How did Persian and Other Western Medical Knowledge Move East, and Chinese West? A Look at the Role of Rashīd al-Dīn and Others

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Abstract

The name of Rashīd al-Dīn (1247–1317) is associated with the transmission of considerable medical lore from China to Mongol Iran and the Islamic World. In fact, Rashīd al-Dīn was only at one end of the exchange, and while Chinese medical knowledge, including lore about pulsing and the Chinese view of anatomy, went west, Islamic medical knowledge went east, where Islamic medicine became the preferred medicine of the Mongol elite in China. The paper traces this process and considers who may have been involved and what specific traditions in an on-going process of medical globalisation.

Keywords

Rashīd al-Dīn, medicine, Islamic medicine, Mongols, Qubilai, *Huhui yaofang*, Ibn Sīnā, Isā the translator, globalisation

The role of the translation agency headed by Rashīd al-Dīn (1247–1317) in the westward dissemination of eastern knowledge of every sort is relatively well known.¹ Likewise well documented is the role of certain key individuals, including Rashīd al-Dīn himself, as initiators and intermediaries in the exchanges involved.² Medicine loomed large among them. This is only to be expected since Rashīd al-Dīn, a converted Jew, is said to have been a doctor, and first come to the attention of his Mongol masters in that capacity.³ By contrast, far less well known is the dissemination of Iranian⁴ and Arabic knowledge east: military technology (the famous example are the counterweighted

¹ On Chinese pulse lore, see Klein-Franke and Zhu 1998; Rall 1960; Adnan 1940. See also Klein-Franke and Zhu 1996.

² On one of the key figures involved, Bolad, see the detailed reconstruction of his activities by Allsen 2001, pp. 63–80.

³ For a brief biography, see Lambton in Amitai-Preiss (ed.) 1999.

⁴ On the general topic of Iran exchanges with China, see as an introduction, Shen Chin-ting 1967; Huang Shijian 1986; Huang and Feng 1993.

catapults widely used in Mongol China);⁵ astronomy;⁶ geography;⁷ and, again, medical knowledge, to mention just a few areas of exchange. This paper looks specifically in this larger context at one key aspect of the western knowledge arriving in China, Islamic medicine, which included major Ancient Greek, Roman, Byzantine and Syrian Christian as well as Persian and even Indian components,⁸ making it truly international, and speculates as to how it got there. It calls into question, looking at the types of texts present in China in comparative terms, any claims of isolation between east and west, west and east, with the individual worlds turned in on themselves, but sees instead an on-going medical and other globalisation⁹ of the cultures of Eurasia in the thirteenth and fourteenth centuries. In a way, one result of this globalisation process persists until the present, in the form of modern western medicine, with its base in Islamic tradition.

The Mongols: In the driver seat

From the onset of their conquests, the Mongols, who came to dominate a large part of the old world, sought to combine the best that the east and west had to offer in ruling their empire. In view of their absolute political dominance, they were well positioned to do so, even under the various successor states. Above all this meant administrative techniques and personnel, but also technology and later art, food and medicine.¹⁰ Thus the imperial province of Mongol China, for example, was ruled largely by west Asians using many Iranian and Turkistanian techniques including tax-farming.¹¹ There is also evidence from the beginning of a strong multiculturalism and multilingualism at the Mongol courts with Persian, in particular, very much a working language

⁵ On Mongolian military technology, see May 2007.

⁶ As an introduction, see Hartner 1950; Johnson 1940; Yabuuti Kiyosi in King and Saliba (eds) 1987; Yabuuti Kiyoshi 1964; Yabuuti Kiyoshi 1954; van Dalen in Dold-Samplonius *et al.* (eds) 2002. See also, in passing, Saliba 2007.

⁷ See Fuchs 1946; McCune 1995.

⁸ Foreign components were, of course, combined with a great deal of Arabic creativity. See the arguments in Saliba 2007.

⁹ See Buell 2007.

¹⁰ On food and medicine, see the introductory sections of Buell *et al.* 2000; Buell 2006. In the area of art, one famous example is the assimilation of west Asian art in Yuan China in the form of its famous blue and white pottery. It combined Chinese porcelain reworked with a cobalt blue underglaze, representing the Mongol imperial colour of blue, and exhibited many west Asian decorative traditions. The new pottery even closely imitated west Asian pot and vessel shapes. See Carswell 2000; Buell 2002.

¹¹ Mongol government in China is described in detail in Buell 1977.

for administration,¹² along, of course, with Mongolian, various Turkic languages and, obviously: Chinese. The importance of Chinese grew over time as the number of Chinese subjects of the Mongol qanate of China grew. This was even true in the West where Mongol emperors of Iran, among others, issued coinage with Chinese inscriptions.¹³

Culturally, Mongol court culture was already a complete mix even under the empire. This policy of cultural mixing continued under Qubilai (r. 1260–94), who established the Mongol successor state in China. He consciously sought to intermediate between all the various cultural groups represented in his domains without identifying exclusively with any except, of course, for his Mongolian identity. In this he persisted until the end, as did his dynasty as a whole. Thus, while he was a ‘Chinese emperor’, Qubilai, still showed respect for native Mongolian beliefs. They continued to be reflected, among other places, in court ritual. He honoured Nestorianism, still widespread among the Mongols, and Chinese belief, but in the end his dynasty adopted Tibetan Buddhism. This was a form of Buddhism that was similar in many ways to Mongolian shamanism. It was different from any Chinese form of Buddhism and thus presented no dangers of any undesired assimilation to Chinese culture.¹⁴ Tibetans in China were as much foreigners as the Mongols themselves and even fewer in number. Qubilai and his advisors also freely picked from Mongolian and Chinese symbolism and institutions in creating his new Yuan 元 Dynasty. It was Chinese in detail but based upon a Mongolian structure that was not Chinese in any way.¹⁵

Medicine

Another side of the mixed culture of Mongol China lay in the related areas of cuisine and medicine. Mongol cuisine has been well studied with some of the most important documents now available in English translation.¹⁶ What these studies have revealed was that Mongolian cuisine, like Mongolian court culture in China in general, as well as, Mongolian culture as a whole, was a little

¹² This is shown, among other things, by the clear evidence for Persian language used by Marco Polo. The working language of the *Huihui yaofang* 回回藥方, ‘Muslim Medicinal Recipes’ (HHYF), on which more below, was also Persian and the influence of Persian language texts on all areas of the mixed science of Mongol China was paramount.

¹³ See the full study of early Mongol coinage in Iran by Kolbas 2006. On Bukhara’s bilingual coinage, see also Buell 1979.

¹⁴ The early Mongolian encounter with Tibetan Buddhism is discussed in Buell 1968.

¹⁵ See Buell 1977.

¹⁶ See Buell *et al.* 2000, and Buell 1999.

bit of everything. It consciously tried to provide something to meet the taste of almost everyone. Court cuisine based itself on the imperial Mongolian banquet soups but refined them extensively, using by and large west Asian (largely Mesopotamian and Iranian) techniques, ingredients, some under their original west Asian names, and spices.¹⁷ This cuisine even drew upon west Asian assumptions about dietary balances as well as enlisting specific medicinal foods popular in the west to supplement and cure specific ailments, here possibly expanding upon roots already laid down in China during the era of disunity and Tang 唐. There were many medical imports from the west during this period, principally through Buddhism.¹⁸ This was medicine, of course, but in general terms. Medicine in more strictly defined manner still remains little studied for Mongol China outside of a concern with one important aspect of it, the so-called Song-Jin-Yuan 宋金元 School of Chinese Medicine.¹⁹ Although important, these schools are only part of a much larger picture.

Although Chinese medicine was obviously practised and we know, thanks to William of Rubruck, that it was present at the Mongol imperial court in the 1250s (this is the first European notice of Chinese medicine),²⁰ it was not, in the end, the preferred medicine. For most of the Mongol elite and for court officials and courtiers in China, medicine usually meant non-Chinese medicine. This included Tibetan,²¹ but most notably Arabic²² or Islamic medicine.²³

¹⁷ See, as an introduction, Buell 1999, Buell *et al.* 2000, and Buell 2006.

¹⁸ On Indian knowledge in Chinese medical schools, see Chen Ming 2005. This is an excellent survey based upon Dunhuang 敦煌 materials.

¹⁹ See Rall 1970.

²⁰ See Jackson with Morgan 1990, pp. 161–2. See also Barnes 2005, pp. 9ff. Igor de Rachewiltz has pointed out to me in an email of 2 July 2007 that the Chinese doctors at Möngke's court were by no means the first encounters between the Mongols and Chinese medicine. Yehlu Chucai 耶律楚材 (1189–1243), for example, mentions in a poem a Chinese doctor of Genghis-qan and, in addition, many of the teachings of early Taoists active among the Mongols were medical in emphasis. I am indebted to Professor de Rachewiltz for sharing these insights with me.

²¹ As represented, among others, by the Sa-skya *bla-ma* resident at court and their many associates from their own and other monastic groupings under Sa-skya control. As I suggest in a forthcoming study (see Buell forthcoming), the Tibetans came to China not only with their oldest medical traditions based in Indian traditions, but also with western traditions represented by the teaching of the Bici (the word is from a Persian term for doctor) and other sects. The latter essentially taught and practised Greek medicine, although a strongly Tibetanized one. I am indebted to Dan Martin and Olaf Czaja for discussing the Tibetan medicine of the Mongol era with me. On its international origins, see Garrett 2007.

²² Even though Persian was an important language for the Islamic medicine of the Mongol era, for example, its most important texts were in Arabic, either original works or one the great stream of translations produced from the ninth century on. See Saliba 2007.

²³ The most accessible overview of Islamic medicine remains Ullmann 1970. See also Dols 1984; Pormann and Savage-Smith 2007.

The latter was formally institutionalised, even made available to the masses at free clinics,²⁴ and was apparently widely applied, even by the Chinese.

During Mongol times, Islamic medicine in China had four major components. One, the oldest, was an inherited tradition stretching back to Tang times. This mostly involved specific medicinals, some under their Middle Eastern names, and perhaps other influences borrowed from the Islamic world. By Mongol times, this tradition was thoroughly a part of Chinese medicine and difficult to separate out.²⁵ Such influence has been little studied and a great deal of work remains to be done. A second component was comprised of the institutional structure of Islamic medicine in China, as reflected in the organisational system presented in the *Yuanshi* 元史, and in other sources.²⁶ This has also been little studied, as has a third component, Turkic, largely Uighur physicians²⁷ active in Mongol China, probably along with a few Persians and even a Syrian side-by-side with other conjectural nationalities. This is primarily because of a lack of source material. Finally, there is the textual residue, the least studied at all, in spite of the fact that the textual residue is our richest source of all for understanding the Islamic medicine of the Mongol period in China in full detail, fragmentary as it is.

The *Huihui yaofang* 回回藥方 (HHYF)

The textual residue in question is made up primarily by the surviving sections (some 500 pages, 15 per cent of the original) of the text known as the *Huihui yaofang*, ‘Muslim Medicinal Recipes’.²⁸ This was probably once part of a general encyclopaedia, or perhaps: a textbook, of Islamic medicine, written for the

²⁴ A special agency maintained by the court for Islamic medicine was the Guanghui si 廣惠司, ‘Administration for Broad Compassion’, charged with ‘preparing and presenting Muslim (*Huihui* 回回) drugs and preparations to the emperor in order to treat members of the bodyguard and poor people in the capital’ (*Yuanshi* 88, Zhonghua shuju 中華書局 edition, 2221). It is usually assumed, probably correctly, that although the present version of the text is Ming 明, the encyclopaedia HHYF was produced at the orders of the Guanghui si, and that it thus represents the mainstream of Mongol era court practice in China. On this agency and others associated with it, see Farquhar 1990, pp. 134ff.

²⁵ This heritage is studied in Hu Shiying 1990; Kong and Kwan 關培生 in Kong 1996. See also Ma Boying 馬伯英, Gao Xi 高晞 and Hong Zhongli 洪中立 1993.

²⁶ For Mongol China’s official institutional structure, see Farquhar 1990. It did not always correspond to reality.

²⁷ That such existed is evident from a number of notices in our sources. See, for example, Tao Zongyi 陶宗儀, *Zhuogeng lu* 蠹耕錄, Shijie shuju 世界書局 1972, pp. 326–7.

²⁸ Two editions are now available. See S. Y. Kong, 江潤祥 *et al.* 1996, and Song Xian 宋峴 1999. The former has been used here since it is clearer and easier to read.

then Mongol rulers of China. Multiple Yuan 元 Dynasty or even Ming sources for the present *HHYF* fragments, however, cannot be ruled out. In any case, the text was clearly re-edited sometime in the late fourteenth or early fifteenth century and the existing text may have a relationship to materials now lost, once apparently included in the *Yongle Dadian* 永樂大典, ‘Great Encyclopaedia of the Yongle Period’.

In its present form, the *HHYF* is a manuscript in at least three hands, comprising three *juan* (books) out of an original 36, along with the separate table of contents for the second half of the complete work. The three surviving books are chapters 12, 30 and 34. Each of the latter is organised around one or more disease categories, the largest being the detailed discussion of ‘wind’ ailments (with various sub-categories) which occupies all of *juan* 12. Discussions of ‘Various symptoms’ occupy all of *juan* 30, continuing the previous (lost) chapter on general medicine. *Juan* 34 is comprised of shorter discussions of wounds from metal objects, of broken bones, of cauterization, of scalds and burns, wounds from blows, and of wounds from human bites. The *HHYF* is throughout replete with quotations from various medical authorities, including Zhalinuxi 者里奴西, the Arabic form for Galen[os], and other Greek and Middle Eastern authorities. This is something absolutely unique for a Chinese source. It even adapts identifiable sections from the *Qānūn fī al-ṭibb*, ‘Canon for Medicine’, of Ibn Sīnā (Avicenna, c. 980 to 1037) and other compendia.

The *HHYF* is unique in the Chinese tradition in its Arabic script entries, as well as Chinese transcriptions,²⁹ recording the foreign names of medicinals and simples, individuals cited, and even technical terms. It is also unique for China in showing the clear influence of Persian syntax, even to the point of incomprehensibility in some Chinese entries. It provides definite indications that the work was created in a cultural environment that was very mixed and where Chinese was just one of several languages in use.

Although the Table of Contents might seem to be the least valuable part of the surviving material, this section provides us with very important information: the overall structure of the text as a whole, or of at least half of it

²⁹ Interestingly, the Chinese transcriptions are far more accurate in their representation of the original foreign words contained in the text due to considerable corruption in the entries in Arabic script. This was probably thanks to copying by Chinese unfamiliar with the task. The Chinese transcriptions not only more accurately reflect the foreign vocabulary of the text, but even occasionally include the Persian genitive, generally not written out, as was the usual practice, in the Arabic Script entries. This practice not only shows clearly that most of the text’s Middle Eastern vocabulary is grammatically Persian (grammatically correct Arabic ones are few and far between), but also that the text may have been read aloud to the copyist. This fact is witnessed by a number of variant spellings of some words in Chinese transcription, even in the same section of the text, possibly based upon a mishearing of what was being read.

(*juan* 19–36; more than half with *juan* 12). We know, for example, that, in good Arabic tradition, the *HHYF* once included a discussion of all its *materia medica*, preceded with a general discussion of the various types of dietary compounds and medicinals used in Arabic medicine. Thanks to the partial table of contents, we also know the names of hundreds of simples and formularies called for in the lost sections. They included an extensive selection of recipes for female ailments. Some of the lost simples were quite famous compounds and may be reconstructed using other sources, e.g., the *Qānūn fi al-ṭibb*, and some of the Greek (and Arabic) texts of Galen and other Greek and Roman doctors. We can also tell a great deal from the order of the presentation of sub-topics in the theoretical discussion as indicated by the sub-entries.³⁰

³⁰ The following is contained in the table of contents: a section on general coughs, divided up into various sub-categories, one on coughing up blood, followed by one on coughing up phlegm; a special category on swelling associated with the major lung artery; another general section on treating coughing; a division (i.e., chapter, called *bab* in Persian in one place) on issues of the thorax and diaphragm, including thorax and diaphragm ‘heat swelling’, thorax weakness, thorax pain, ‘pollution’ resident in the thorax, thorax ‘chill moisture’, sores in the thorax, and recipes to ‘open’ the thorax and diaphragm; a major division on bowel wind and the stomach, including a category on ‘sores’ produced in the intestines, and intestinal parasites; a major division on ‘leaking’ dysentery, including a sub-category on stomach major artery ‘leaking’, and one on ‘leaking’ dysentery of the intestinal artery (*Juan* 19–22). Next come the listings for *Juan* 23 on vomiting, with a number of sub-categories, including ‘vomiting leaking’, ‘flowing leaking’, measures to halt vomiting, and stop ‘leaking’, then following the major section on constipation. Next sub-categories include ‘mysterious astringency’ (urinary system), one on ‘consumption’, including ‘consumption head’, ‘consumption worms’, and ‘consumption cough’, followed by a major division on medicinals to tonic and ‘increase’. *Juan* 24 discussed ‘various heating’, a large section, followed by a major division on ‘chilling’, with several sub-categories. This was followed by *Juan* 25 with a division dealing with ‘various *qi*’, the Chinese term being used in this case apparently used to refer to the vital forces in the body, including a sub-category connected with original *qi*, vital force, *qi* ‘asthmatic urgency’, a division on bleeding, including blood spitting, blood vomiting, blood in the stool, how to stop bleeding, a division on seasonal *qi* ‘variegated pustules’, and one for intermittent fevers. *Juan* 26 is devoted to the body in general, including body pain, a long section, a category on *qi* levels, one on lice, one on issues of hand and foot, while *Juan* 27 begins with ‘Yellow’ [jaundice] illnesses, goes on to a division of ‘internal worm’ symptoms, both major areas of concern, judging by the space devoted to them, and a final division on ‘accumulation’. *Juan* 28 begins with foot *qi*, categorized by origin, e.g., heat, chill or moisture, then a general discussion of the problem, followed by anus haemorrhoid ‘leaking’, including bowel wind haemorrhoid ‘leaking’, haemorrhoid wind in general, a division on the ‘governing way’ (digestive tract). This is followed by *Juan* 29, on ‘various symptoms’, which, judging by the contents listed, was a general exegesis of the human body in terms of proper behaviour and nutrition. This would have been a most interesting chapter if it had survived, and *Juan* 30, which survives, is also devoted to ‘various symptoms’, along similar lines to the previous *juan*. *Juan* 31, which follows, is devoted to female issues (‘various disorders of women’), including breast problems, pregnancy and postpartum issues, the child in the womb, and a sub-category of various diseases of women and of children. *Juan* 32 begins with ulcers and ‘swelling’ poisons, including ‘lump’ ulcers, and ‘evil’ [purulent] ulcers, while *Juan* 33 continues with ulcer swelling poison, including boils and

Typical of much of its contents is the following simple or recipe. The Arabic and Persian words in sub-text are in Arabic Script and written smaller than the rest of the text. Medicinals are primarily Middle Eastern, as is the recipe itself, although the measures, in *liang*, about two pounds today, and *qian*, one tenth of a *liang*, are Chinese. Also Chinese, in general terms are the disease categories, as the following excerpt conveys:

Another Ointment Medicine

Treats joint weakness and joint spasm disease

Root skin of fennel ([sub-text] one *liang* 兩)

[Ar.] *Karafs* [celery, parsley etc.] root skin ([sub-text]) [Persian] *pust-e binj-e karafs* ['Skin of the root of celery, etc.'])

Seedless grapes [sub-text] one *liang*

[Ar.] *Karafs* seed [seed of celery, parsley, etc.] ([sub-text]) [Persian] *habb -e karafs* ['Seed of celery, etc.'])

Fennel ([sub-text] three *qian* 錢)

[Ar.] *Idhkhir* [*Andropogon schoenanthus*, 'lemon-grass'] ([sub-text] [Arabic] *Idhkhir*. Three *qian*)

Rūmī fennel [Anise from Seljuq Anatolia] ([sub-text] three *qian*)

Chinese Sweet-gum [*Liquidambar formosana*] ([sub-text] two *qian*)

Chinese spikenard [*Nardostachys chinensis*] ([sub-text] two *qian*)

Myrrh ([sub-text] one *qian*)

'Foreign' fennel [anise]³¹

[Ar.] *Nānakhwah* [*Ammi copticum*, 'Bishop's-weed'] ([sub-text] *Nānakhwah*. Two *qian*)

'Aromatic' herb [probably basil or some other mint]

Muhsiang [*Vladimiria soulieri*; also *Saussurea lappa*] ([sub-text] each two *qian*)

[Ar.] *sukk riangen* 連根 [unidentified *sukk*]³² ([sub-text] *Sukk*, ...³³ Three *qian*)

Sumatra benzoin [Styrax benzoin etc.] ([sub-text] Three *qian*)

Madder root

related complaints, venereal ulcers, skin blotch ulcers, 'stinking' ulcers, 'itching' ulcers, ring-worm ulcer, and itching and ringworm in general. *Juan* 34, which survives, is devoted, as already indicated, to wounds from edged weapons, including wounds from arrowheads, also fractures, bone setting, compound fractures, and 'needle' cauterization, i.e., puncture cauterization, burns and stick abrasions and human bites. *Juan* 35, which follows, deals with vermin and animal wounds, and has a large section on poisons, in good Arabic tradition, distinguishing bites and wounds, medicine poisoning and poisoning in general, including special categories of medicinals and their effects, how to avoid the wounds of vermin and insects, as well as the effects of foods, and medicines, 'perverse' vermin in general, and perverse 'evil' things. *Juan* 36, the last, starts with medicinal foods and medicine and related topics and then provides a listing of *materia medica*, starting with living things, and on downwards.

³¹ This is apparently a different variety from the above.

³² A *sukk* is a confection made up of various medicinals, including dates, gallnuts, and various astringents. What kind of *sukk* is being called for here is unclear.

³³ Illegible.

Rose flowers ([sub-text] six *qian*)

Figs ([sub-text] 10)

For the ingredients use four *jin* 斤 [Chinese quart] of pure water. Combine with the 16³⁴ medicinals. Cook down to one *jin*. In addition, take the *sukk* ([sub-text] [Arabic] *sukk*) with roots, the benzoin, and the myrrh and combine in the medicinal water. Stir until it is even. Each time take 4 *liang*. Add one *liang* of sand [grain] sugar, almond oil ([sub-text] [Persian] *raughan-e badām* ['oil of almond']), combine and eat. Consume promptly.³⁵

Also typical of the text are descriptions of procedures, to remove arrowheads or treat head wounds, including removal of bone fragments lodged in the brain, for example, in *juan* 34, and theoretical discussions. The following is part of one of them and discusses, a specific medicinal, including the question of its purity and how to recognise substitutions. Arabic doctors had taken a lead in this area and set an example for later western practice. This medicinal, castoreum, was already well known in China under a Chinese name borrowed from Korean but, interestingly, the discussion here is entirely in terms of the categories of Persian and Arabic medicine and its terminology:

Treating left paralysis and right numbness

The listed ingredients include [Persian] *[gund]bidastar* [castoreum]. Another name is [Persian] *khazmiyān* [castoreum]. This is castoreum. If one uses this substance it is effective. Now in the case of castoreum, the genuine article has connecting skin for the pair [of testicles]. When there are just [the testicles] alone, most of it is false. To make false castoreum they use [Pr.] *jawāshir* [*Opopanax chironium* resin] ([sub-text] [Pr.] *jawāshir*) [and] [Ar.] *[as]-sam al-'arabi* [gum of the acacia gum-tree]³⁶ ([sub-text] this is a gum from the plum tree of the 'Arabī land). One takes an amount of castoreum and grinds all of it up finely. One combines with blood and stores in a bladder. Dry in the sun. Then it will be extremely excellent. Also, the original endowment of castoreum is grade 3 or grade 4 upper heat, and grade 2 upper dry. Also, if castoreum has a dark colour tending towards black, it is a poisonous substance. If people take it there will be wounding. However, even if it does not wound, it also produces [Pr.] *sar-sām* [delirium, frenzy] head swelling symptoms ([sub-text] these are symptoms whereby the heart and will are confused and in disorder.) One needs to diminish the poison. Take the juice of orange which has been squeezed, or vinegar made from grape wine, or donkey milk and consume. All of these can diminish [the poison]. If one uses other medicinals at the same time that one uses this substance, or if one lacks castoreum, it is possible to use calamus [rhizome] or black pepper, at half the quantity, to replace it.³⁷

³⁴ There are actually 18, not 16.

³⁵ Kong *et al.*, 1996, p. 91.

³⁶ This is one of the few Arabic forms in the text and was almost certainly taken over verbatim from some other source more faithful to an Arabic original text.

³⁷ Kong *et al.*, 1996, p. 43.

Previous studies of the *HHYF*³⁸ have strongly emphasised its relationship with the *Qānūn fi al-tibb*, but the relationship is distant at best, although the organisation system of the text does resemble that of the *Qānūn* and similar texts. A few passages are identified as drawn from the *Qānūn* but most, if not all, have been carefully adapted to the specific language and style of the *HHYF* and are hardly direct quotations. The same is true for other, general references to Ibn Sīnā (c. 980 to 1037), as the author of the *Qānūn*, usually in a larger context in which multiple authorities are cited.

Much of this material may not come directly from the authorities indicated at all but from a variety of intermediate collections and compilations. Most were translations and adaptations of Arabic originals in Persian. Many, perhaps the majority, of these sources are now lost. Be that as it may, based upon a careful reading of the text, the source tradition of the *HHYF* is clearly Persian and Persian is its working language. Most of its Arabic forms appear to have passed through a Persian environment before coming to the *HHYF*. This is highly significant in view of Mongol China's close relationship to Mongol Iran, its principal ally in the struggles of the Mongolian world.

But the environment producing the text was probably not entirely Persian. The *HHYF* may possibly have passed through Turkic-hands and the court environment in Mongol China was as heavily Turkicised as it was Iranicised. Although other explanations are possible, the primary evidence for this may be a claimed Turkic palatisation of many of the Persian and Arabic forms given in the *HHYF* in transcription. Something similar occurs also in the other major textual witness to the influence of Islamic Medicine in China, the imperial dietary manual *Yinshan zhengyao* 飲膳正要, 'Proper and Essential Things for the Emperor's Food and Drink' (YSZY), presented to the Mongol court in China in 1330. In this case, the author, who includes many Turkic terms in his text, was almost certainly a Turkic-speaker, or at least came from a Turkic environment.³⁹ If Turkic speakers were involved in the composition of the *HHYF* they were most probably Xinjiang Uighurs, known to have been extremely active at the Mongolian court in China. They have maintained well-developed but still unstudied traditions of Islamic medicine until the present day.⁴⁰

But, even allowing for Turkistanian intermediation and influence, it is the Persian-language substratum that makes the *HHYF* what it is. It is clearly not an Arabic document, although a few Arabic phrases do occur, nor does it show

³⁸ See Song Xian *et al.* in Kong *et al.* 1996.

³⁹ See the discussion in Buell *et al.* 2000, pp. 15 and *passim*.

⁴⁰ On Uighurs and other Western and Central Asians active in Mongol China, see also, as an introduction, Ch'en Yuan 1966. On Turks in China, see also Rachewiltz in Rossabi (ed.) 1983.

more than relatively minor Turkic influence, if that is what it is. From whence did the Persian original (or originals) and specific Iranians, such as Rashīd al-Dīn and his colleagues, have a role in shipping medical books east as they did in translating at least one Chinese medical work for local consumption? Did Qubilai get medical book tribute along with the many astronomers and others sent east by the Ilqanate to please him? If so, who was involved?

One strong candidate as an actual intermediary is the Syrian Christian Aixie 愛薛, called Īsā the translator by Rashīd al-Dīn.⁴¹ According to his Chinese biographies, he was a man of Frōm, i.e., Syria, who first appeared in Mongol service in the 1240s. He became an advisor to Prince Qubilai, and then went on also to serve Qubilai's successor Temūr (r. 295–1308) in an extremely long career. He is specifically mentioned as knowledgeable in medicine (he seems to have been an actual doctor), among other things, and later took charge of things medical for his patron. He headed an agency that became the Guanghuiji, and also took charge of astrological affairs for Qubilai after he was established. In addition to these specialized tasks, Īsā also went as an envoy to Mongol Iran and returned. Quite probably he brought books back with him to add to those no doubt already belonging to his family. During his trip (the time seems right) Īsā may have met Rashīd al-Dīn and exchanged information. Be that as it may, there is no one else likely to have had the opportunities that Īsā did for obtaining and transmitting Persian and Arabic medical knowledge, an area in which he was known to have had an interest.

In any case, the *HHYF* almost certainly represents cullings from one or more Persian-language medical encyclopaedias or compendia as well as from specific treatises by named authors (e.g. al-Samarqandi, whose formulas are closest to those of the *HHYF*).⁴² But which encyclopaedia or other text, assuming that the documents we are looking for even survive? A detailed line-by-line evaluation of the entire text of the *HHYF* against known Persian and Arabic texts will be required to say for sure, but we must certainly look first and foremost at known Ilqanate medical and medicine-related documents. These certainly included the *Nuzhat al-Qulūb*, 'Hearts' Delight', a scientific and medical encyclopaedia written by the son of Rashīd al-Dīn, Ghiyāal-Dīn Muḥammad,

⁴¹ See his biography in the *Yuanshi*, 134, 3249–50. For the other sources on his life, see also Tu-chien Weng 1938. I would like to thank Igor de Rachewiltz for suggesting Īsā as an individual who must be looked at seriously in terms of the transmission of medical knowledge from the Muslim west to China (in an email of 1 January 2006) and for supplying me with a copy of the Weng Dissertation.

⁴² Levey and Al-Khaledy 1967. Al-Samarqandi (died 1222), as his name implies, was Turkistanian and thus physically closer to China than his Iranian competitors. He completed his text just before the Mongol invasions.

but also quotations and references from apparently lost works, such as the *Laṭā'if al-Rashīdiyya*, 'Pleasures of Rashīd- al Dīn,' by Rashīd's associate, the doctor Ibn Ilyās, and the latter's other works including his treatise on food.⁴³ Also to be looked at are medical works in Syriac of which there are faint traces in the *HHYF* in that text's few Syriac terms, if these are not just taken over from some other sources. If there were Syriac sources, they are likely to have included works by historian and medical writer Bar Hebraeus. In any case, a Syrian Nestorian who must have been literate in Syriac, i.e., ʿĪsā, was almost certainly involved in the transmission of at least some of the texts, giving rise to the present *HHYF* making pursuit of a trail of possible Syriac evidence worthwhile. Leaving aside the few Syriac forms in the names of medicinals, one may even ask whether or not peculiarities in the Chinese transcriptions, that are assumed to be Turkic, are not Turkic at all. Do they reflect accented readings of Arabic and Persian texts by speakers whose native language was Syriac, but who also knew Arabic, the common medical languages of the Islamic world? Here further and careful linguistic analysis will be required, including an even greater range of texts than those suggested above.

There are thus many places to look for origins, and the above examples are examples only. In any case, what is absolutely clear is that Rashīd al-Dīn and those connected with him took an active interest in medicine in all of its areas. They collected materials and even actively involved themselves in the creation of hospitals and other medical institutions.⁴⁴ In fact, one might argue that Rashīd al-Dīn's actions in these areas may have provided a pattern for the contemporary institutionalisation of Islamic medicine in China and even, possibly, for the way that Chinese medicine was organised under the Mongols. The idea of the hospital (at least the teaching hospital), may also have been imported. Certainly, Qubilai and his successors were quite aware of what was going on in Mongol Iran and actively tried to draw upon it for their own purposes. Why not medicine and medical institutions too?⁴⁵

In sum, we do not know for certain that any of the texts serving as sources for the *HHYF* came from Iran or had any association with Rashīd al-Dīn and his circle. But it is likely that they did, given above all Rashīd al-Dīn's role in promoting the dissemination of knowledge in the Ilqanate and his known

⁴³ See the discussion of these works in Elgood 1979.

⁴⁴ Elgood 1979, pp. 311–16. See now also Pormann and Savage-Smith 2007, pp. 80–114. The whole question of the origins of hospitals remains unresolved but certainly the Islamic world was a leader in establishing and developing them. See also Chipman in this volume.

⁴⁵ On this, see the important article by Shinno 2007. I will explore the possible connections in a forthcoming paper and agree with her that the influences involved extended to Chinese as well as non-Chinese medicine.

interest in China. At the same time, we should also be prepared for surprises as we look closely at an Islamic medicine in the *HHYF*, which is highly assimilated to Chinese traditions. This may, as I suggest elsewhere, reflect entirely unexpected influences, from entirely unexpected directions, including the highly syncretic medicine of Tibet with its combination of Indian, Chinese, Western and Turkic, as well as indigenous traditions.⁴⁶

Conclusion: The implications of Mongolian medical globalisation for Eurasian history

The brief discussion of the *HHYF* and other texts here has clearly shown that there was a veritable medical globalisation going on under the Mongols. Chinese medical knowledge was moving west, at least as far as Iran, possibly further when one considers a growing western interest in pulsing. The common Eurasian tradition of Greek- and Roman-based humoral medicine of the time also seems to have been conquering the east, i.e., China.

Such a common medicine had by then become the base of most European and Middle Eastern practice, with influences strongly felt as far afield as India and Africa. With its movement east, China, as ruled by the Mongols with their preference for western (i.e., Islamic) medicine, was briefly at the same place medically as almost everyone else. Interestingly too, the Islamic medicine of China primarily faces us in the form of what can be considered a more or less standardised textbook. That is, the *HHYF* is very similar in content and approach to similar standardised texts in use in the early western medical schools of the time, in Taranto and Salerno, and elsewhere. It is, in any case, based upon exactly the same Islamic and filtered Greek and Roman traditions and authorities.⁴⁷

⁴⁶ See Buell forthcoming.

⁴⁷ On early medical texts used in the schools see, as an introduction, Kristeller 1982, and Baader 1982. As Kristeller, Baader and others have pointed out, a key part of the emergence of the early western medical school texts was the development of the idea of a standardised book, even when this book was a manuscript. This idea may have had its ultimate origin in the printed canons of China, imitated in the European and Islamic West. On the rise of standardised texts as a publishing phenomenon, see also Buell in Drees (ed.) 2001. On a parallel tradition of standardised books in the west, from Alexandrian times on through the Byzantines, see McCabe 2006. Judging from the *Hippiatrica* tradition as described by McCabe, Byzantine standardised books were not all that standard, circulating in many different forms and versions. They appear to have been quite unlike later traditions. On Islamic medicine in the west, see Pormann and Savage-Smith 2007.

Thus the clearest parallels to the *HHYF* are from the western world but similar collections existed in the Middle-East as well, all more or less embracing the same materials. The parallels do not stop there. Many have noticed the similarity of much of the coverage and material in the *YSZY* to the Arabic dietary literature, including the collection of related texts known in Europe as the *Tacuinum Sanitatis*.⁴⁸ This was based on the eleventh-century *Taqwīm al-Ṣiḥḥa* (*Maintenance of Health*) of Ibn Buṭlān, a work far more extensive than its European adaptation. Here too the Mongols in China may have started from the same place as the rest of Eurasia. The recipes of the *YSZY* also show a strongly cosmopolitan orientation representative of a globalised cuisine, one actively promoted by Mongol court usage.

Thus, the Mongols instituted their own cultural globalisation long before the present one. In many respects, their era inaugurates our own, one of a world culture and not of strictly regional ones. In the case of medicine there was, at least for the ruling elites, briefly a medical mainstream, embracing the great cultures of the old world, including China. In China, the connection was lost after the fifteenth century, but was taken up again in the nineteenth and twentieth centuries, with the renewed introduction of western medical ideas. They represented much the same traditions that had once formed part of the first medical globalisation, that of the Mongol age.

The Mongol globalisation did not stop with medicine but also included assumptions about cuisine, art, and the sciences. These are other topics requiring more detailed consideration than is possible here. What is significant, however, is that despite the *HHYF* being a part of Chinese tradition, because of its quotations from Galen and the other great western medical masters of the past, it is also a part of the western tradition—through the common Eurasian traditions out of which modern medicine has grown.

Except for language, what is different in assumption or content in the *HHYF* from the Renaissance medical texts that were such a key part of the Renaissance and the rise of modern medicine? The medical globalisation of the Mongol era has profound theoretical implications and helps usher in a true understanding of Old World history as global history. Cultural isolation has little meaning for the Mongol age with its free multiculturalism and exchanges on an unprecedented scale. This includes, but not exclusively, medicine.⁴⁹

⁴⁸ See Bovey 2005.

⁴⁹ On the porosity of European and Islamic societies in the area of astronomy, for example, see the discussion in Saliba 2007. Saliba makes the valid point that the exchanges were not just in terms of the translation of texts. Also involved were individuals capable of making use of foreign language astronomical and other scientific texts at first hand, including, for example, some of those influencing Copernicus.

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