭabarī were more aware of the theoretical differences between the various medical schools hitherto practiced. It could also be that they were ever more mindful of the by-then (mid-tenth century) established dominance of one of these schools, namely Galenism, trying to demonstrate it had deep roots in the Muslim context. Even the Arabic historian-geographer al-Mas'ūdī (died 956), who was but a few decades younger than al-Ṭabarī, devotes much more space to Galenism as an independent (and, in his opinion, superior) medical theory and practice, and does not mention any of the Indian physicians discussed by his older colleague. Al-Mas'ūdī only mentions India in very specific contexts. He discusses it as one of the seven ancient nations of the world. Furthermore, it was probably through the region of Sind-Hind that the first form of astronomy was introduced to the Muslim world. Although Indian medicine and physicians are mentioned in this text, they do not figure prominently. Al-Mas'ūdī's discussion of the Greek traditions, on the other hand, is longer and more detailed. He is not only familiar with Greek philosophy, but also reveals an understanding and appreciation of Greek scientific thinking in general (including its terminology, definitions, choice of topics, etc.).²⁵ When, in the thirteenth century, Ibn Abī Uṣaybi'a (d. 1270) discusses the invitation of Indian physicians to the court, he says that they were invited as representatives of Indian medicine, which was clearly distinguished from the Greek one.

The sources referring to the presence of Indian physicians in Iraq discussed above were written at least several decades later than the events discussed here. Nevertheless, this fact grants this evidence extra strength. The anecdotes cited here, and others like them, were written at a time when another medical approach had gained supremacy in Baghdād and the Muslim world in general, namely the Galenic-humoral medicine, inherited from antiquity and expanded. The now-hegemonic Galenic physicians and their patrons tried to disseminate their own version of this historical process, and to legitimize their methods and practices. If, though, even

²⁴ For the circumstances that led to his arrival to the court, see Ibn al-Qiftī, 158.

²⁵ Abī al-Ḥasan 'Alī ibn al-Ḥusayn ibn 'Alī al-Mas'ūdī, *Kitāb al-Tanbīh wal-Ishrāf* (ed. M.J. De Goeje; Bayrūt: Maktabat Khayyāt, 1965), 87, 115-22, 129, 131, 220 (sample of references to Greek and Indian thinking and thinkers, with emphasis on the former).

after such an attempt to erase previous competitors from collective memory (as victors tend to do), there still remain glimpses of those bygone rivals, this suggests we should pay attention to those scattered hints, which serve as windows onto a much richer past reality.

By the time of Ibn Abī Uṣaybi'a, a Damascene physician and bibliographer, the existence of Indian physicians at the heart of the 'Abbāsid court is but a mythical memory. In the twelfth *ṭabaqa* (layer) of his biographical dictionary, dedicated to physicians, he mentions a dozen Indian doctors. This fact is suggestive of the superior level that Indian medicine had reached, and of its benefit to Muslim medicine.²⁶ Although only half of these physicians are depicted as actual historical personages rather than mythical figures, the list still conveys a sense of an actual phenomenon: physicians coming to Baghdād from faraway India to occupy high-level positions in and around the 'Abbāsid court.

The Creation of a Muslim Hospital

Many studies have considered the Byzantine context of Islamic medicine in general and of Islamic hospitals in particular. Scholars have discussed relevant texts, translations and translators, lines and modes of transmission, meeting sites, and the like. The perspective was always that of Islamic medicine and medical institutions in relation to the Greek and Christian contexts. However, there has always been some dissatisfaction with this line of explanation with respect to the "origins" or "roots" of Islamic hospitals. More and more studies pointed to the discrepancies between Byzantine medical institutions and the characteristics of the first Islamic hospitals.²⁷ Yet the dominant paradigm, that of Islamic medicine and medical institutions having evolved out of Galenic medicine by way of Hellenized Christian physicians and translators, continued to reign.

A case in point is the "myth of Jundishāpūr." As the traditional narrative maintains, the city of Jundishāpūr was an outpost of Hellenized Christians beginning in the fourth century. Its inhabitants founded a hospital and a medical school, in which the translation and composition of medical texts

²⁶ Ibn Abī Uṣaybi'a, 32-35. J. Vernet, "Ibn Abī Uṣaybi'a," *Encyclopaedia of Islam, Second Edition*. Brill Online, 2013. Available online at http://referenceworks.brillonline.com/entries/encyclopaedia-of-islam-2/ibn-abi-usaybia-SIM_3058 (accessed 30 March 2013).

²⁷ A recent example is Peter Pormann and Emilie Savage-Smith, *Medieval Islamic Medicine* (Washington, DC: Georgetown University Press, 2007), 101.

took place. Indian, Persian and Greek-oriented Christians worked together to create a medical theory that combined these three traditions. Later on, this hospital would serve as the model for the Islamic hospital.

The main counterargument to this narrative, pointed out as early as 1941 by Aydın Mehmed Sayılı,²⁸ is that no evidence of a hospital or medical school in Jundishāpūr is to be found in contemporary sources. The first person to mention a hospital in Jundishāpūr was the versatile Ibn al-Qiftī (d. 1248).²⁹ It seems unlikely that such a late source would be the first to mention the hospital, whereas contemporary sources—historical, medical, and ecclesiastical—remain silent on the matter.³⁰ In their useful survey of medieval Islamic medicine, Peter Pormann and Emilie Savage-Smith suggest there may have been a small infirmary in the city, similar to the one in nearby Susa, although it is unlikely that this would have been a large school or hospital. They thereby accept Sayılı's doubts regarding the existence of a full-fledged hospital, as there is no reference to the operation of such an institution, with respect to its personnel, size, or duties. Pormann and Savage-Smith also attribute the creation of this hospital myth to the Bukhtīshū' family, arguing that either they or members of their entourage forged the story, in order to enhance their legitimacy and authority as physicians and counselors to the caliphs.³¹

Although the foundations of the Jundishāpūr-model argument were shaken, modern scholars did not relinquish the idea that Islamic hospitals, in Baghdād and elsewhere, were modeled after Byzantine medical institutions. Several studies, nonetheless, brought some measure of reservation to this common view. Peter Pormann in particular has contributed much to Dols' earlier work on early Islamic hospitals and their particularities,

²⁸ Aydın Mehmed Sayılı, *The Institutions of Science and Learning in the Moslem World* (thesis submitted to Harvard University, Cambridge, MA, 1941), 76-174. We would like to thank Dr. Jamil Ragep for kindly referring us to this work.

²⁹ See Ibn al-Qiftī, 101 (for a reference to a hospital), and 133 (for the story of the establishment of the city and the medical school). A. Dietrich, "Ibn al-Qiftī," *Encyclopaedia of Islam, Second Edition*. Brill Online, 2013 Available online at http://referenceworks.brillonline.com/entries/encyclopaedia-of-islam-2/ibn-al-kifti-SIM_3258 (accessed 30 March 2013).

³⁰ Huart, Cl. "Gondēshāpūr." *Encyclopaedia of Islam, Second Edition*. Brill Online, 2013 Available online at http://referenceworks.brillonline.com/entries/encyclopaedia-of-islam-2/gondeshapur-SIM_2540 (accessed 30 March 2013); Dols, "The Origins of the Islamic Hospital" 369; Nutton, "From Galen to Alexander," 13, fn. 13; Pormann and Savage-Smith, 20.

³¹ Pormann and Savage-Smith, 20-21.

including a discussion of early sources and their paucity.³² Instead of starting out from the premise that the Islamic hospital was modeled after the Byzantine one, only to then list their differences, we suggest considering the Islamic hospital as an institution in its own right and on its own terms, which brings together elements of various earlier institutions in such a manner that was meant to meet the needs of an Islamic society.

Three Answers to the Question of the First Muslim Hospital

We begin with the question of who established the first hospital in the Muslim world. In the debate over this question, now decades old, three answers or options have emerged. Two of these have been much discussed: the first option is that the first hospital was founded in Umayyad times in the Ḥijāz; the second is that it was established in Baghdād by the famous Caliph Hārūn al-Rashīd. The third option is less discussed, although it carries great significance: namely that the first hospital was built, similarly to the second option, in Baghdād, albeit by the Barmak family of ‘Abbāsīd viziers. Each of these three answers carries a different set of implications. Placing the first hospital in the Ḥijāz implies that it was an indigenous Arab institution, founded by an Arab on Arab soil. Conversely, placing the first hospital in Baghdād suggests a foreign initiative or involvement—the main options brought up by scholars thus far being Byzantine or Sassanid involvement. We would like to add a third context to the latter two, and suggest the effect and influence Indian medicine and physicians had on the early days of Islamic medicine. We will now examine each of these three options regarding the first Muslim hospital more closely.

An Umayyad Institution. In describing the events of the year 707, al-Ṭabarī mentions that the Umayyad Caliph al-Walīd (r. 705-715) founded a leprosarium. According to al-Ṭabarī's account, al-Walīd had ordered the founda-

³² See, for example, Peter Pormann, "Medical Methodology and Hospital Practice: The Case of Tenth-century Baghdad," in *In the Age of al-Farabi: Arabic Philosophy in the 4th/10th Century*, ed. P. Adamson (Warburg Institute Colloquia 12) (London: Warburg Institute, 2008), 95-118; idem, "Islamic Hospitals in the time of al-Muqtadir," in *Abbasid Studies II: Occasional Papers of the School of 'Abbasid Studies, Leuven, 28 June-1 July 2004*, ed. J. Nawas, Orientalia Lovaniensia Analecta 177 (Leuven; Dudley, Mass.: Peeters, 2010), 337-831. The authors wish to thank Professor Pormann for allowing them to read the paper prior to its publication. See also Pormann and Savage-Smith, 96, 101, 110-111; Dols, "The Origins of the Islamic Hospital," 382.

tion of a hospital for lepers in the Hġjāz in 707, while preparing for his annual pilgrimage to Mecca, the Hġjj.³³ In an article published in 1994, Lawrence Conrad disputes al-Ṭabarī's account. He recounts what was known about the foundation of a hospital by al-Walīd, and traces the sources of this common knowledge. His key counterargument to the claim that al-Walīd had established a hospital is that the sources of this information are at odds with one another, and most postdate al-Walīd's time. Furthermore, Conrad argues that:

[...] to the observation that Umayyad rulers are not known to have shown interest in hospitals, and should not be expected to have done so, we must add the further objection that the population of Umayyad Arabia would probably have taken no interest in them either, for the simple reason that such institutions were entirely irrelevant to the ways in which they perceived medicine and medical problems.³⁴

Finally, Conrad notes that two years later, al-Walīd's pilgrimage convoy once again came upon lepers. This fact leads him to argue that, whatever arrangements al-Walīd may have made for lepers, these were short-lived at best. Conrad thus reaches his final conclusion, that no hospital was founded in the Hġjāz before the time of Sulṭān Baybars I (1223-1277), the Mamlūk ruler of Egypt and Syria.

An 'Abbāsīd Institution in Baghdād, founded by Hārūn al-Rashīd. The second and third options are that the hospital was founded in Baghdād, either by Hārūn al-Rashīd or Yahyā al-Barmakī. It has been suggested that the foundation of hospitals should be understood as part of the 'Abbāsīds' attempt to present themselves as heirs to the great Sassanid rulers of Persia. Dols, followed by generations of scholars, argued that since there was evidence that a Sassanid ruler supported the establishment of a hospital, the 'Abbāsīds' too perceived it as part of their duties to the public. This idea is at the heart of Dimitri Gutas' explanation of the translation movement.

³³ *Ta'rikh al-Rusul wal-Mulūk* (Bayrūt: Maktabat al-Khayāt, 1965), 8:1197. For an English edition, see *The History of al-Ṭabarī*, vol. 23 (*The Zenith of the Marwānīd House*); trans. and annot. by Martin Hinds (Albany, NY: State University of New York Press, 1990), 144; Sami Hamarneh, "Development of Hospitals in Islam," *Journal of the History of Medicine and Allied Sciences*, 17 (1962), 367; Aḥmad 'Isā, *Ta'rikh al-Bīmāristānāt fī al-Islām* (Bayrūt: Dār al-Rā'īd, 1401 hijri/1981), 10.

³⁴ Lawrence Conrad, "Did al-Walīd Found the First Islamic Hospital?," *Aram*, 6 (1994), 236.

In his seminal work on the translation and transformation of Greek heritage into Arabic culture, Gutas argues that the 'Abbāsids intentionally imitated the Sassanids as patrons of Greek medicine and science, in an attempt to enhance their image and establish their legitimacy as true heirs to the Persian dynasty.³⁵

Though attractive, the argument regarding the 'Abbāsids imitation of the Sassanids requires further elaboration. First, it needs to be ascertained that Sassanid rulers indeed supported hospitals as a norm. At present, we only have evidence of a single instance in which a Sassanid ruler provided support for a Christian hospital.³⁶ Thus, it is not entirely clear that the Sassanids had a tradition of establishing or supporting hospitals. Another problem with this argument is that it was only during the tenth century that the establishment of hospitals in the Muslim world became a popular act of charity, by way of endowment put forward by rulers. It is only then that we find Muslim rulers perceiving hospitals as part of their obligations. How plausible is it, then, to argue that a policy of imitating or continuing Sassanid practices remained in full force through the tenth century? Moreover, how convincing could this argument be, considering that by the tenth century the 'Abbāsids were no longer the *de facto* rulers?

Another explanation for the founding of an 'Abbāsīd hospital was put forward by Yasser Tabbaa, who argued that the 'Abbāsids sought to provide "an Islamic alternative to Christian charitable institutions, including hospitals." Tabbaa also quotes Franz Rosenthal, who wrote that "Christian intermediaries provided the first and decisive stimulus for Muslims to become aware of medicine's duties to society."³⁷ For the 'Abbāsīd rulers to provide medical charity, more specifically hospitals, in a manner that supposedly follows a Christian model, there had to have been a norm of providing such facilities and aid for needy Christians. In addition, there had to have been a recipient population for these acts of charity.

Very little is known about Hārūn al-Rashīd's hospital. Cyril Elgood describes the geographic location of the hospital, and argues that it oper-

³⁵ Dimitri Gutas, *Greek Thought, Arabic Culture: The Graeco-Arabic Translation Movement in Baghdad and Early 'Abbasid Society (2nd-4th/8th-10th Centuries)* (London: Routledge, 1998).

³⁶ See Dols, "The Origins of the Islamic Hospital," 379; Yasser Tabbaa, "The Functional Aspects of Medieval Islamic Hospitals," in *Poverty and Charity in Middle Eastern Contexts*, eds. Michael Bonner, Mine Ener and Amy Singer (New York, NY: State University of New York Press, 2003), 98.

³⁷ Tabbaa, "Functional Aspects," 98.

ated until the time of al-Wāthiq (r. 842-847), when a fire destroyed the entire quarter. It is also known, or at least assumed, that Nestorian physicians practiced in that hospital, and that they practiced Galenic medicine (Elgood mentions the Bukhtishū's).³⁸ Dols, on the other hand, argues that there is no concrete evidence that ties Christian physicians from Jundīshāpūr to the establishment of hospitals in Baghdād.³⁹ Nonetheless, their prominence in the 'Abbāsīd court suggests that they may have sought predominance in hospitals as well.

An 'Abbāsīd Institution in Baghdād established by the Barmakids. At least two hospitals in the Baghdād of Hārūn al-Rashīd present themselves as contenders for the title of the first hospital in the Muslim world: The one founded by the caliph himself, discussed above, and another built by the Barmakids, a family of high-ranking, well-connected bureaucrats (including two viziers, one governor, and a manager of the empire's finances, among others).⁴⁰ Dols argues that the 'Abbāsīd hospital was a place where Galenic medicine and Christian physicians were "free from the Byzantine constraints to pursue sedulously their scientific interests."⁴¹ It is on this point that the most significant distinction between the two Baghdādian options emerges: Hārūn al-Rashīd's hospital was a Christian-Hellenized institute, while Barmakid's was inclined to Indian medicine.

Scant evidence remains which might allow us to reconstruct the Barmakid hospital and its modes of operation. The main piece of information we have concerns the *kind* of medicine practiced in the Barmakids' hospital. Already Al-Jāhīz had connected the Barmakids, especially Yaḥyā Ibn Khālīd al-Barmakī, with patronizing Indian medicine and physicians.⁴² Michael Dols, who is known for tracing the origins of the Islamic hospital back to the Christian *xenodocheion*, and for crediting Nestorian physicians with the dissemination of the institution from the Sassanid and Byzantine regions into the Muslim Middle East, also noted the Barmakids' medical patronage. Three intellectual circles were interested in medicine and

³⁸ Cyril Elgood, *A Medical History of Persia and the Eastern Caliphate from Earliest Times until the Year 1932* (Cambridge: Cambridge University Press, 1951), 70-71.

³⁹ Dols, "The Origins of the Islamic Hospital," 376; Pormann and Savage-Smith, 20-21.

⁴⁰ Dols, "The Origins of the Islamic Hospital," 382.

⁴¹ Michael Dols, "Insanity in Byzantine and Islamic Medicine," *Dumbarton Oaks Papers* (Symposium on Byzantine Medicine) 38 (1984), 142.

⁴² Al-Jāhīz, *Al-Bayān wal-Tabyīn*, 92.

medical texts in the late Umayyad and early 'Abbāsīd courts—an interest that can be surmised from the scope of their translation activity. The first circle was comprised mainly of a professional audience: physicians who had not mastered Greek, yet still practiced Galenic medicine, and mostly required translations from Greek to Syriac. Another category of translations, from Greek into Arabic, was intended for non-professional patrons. Our interest here is in a third group of translations, from Sanskrit to Arabic or Pahlavi, which were mainly elaborated in connection with the Barmakids.⁴³

Most recently it was Kevin van Bladel who traced the Barmakid patronage of translations, particularly that of Yaḥyā al-Barmakī. Van Bladel concentrates on the Barmakids' unique position in the cultural exchange between India and the Muslim world, via their homeland of Persian and Buddhist Bactria. He notes that their native city of Balkh was a religious as well as scholarly center for Buddhism.⁴⁴

A link between the type of medicine patronized by the Barmakids and the medical institutions they sponsored is offered by the bibliographer al-Nadīm. In his *fihrist* he writes that Yaḥyā al-Barmakī had invited Indian physicians to work, practice and translate Indian medical texts in the hospital he had founded. According to Ibn al-Nadīm, the Indian physician Ibn Dahn al-Hindī (probably an Arabized version of the original Indian name) served as superintendent at the hospital, and also translated medical texts for Yaḥyā al-Barmakī. Another Indian physician mentioned as working in this hospital as well as serving as a translator is Manka al-Hindī. According to Ibn Qutayba (828-889), Manka was affiliated with Yaḥyā al-Barmakī for a long period, first serving him as a physician, and later even consoling him in prison when he fell from grace. Among the translated Indian medical texts were the *Suśruta Saṃhitā*, the *Siddhasāra*, and Cāṇakya's book on poisons and antidotes (*Shānāq al-Hindī's kitāb al-sumūm*). The latter was attributed to a legendary sage, but the former two were fairly new medical texts in Sanskrit, originally composed in Kashmir in the mid-seventh century.⁴⁵

⁴³ Dols "The Origins of the Islamic Hospital," 385.

⁴⁴ van Bladel, 43-88.

⁴⁵ Ibn Qutayba, *Kitāb 'Uyūn al-Akḥbār* (al-Qāhira: Maṭba'at Dār al-Kitāb al-Miṣriyya, 1343/1925), 1:24-25; Ibn al-Nadīm, *Fihrist*, 342, 461. For the English version, see Dodge, 2: 590, 710; van Bladel, 76. See also Dunlop, D.M.; Colin, G.S.; Bedi N. Şehsuvaroğlu, "Bīmāristān-iii," *Encyclopaedia of Islam, Second Edition*. Brill Online, 2013. Available online at <http://refer->

Interestingly, present-day scholars have paid little attention to the implications of the option that the first hospital in the Muslim world was established in Baghdād by the Barmak family. One possible reason for this neglect might be the paucity of sources, particularly contemporary ones. Dols does briefly note that the Barmakid hospital preceded Hārūn al-Rashīd's, and indeed credits al-Rashīd only for reopening the Barmakid hospital (albeit in a new constellation and with a new staff).⁴⁶ Yet Dols neglects to discuss the first phase of that hospital. It seems that al-Rashīd's hospital better fits the underlying assumption that Islamic medicine drew heavily on Greek, especially Galenic, medicine. Once this assumption became the predominant framework, it was easy to discount the Barmakid institute and to turn attention to the one attributed to al-Rashīd. In 1930, W. Ebermann suggested, without providing further evidence, that Indian medicine might have had an influence on the 'Abbāsids.⁴⁷ We would now like to remedy this historiographic lacuna, and illustrate some of the possibilities that the Barmakid institute suggests.

The existence in Baghdād of a hospital in which Indian medicine and medical organization were practiced appears to make sense. In this context, the Barmakid connection makes sense as well, on several counts. Previous studies maintain that the family originated from a Buddhist monastery in Balkh called Nawbahar.⁴⁸ In fact, according to Richard Bulliet, it was exactly their Buddhist priestly background that facilitated the Barmakids' rise to power in the Arab-dominated early 'Abbāsīd régime.⁴⁹ The ninth-century Iranian geographer Ibn al-Faqīh goes so far as to compare the Barmakids' noble origins to the pre-Islamic role of the Quraysh as guardians of the Ka'ba.⁵⁰

encworks.brillonline.com/entries/encyclopaedia-of-islam-2/bimaristan-COM_0123 (accessed 30 March 2013).

⁴⁶ Dols "The Origins of the Islamic Hospital," 384-385.

⁴⁷ W. Ebermann, "Bericht ueber die Arabischen Studien in Russland Waehrend der Jahre 1921-1927," *Islamica*, 4 (1930), 147.

⁴⁸ W. Barthold and D. Sourdel, "al-Barāmika," *Encyclopaedia of Islam, Second Edition*. Brill Online, 2013. Available online at http://referenceworks.brillonline.com/entries/encyclopaedia-of-islam-2/al-baramika-COM_0099 (accessed 30 March 2013).

⁴⁹ Richard W. Bulliet, "Naw Bahār and the Survival of Iranian Buddhism," *Iran* 14 (1976), 140-145.

⁵⁰ Ibn al-Faqīh al-Hamadhānī, *Kitāb al-Buldān* (ed. M.J. de Goeje; Leiden: Brill, 1967), 323-324.

Not only was the Barmakid family, like the 'Abbāsīd elite in general, known for patronizing the arts and sciences, but one of their focal interests was medicine, along with related branches of knowledge that involved contacts across Asia, such as astronomy and astrology.⁵¹ The Barmakids were previously connected with medicine as well. Al-Ṭabarī describes Barmak, the family's founding father, as the physician who had cured the Umayyad Maslamah b. 'Abd al-Mālik of an illness from which he was suffering.⁵² The historical context for al-Ṭabarī's anecdote is Qutayba Ibn Muslim's conquest of Balkh in 705, and he appears to relate the two events in order to insinuate that Yahyā al-Barmakī was actually of Arab descent. Barmak's wife, al-Ṭabarī recounts, was taken prisoner by Qutayba's brother, 'Abdallah, and returned to her husband believing she was pregnant. Generations later, 'Abdallah's descendants considered acknowledging Yahyā al-Barmakī as kin, but eventually rejected the claim. Regardless of the Barmakids' uncertain lineage, it is interesting for our purposes to note that Barmak was considered a medical healer, and not merely a community leader. Van Bladel presents evidence for Barmak's erudition in Sanskrit texts, given that he had apparently studied medicine and related fields, such as astronomy and astrology, in Kashmir.⁵³

If the first hospital was indeed staffed with Indian physicians who practiced Indian medicine, it seems odd to presume that the institution itself would have been modeled after a Byzantine-Christian hospital. If the Barmakids had invited Indian physicians to translate texts and treat patients according to Indian medicine, why would they then opt to use a non-Indian model for their establishment? Is it not more plausible to suggest that these Indian scholars and physicians would have introduced their own medical model to this new Barmakid institution?

One of the things we do know is that a Buddhist hospital model did exist, as did Buddhist medical treatments and services more generally. It is likely that the Indian physicians who were invited to practice in the Barmakid hospital were familiar with this model, as the Barmakids themselves may well have been, considering their Buddhist background and the continuing contacts they maintained with the Kashmirian and Indian world.

A few words on Buddhist hospitals are in order. In a short book analyzing the relation between Buddhist asceticism and medicine, Kenneth Zysk

⁵¹ van Bladel, 71, 75.

⁵² *Ta'rikh al-Rusul wal-Mulūk*, 8:1181; *The History of al-Ṭabarī*, vol. 23:129.

⁵³ van Bladel, 66.

argues that medicine played a significant role in Buddhist monastic life. According to Zysk, medical knowledge was probably a part of most fraternities of ascetic wanderers, while among the Buddhists it became an integral part of both religious doctrine and monastic life.⁵⁴ Treatment was based on the medical theory outlined in the *Caraka Saṃitā* (Caraka's Compendium) and the *Suśruta Saṃitā* (Suśruta's Compendium). These two compendiums were the cornerstones of Ayurvedic medicine that prevailed in India. The *Suśruta Saṃitā* was first composed in the early fourth century BCE, and was supplemented and partially rewritten up to the eighth century.⁵⁵

While monks who were ill were mostly treated in their cells, some of the monasteries did reserve a room or an adjacent building for this purpose. Treatment went beyond nursing care, and was based on theoretical medical knowledge that was part of the monks' education.⁵⁶ From around the mid-third century BCE, the monk-healer and monastery facilities were extended to provide services to the general public. Although Dominik Wujastyk argues that hospitals were prevalent in India, some scholars regard his view as overly generous.⁵⁷ However, even less generous accounts of the Indian medical system suggest the existence of hospitals of some sort in certain parts of India.

The first clear reference to a hospital, namely to a place where physicians were present and medical care and cures were administered, is found in the fifth-century account of a Chinese Buddhist pilgrim by the name of Fa-hsien, who describes hospitals in the city of Pāṭaliputra as well as in other places. According to his description, patients were examined by physicians and were given medication and food, and once they regained their health they left the place. In addition, Zysk refers to archeological excavations in Sarnānth, one of the principal Buddhist holy sites to the north-east of Varnasi, which point to the use of parts of the monastery for nursing and treating the sick during the eighth and ninth centuries (while similar archeological findings of an earlier period do exist, it is hard to determine their

⁵⁴ Kenneth G. Zysk, *Asceticism and Healing in Ancient India, Medicine in the Buddhist Monastery* (Oxford: Oxford University Press, 1991), 38. For the relation between monastic life and medicine, see Chapter 3, esp. pp. 38-49.

⁵⁵ Dominik Wujastyk, "Medicine in India," In *Oriental Medicine*, eds. Jan Van Alphen and Anthony Aris (London: Serindia Publication, 1995), 22.

⁵⁶ Zysk, 42-47.

⁵⁷ As argued by Peregrine Horden in "The Earliest Hospitals in Byzantium, Western Europe, and Islam," *Journal of Interdisciplinary History* 35 (2005), 3, n. 19.

function, and the use of the term "hospital" with respect to them could be ambiguous). Further references to hospitals are also found in sources from the fourth and ninth centuries.⁵⁸

It cannot be confidently asserted, however, that there was a system of hospitals operating throughout India, or that this system was active for extended periods. It is more likely that at certain times, certain rulers found it useful to allocate resources towards the foundation of hospitals and the provision of medical care for the public. Such institutes, in various periods and locations, were mostly intended to provide care for the poor, rather than to people of higher social status (this in turn raises the question of who were designated as poor and thereby as entitled to such public provision). Such medical service was free of charge, an act of charity performed by the royalty and the rich. As such it could have been offered through venues other than hospitals. It is significant, nonetheless, that the provision of medical care and medication was regarded as one of the duties of the rulers.

The association of Muslim rulers with hospitals began with the earliest known hospitals, and continued to be a cultural norm until the late Ottoman period.⁵⁹ In their discussion of tenth-century Islamic hospitals, Pormann and Savage-Smith outline the characteristics of these institutions, one of which is that hospitals were part of a wider set of public health measures promoted by the ruling elite. They constituted part of a general effort to keep the public healthy, including a fresh water supply, sanitation systems and public baths.⁶⁰ Dols had already argued that the founding of hospitals was something that was expected from the ruler and members of his court: "a symbol of imperial prestige, wealth and charity."⁶¹

As mentioned, so far the discussion of the unique features of early Muslim hospitals took place in the context of a comparison with Byzantine hospitals, based on the assumption that the latter served as the model for

⁵⁸ Zysk, 44; P.V. Sharma, "Travelers accounts," in *History of Medicine in India, from Antiquity to 1000 A.D.*, ed. Priya Sharma (New Delhi: Indian National Science Academy, 1992), 155-160. See also A.L. Basham, "The Practice of Medicine in Ancient and Medieval India," in *Asian Medical Systems: A Comparative Study*, ed. Charles Leslie (Berkeley, CA: University of California Press, 1976), 34.

⁵⁹ For the foundation of hospitals by the Ottoman dynasty, see Miri Shefer-Mossensohn, *Ottoman Medicine: Healing and Medical Institutions 1500-1700* (Albany, NY: State University of New York Press, 2009).

⁶⁰ Pormann and Savage-Smith, 101.

⁶¹ Dols, "The Origins of the Islamic Hospital," 386.

the former. These comparisons, however, suggested that the two kinds of institutions were different in operation, goals, and the motivations that led to their establishment. While the motivations behind Byzantine hospitals were clearly religious (namely Christian), Islamic hospitals are based on different motivations, more political in nature, deriving from a different idea of the responsibilities of a ruler. The view that it is the ruler's responsibility to provide medical care to the public has a closer affinity with the Indian concept of governance than the Christian one. Whereas Christian rulers provided charitable institutions, Indian rulers, if and when they did so, tended to endow institutes dedicated to public medicine, namely hospitals.⁶²

The Historical Moment and its Aftermath

The usual treatment of the Muslim interest in Indian knowledge, texts, and sages is to say that it was rather short. More generous scholars echo Beckwith in speaking of the "Indian half-century of Islam." More critical scholars, like van Bladel, claim that Indian presence was short-lived, the result of the initiative of a single person, Yaḥyā al-Barmakī, which disappeared with his fall from grace in the beginning of the ninth century (van Bladel does not attribute importance to other patrons, such as Ishāq Ibn Sulaymān). Instead of concentrating on the limited visibility and prominence of Indian medicine and physicians, we would like to use the discussion of the organization of early Muslim hospitals as an indication of scholars' obligation to pay attention to more subtle cultural and intellectual aspects of medical activity and its lasting effects.

The discussion of the deeper cultural and intellectual trends surrounding Muslim-Indian medical interaction hinges on the translation movement of Indian knowledge from Sanskrit to Arabic. As in the case of the translation of Greek works into Arabic, here too the translation was not necessarily direct, but rather through an intermediary language, including Middle Persian and local Iranian languages such as Bactrian. This suggests that the interest in Indian sciences might have been not merely intellectual but also cultural. The Barmakid connection, being a strong Persian family, also suggests the context of an intra-Muslim strife between Arabs and Persians over cultural hegemony in the Muslim world.

⁶² Basham, "The Practice of Medicine in Ancient and Medieval India," 33-35.

The translation movement from Sanskrit to Arabic (and vice versa) reveals the longer-term ramifications of the Muslim-Indian medical contacts, as well as the wider intellectual pursuit of which it was part. It was not only medical texts that were translated: other works ranged from agriculture to astronomy, from astrology to pharmacology, from mathematics to architecture—the exchange was diverse and long lasting. However, it was especially the transmission of the art of healing that served as a common feature of this cross-cultural contact. According to Elverskog, this is due to the fact that medical sciences often operated beyond the bounds of political and religious orthodoxy. We thus find evidence of exchange between Asia and the Muslim world specifically within the realms of magic and healing. Two examples discussed by Elverskog are “magic squares” used for divination, and block-printed Arabic amulets, which seem to have a Buddhist origin.⁶³ The wider medical relations between the Arabic-Muslim world and India also included Indian veterinary traditions. As examples of such exchange, Alkhateeb-Shehada mentions diagnosing the disease a horse has based on external marks, the treatment of exotic animals, and early diagnosis of sick animals, tracing such Indian traditions well into the Mamlūk period.⁶⁴ Traces of translations from Sanskrit survived later pharmacopeias as well. For example, Muḥammad ibn al-Zakariyyā’ al-Rāzī (d. 925 or 935 in Baghdād) in his great compendium *al-Hāwī* often relies on classical Indian medical treatises. Ronald Emmerick has demonstrated the affinity between al-Rāzī and Sanskrit treatises. These recipes were later repeated in thirteenth century al-Andalus by the important Muslim pharmacologist Ibn al-Bayṭār in his encyclopedia of simple drugs.⁶⁵

As yet another example, let us take the earliest Arabic text we have that contains a clear description of Indian medical knowledge: ‘Alī ibn Rabban al-Ṭabarī, a ninth-century physician and secretary and a convert from

⁶³ Elverskog, 104-114.

⁶⁴ Housni Alkhateeb Shehada, *Mamluks and Animals: Veterinary Medicine in Medieval Islam*, Sir Henry Wellcome Asian Series Volume 11 (Leiden: Brill, 2012), pp. 90-96.

⁶⁵ R.E. Emmerick, “Ravigupta’s Siddhasāra in Arabic,” in *Studien zur Geschichte und Kultur des Vorderen Orients*, eds. Hans R. Roemer und Albrecht Noth (Leiden: Brill, 1971), 28-31; Manfred Ullmann, *Islamic Medicine* (Edinburgh: Edinburgh University Press, 1978), 18-19; van Bladel, 77. Muslim pharmacopeia in turn enriched the Indian *materia medica*. See, for example, P.V. Sharma, “Contributions of Śārṅgadhara in the Field of Materia Medica and Pharmacy,” *Indian Journal of History of Science* 16 (1981), 3-10; D.K.S Chauhan, “Contribution of Medieval India to Āyurvedic Materia Medica,” *Indian Journal of History of Science* 16 (1981), 17-21.

Christianity, whose *Firdaws al-Hikmah* ("Paradise of Wisdom") includes a survey of Indian medical knowledge, under the title "On the Origin of Medicine." This text was popular among later Muslim physicians, and was quoted by, among others, al-Rāzī and Ibn Sīnā.⁶⁶ The main importance of al-Ṭabarī's text is not the actual information it contains, but the fact that a person who could not read Sanskrit (at least as far as we know) had access to enough information so as to provide an accurate description of Ayurveda. This would suggest translated texts at his disposal, and/or encounters with Indian medicine and its practitioners. Al-Ṭabarī considered this knowledge important enough so as to dedicate an entire chapter to it, and later Arabo-Muslim physicians too shared this view of Indian medicine.

The extent of this activity suggests more than mere coincidence. In 1987, Volker Roelcke demonstrated the affinities in medical ideology and social organization between the Indian and Greek medical systems.⁶⁷ Since Greek medicine would become a major basis for Muslim medicine centuries later, one would expect to find affinities between Muslim medicine and Indian medicine as well. This, however, is not sufficient as an explanation. Realizing that Muslim medicine was not a simple extension or continuation of Greek medicine, we must be more specific and ask what facilitated Indian-Muslim medical dialogue. Scholars rarely discuss the possible affinities between Indian and Muslim medicines in the medieval period, although they do deal with the later Muslim-Indian era of the late medieval and early modern periods. It could be that national worldviews drove authors to concentrate on just one medical tradition, namely either the Indian or the Muslim one. Perhaps it was the language barrier, since such studies demand mastery of numerous and very different languages. Or perhaps the strength of the Byzantine paradigm within the history of Muslim medicine was so powerful as to prevent an in-depth study of Indian-Muslim contacts.

⁶⁶ 'Alī ibn Rabbān al-Ṭabarī, *Firdaws al-Hikmah* (MZ al-Sidiqi, ed; Berlin: Maṭbat Āftāb, 1928); Max Meyerhof, "Alī at-Ṭabarī's "Paradise of Wisdom," One of the Oldest Arabic Compendiums of Medicine," *Isis* 16 (1931), 6-54; S.M. Khan, "Alī Ibn Rabbān at-Ṭabarī, a Ninth Century Arab Physician, on the Āyurveda," *Indian Journal of History of Science* 25 (1990), 1-14; D. Thomas, "al-Ṭabarī, 'Alī b. Rabbān" *Encyclopaedia of Islam, Second Edition*. Available online at http://referenceworks.brillonline.com/entries/encyclopaedia-of-islam-2/al-tabari-SIM_7248 (accessed 30 March 2013).

⁶⁷ Volker Roelcke, "Medical Thought in Ancient Greek and India: Comments on the Relation between Social Organisation and Medical Ideology," *Cambridge Anthropology* 12 (1987), 41-66.

Yet even though studies are sparse, the evidence does point to several aspects of common ground between the two medical traditions.

Some clues to this effect come up in a study of Buddhist medicine as a popular alternative to literati Confucian medicine in Ming China (1368-1644). Buddhist medicine in Ming China offered two attractions: medical attention was often free of charge, and it placed much emphasis on the mental origins of illness.⁶⁸ We have already discussed the influence of Indian models on the organizational aspects of Muslim medicine. We would now like to turn our attention to the shared medical worldviews that allowed the Indian and Muslim medical traditions to "talk" to each other, and to exchange and borrow knowledge and institutions.

The succinct comparison we offer here refers to the form Muslim medicine would eventually assume at a period that extends beyond the scope of this article. Let us not forget that in the period under discussion, namely the first two or three centuries of Islam, this medicine was only at its burgeoning stage. In that period, one cannot speak of a fully formed Muslim medical "system" that contains elements such as concepts and theory, methodology, clinical practices and social institutions, all integrated into a coherent whole. Around the year 800, what would later become Muslim medicine was a myriad of ideas and customs, combining Greek as well as Indian influences, although a basic appreciation of the non-physical aspects of health and illness was already present during these initial stages.

A fundamental concept in both Muslim and Indian medicine, as described in the Ramayana epic and Ayurvedic texts, is that health ultimately boils down to a balance of humors or fluids, though Indian and Muslim medicines differ in the exact number of humors each assigns to the human body.⁶⁹ Furthermore, despite the concern of Buddhist medicine with medical treatment and pharmacology (which both influenced and was influenced by the indigenous medical traditions of the areas in which it flourished), what makes this tradition distinct from other forms of medicine is its concomitant if not primary emphasis on the mental roots of physical illness. Muslim medicine, as is well known, acknowl-

⁶⁸ Cheng Yunü, "Buddhism and the Medical Treatment of Women in the Ming Dynasty: A Research Note," *Nan Nü* 10 (2008), 279-303.

⁶⁹ Suman Singh and Seema Dwivedi, "Practice of Medicine in the Ramayana Age," *Asian Agri-History*, 10 (2006), 331-334; Dominik Wujastyk, "The Science of Medicine," in *The Blackwell Companion to Hinduism*, ed. Gavin Flood (Malden, MA: Blackwell Publishing, 2003), 393-401.

edged the mental aspect of human health (and illness) as well, although its mechanical understanding of the function of the human body was more pronounced.

Emphasis on non-physical ailments and etiologies provides at least a partial explanation for Qusṭā ibn Lūqā's (ca. 830-910) work on the placebo effect, which reveals clear reliance on Indian medicine. This Melkite Christian is famous for dozens of translations of Greek scientific works to Arabic, besides authoring some ninety treatises on various subjects, mostly scientific. In his *Physical Ligatures* (or *On Incantations, Adjuration, and Suspensions around the Neck*), extant only in Latin, Qusṭā ibn Lūqā discusses whether Greek medicine recognizes magical remedies as the Indians do. The author begins by addressing a "dearest son" who had asked "about incantations, adjurations and suspensions about the neck, if in any respect they could be effective and whether I found these things in the books of the Greeks as they are to be found in the books of the Indians."⁷⁰ Although Qusṭā ibn Lūqā's departs from a Greek framework, his assertion concerning the congruency of mind and body leads him away from rational medicine, to argue that the mere belief in the efficacy of a remedy would in fact cause it to work. The cure is not in the object, namely in the medicine and its pharmaceutical action, but rather in the belief in its power. He concludes by saying: "In some cases, certain substances have a property incomprehensible to reason because of its subtlety and [it is] not furnished to the senses because of its profundity."⁷¹ Despite his interest in magical remedies, however, Qusṭā ibn Lūqā stays within Greek medicine: most of his sources are Greek, such as Plato, Aristotle, Hippocrates, and Galen. Yet his acquaintance with Indian medicine extends further than the translation of Indian medical texts, which might only indicate a kind of general interest in "the other." What we see in Qusṭā ibn Lūqā's work is a blending of Indian concepts with Greek medicine, while bridging gaps between the two traditions.

The two traditions also made use of common diagnostic tools, which included a variety of techniques for deducing the visible and non-visible features of the patient's body and its functioning. Generally speaking, the forms of perception typical to a particular medical system are based on its physiological theory. In other words, the question is which of the

⁷⁰ Judith Wilcox and John M. Riddle, "Qusṭā Ibn Luqā's *Physical Ligature* and the Recognition of the Placebo Effect," *Medieval Encounters* 1 (1995), 40.

⁷¹ *Ibid.*, 48.

senses a doctor should employ. In the Indian medical tradition, a number of diagnostic tools evolved as the result of disagreements around this question. For example, the method of tasting a patient made several authors quite squeamish. Eventually, one method that gained a dominant status was the diagnosis of disease by pulse.⁷² Pulse testing was a practical and handy means for diagnosing and prognosticating a disease, hence its popularity in various medical systems, including the Indian-Ayurvedic and the Muslim ones. There is at least one study that hypothesizes a possible connection between the two—in this case Muslim medicine informing the Indian one.⁷³

There are of course also noted differences between Indian and Muslim etiologies. Muslim “literati” medicine emphasized the balance (*mizān*) between the material or physical and the mental. Mental and physical symptoms were the outcome of both mental and physical disorders. According to Buddhist teachings, however, physical illness is ultimately caused by negative mental afflictions. Although this karmic etiology is different from the Muslim one, both shared the approach of viewing a human being as a whole. This provided enough common ground to allow Buddhist medical ideas and institutions that were based on this view to travel to the Muslim world.

Paying greater attention to the Indian context in our study of Muslim medicine does not exclude the existing general paradigm of the field: that Islamic medicine was a continuation of Galenic medicine, as the durability of Jundīshāpūr-like myths reveals. The Greek tradition in medicine, as well as in other branches of knowledge, was long seen as vital to the formation of the Arabo-Muslim medical system of the eighth and ninth centuries.

At the very least, a reexamination of the prevailing assumption that Islamic medicine and medical education followed the Byzantine model is called for, in an effort to sketch a more complete picture: in what specific ways was the Byzantine model followed? What motivated such borrowing? How was the Byzantine model imported into the Muslim world? Were there alternative models from which the Islamic world could borrow? Could deviations from the Byzantine model, exhibited by early Muslim medical system, be accounted for by another model? Since the traditional

⁷² Wujastyk, “The Science of Medicine,” 401-402.

⁷³ N.P. Raj, S.K. Tiwari, S.D. Upadhya, and G.N. Chaturvedi, “The Origin and Development of Pulse Examination in Medieval India,” *Indian Journal of History of Science* 16 (1981), 77-88.

narrative has left these and other questions unanswered, we suggest that a study of the Indian model, as well as Indian influences on medical practices in the early 'Abbāsid period, could prove helpful in filling some of these gaps. We advocate a reexamination of the court, the patrons, and the networks of scholars, free from the assumption that the Islamic hospital, indeed the Arabo-Muslim medical system as a whole, was a continuation of the Byzantine model. We believe that such a discussion of the presence of Indian medicine, physicians and medical institutions in the Muslim context is worth undertaking.

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