

Medical Connections and Exchanges in the Early Modern World

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Introduction

The articles in this special issue discuss patients and medical knowledge crossing frontiers. My contribution is intended to provide some historical background by sketching interactions and connections between European, Islamic and Indian medical knowledge in the early modern period. What I can show is that interactions across borders have a very long medical history. Today we sometimes think that globalisation and concentrated exchanges of knowledge are a new phenomenon. Yet, in fact, exchanges at all levels were commonplace in earlier periods in, for example, religion, military technology, and mathematics, at least across the vast Eurasian region. My task is not to show the superiority of one medical system over another, let alone to sketch the rise of chemicalised modern Western medicine. It is merely to provide background to later articles that demonstrate contemporary interactions, with a view to showing that these have a hoary history going back many centuries.

Three levels of medical practice need to be distinguished. At the book level, more theory than practice, there was copious circulation and mutual borrowings. At the practical level, where trained healers confronted diseases, there is a more complicated picture. Again there was much commonality, but also recognition of geographical specificity. Some diseases were treated with different methods in different places. On the other hand, some diseases were considered to be localised, so that an incoming

healer would use methods already familiar in the area. Sometimes a mixture of methods, combining those of the incomer with those of the locals, was tried. Below this relatively sophisticated book-based level was folk healing, often dispensed by women drawing on local nostrums, varying widely over space and, often enough, at least as efficacious as book-based medicine.

Norman Owen (1987) has reminded us of the difficulties of historical accounts of illness. These accounts are, of course, transmitted through cultural lenses. Diseases themselves are mutable, so that the sources might be describing a syndrome that no longer exists, such as the mysterious English sweating sickness that came and went in the sixteenth century (Braudel 1979: I, 78–88; Jones 1981: 140–141). Further, each account is based on assumptions about what illness meant, something very different in sixteenth-century Eurasia as compared with today. Finally, some diseases are more dramatic (cholera especially) than others. Owen thus distinguishes between crisis mortality and background mortality. The former, the dramatic and much described causes of mortality, include cholera, smallpox, influenza and various ‘fevers,’ such as malaria and typhoid. However, maybe three-quarters of deaths were, in fact, caused by the less glamorous background category of ailments, such as tuberculosis, dysentery and infantile diarrhoea (Owen 1987: 4, 12).

There is another category of mine-fields in the area of medical history in general. It is too easy to be overly influenced by what we think are modern medical methods, and to test the past in accordance with what we, social historians with only a spotty expertise in medicine anyway, think is ‘correct’ and ‘scientific’ practice today. Andrew Wear claims in his edited collection, *Medicine in Society: Historical Essays*, that ‘the nineteenth- and twentieth-century values of the medical profession which in past history of medicine had been applied to earlier periods to condemn empirics, quacks, magical and religious practitioners have been discarded. In the process a much richer medical world has been uncovered’ (Wear 1992: 2).

In the early modern period it is clear that there was much commonality in the practices recommended by medical writers, which were based on the universal Eurasian reliance on humoral pathology. European medicine was a blend of Latin, Arabic, Greek and Hebrew knowledge. For example, in Portugal the most widely quoted authors were Galen, Hippocrates, Isaac and Ibn Sina (Avicenna). Underlying European medical

practice was the notion of the four humours or bodily fluids, which indeed remained influential in western medicine until the mid-nineteenth century. Disease was a result of an imbalance or impurity of one of the four cardinal humours, namely blood, phlegm, choler (red or yellow bile) and melancholy (black bile); these, in turn, were analogous to the four elementary substances of earth, water, air and fire. In a healthy person the four humours were in equilibrium. The relative balance of the four was tested by means of urine samples, which were widely used in diagnosis. Any perceived imbalance was cured by enemas, purging, the use of stimulants, tonics and drugs compounded from medicinal herbs and plants, and especially by bleeding, which was something of a universal specific and was done not only to cure illness but also as a preventative, being done routinely perhaps every two months or so. Renaissance doctors thought that the body contained 24 litres of blood, and that 20 of these could be bled away without harm. (The average human adult body actually contains about 5 litres of blood.) The time to bleed was often determined by astrology. As we will see, although the notion of humours was basic in Asian medical systems as well, bleeding was much rarer in Islamic systems, and never practised in Hindu systems.

European medicine drew heavily on Islamic knowledge, and this points to the well-known phenomenon of a considerable exchange of medical information between Europe and Asia in pre-modern times. Europe's main contact was, of course, with Muslim medicine, but this in turn had been influenced by Hindu achievements as well as by those of the Greeks. India's earliest texts, the Vedas (c. 1500 BCE), show a very primitive medical knowledge, but by 600 BCE, at least, the Ayurvedic system was established. This Hindu system thus pre-dated the classical Greek system associated with Hippocrates, who was born around 460 BCE, and Galen, who lived from 129 to 199 CE. In India, by the early centuries of the Christian era we find a fully evolved system. The basic texts are by Caraka (1st and 2nd centuries CE, or possibly much earlier) and Susruta (around the 4th century CE), both of which, in fact, merely codified existing knowledge dating back some centuries. Caraka's work consisted of a massive eight books.

Moreover, this system was not as static as the European one. For example, at first Indian doctors used only drugs, mostly vegetable products, but from around the seventh century metals were used too, especially mercury, but also compounds of iron and other minerals. By the thirteenth century Indian practitioners were examining the pulse, and in the sixteenth century an important Ayurvedic doctor in Varanasi, Bhavamisra, identified the

new form of syphilis that had been introduced by the Portuguese. Significantly, he called it ‘the Frank [European] disease,’ and said it was usually caused by intercourse with Frank women (Gaitonde 1982: 82–88).

As in medieval Europe, the underlying focus in Indian medicine systems was based on humours. Five elements were recognized in Ayurvedic medicine: earth, water, fire, air and ether. Health was maintained through keeping an even balance between the three vital bodily fluids, wind, gall and mucus, to which some added a fourth, blood. Bodily functions were maintained by five winds. Food digested by one of these, the stomach, became chyle, which proceeded to the heart and thence to the liver, and so to blood, which in turn was converted to flesh. There was no clear idea of the brain because, like Homer, Hindu doctors believed that the centre of consciousness, thought and feeling was the heart. Nevertheless, the importance of the spinal cord was recognized, and cleanliness was acknowledged to be medically valuable. There was copious use of drugs. A major problem was the caste-based Hindu taboo against contact with dead bodies. There was thus very little dissection, and obviously anatomy suffered as a result. The sixteenth-century Portuguese botanist and doctor Garcia d’Orta noted this, claiming that the Indians did not even know where the liver or spleen were. Yet despite this assertion, some writers claim that Hindu India did have good empirical surgery in certain specific areas. Caesarean sections were performed, as well as bone-setting, and even plastic surgery.

It is important to stress the way medical ideas circulated freely in the pre-modern world. In the case of India, some Hindu medical texts were influenced by Galen and Hippocrates. These Indian texts, in turn, affected such great Muslim writers as Ibn Sina, and his works, in Latin translation, were standard authorities for centuries in medieval and early modern Europe. In the period of the Abbasid khalifat in Baghdad (750 CE onwards) Muslim scholars travelled to India to study medicine, and also recruited Hindu doctors to come back with them to Baghdad, where some of them became influential physicians at court, and translated Sanskrit works on medicine, pharmacology and toxicology into Arabic.

But the Arabs were most influenced by Greek medicine. As they conquered Persia in the seventh century they acquired Greek treatises, especially those of Galen and Hippocrates. During Baghdad’s golden age, several decades each side of 800 CE, the rulers

established a translation bureau, and collected Greek texts by Hippocrates, Galen and others. Arab doctors built on them, thus producing the Yunani or Unani (that is, 'Greek') school of medicine, which later spread to India and was the system used by Indian Muslims. Rhazes (Al Rhazi, b. 865) in the ninth and tenth centuries CE wrote on smallpox, measles and other diseases, and challenged the authority of Galen long before this was done in Europe. His main work was a vast compilation of Greek, Arabic and Indian knowledge. A century later Avicenna (Ibn Sina, b. 980) wrote his monumental *Canon of Medicine* (Al-Qanun), the most influential text ever written in either Asia and Europe. These Arab works, using but improving on Greek works, were then translated into Latin and widely used in European medicine right up to the nineteenth century. Ibn Sina's *Canon* made its first appearance in Europe by the end of the 12th century, and its impact was dramatic. Copied and recopied, it quickly became the standard European medical reference work. In the last 30 years of the 15th century, just before the European invention of printing, it was issued in 16 editions; in the century that followed more than 20 further editions were printed. The Abbasid rulers, who controlled a vast empire centred on Baghdad from 750 CE, also established hospitals, in the modern sense of the term the first in the world (Tschanz 1997: 20–31).

As in the European and Indian systems, notions of humours and elements were important to Arab medicine. The Arab version was the same as the European one: the four humours of blood, phlegm and yellow and black bile were considered to correspond with the four elements of earth, water, air and fire. Illness was a sign that the balance of the four was disturbed. In 1637 in Persia a European visitor saw a man who had become gravely ill from drinking too much brandy, and as he 'lay a Dying, I saw a Moor-Physician, who had the sick party in hand, order a great piece of Ice to be laid on his Stomack, maintaining his procedure by this general Maxim, that a Disease is to be Cur'd by what is contrary thereto' (Olearius 1662: 338). But the Arabs were not skilled in gynaecology, given sociocultural norms of female modesty. For example, from the *Memoirs* of the adventurer Niccolao Manucci, it seems that diagnosis of Muslim women in India had to be done by touch rather than sight; only the affected part of the female body, say the arm, would be exposed for observation. As a variant, a wife of Prince Muhammad Azam Shah died in 1705 of an abscess on the breast. It had been suggested to her that she be examined by a skilled Indo-Portuguese woman, but the Begam refused to be examined by a woman who drank wine: her touch would be defiling (Sarkar 1989:

56). Nor were they good surgeons, as dissection was abhorred, as indeed it was in Europe until about the fourteenth century, and again in Hindu society till much later.

The history of the three variants of plague provide a good example of a disease with a pan-Eurasian spread. Pneumonic plague retreated in Europe in the early eighteenth century, the last major occurrence ravaging Marseilles in 1720. Bubonic plague, with the characteristic symptom of buboes, was older and lasted much longer. It was recognized that the plague was infectious. Counter measures included quarantine and isolation. As early as the fourteenth century Italian cities had introduced quarantine measures to keep out ship-borne bubonic plague brought from the Middle East. Once the disease appeared, affected areas were cordoned off; in the sixteenth century national policies evolved to achieve this. The rich could afford to flee, and did so at the first sign of an outbreak. The poor stayed behind and died (Braudel 1979: 78–88; Jones 1981: 140–141). As a specific example, there was a major epidemic in Lisbon in 1569–70. In June 1569 mortality was 50–60 a day, in July 300–400, and later up to 700. In this city of about 100,000 souls, some 50,000 died in this epidemic.

In the sixteenth and seventeenth centuries, and indeed both before and after, the plague was the great killer in northern India (Ovington 1929: 203–204), but in the south cholera seems to have been the greater threat. The second decade of the seventeenth century saw several calamitous outbreaks of the plague. As in Europe, it is clear that Indians knew the plague was infectious, and even that rodents had something to do with its spread. Several accounts mention the buboes that appeared, as the emperor Jahangir noted, ‘under the armpits, or in the groin, or below the throat.’ He also described how a girl touched an infected mouse, and soon after the buboes of the plague appeared in her. She had a high fever, her colour changed to ‘yellow inclining to black,’ and on her last day she vomited, had a motion, and died (Jahangir 1968: I, 442; II, 65, 66–7).

Reliance on bleeding (or venesection or phlebotomy) constitutes one of the most important variations. Europeans, as noted, used it extensively, even in India. Christopher Farewell wrote a vivid account of his bout with ‘a burning fever’ near Surat in 1614:

I here suddenly fell sicke of a burning fever and (thankes be to God) as sodainly recovered. For, fearing the extremity of that raving and uncomfortable sicknesse, against his will I prevayled with our chyrurgion to let me bleed till I fainted againe, as foreseeing it to be my remedy; applyed all comfortable things to my head; tooke my bed; and, full of perplexity to dye sencelesse, I commended myselfe to God. After some idle talke to my friends about me, I fell into a slumber; but

quickly wakened by a desire to ease my stomacke, and had at least a dozen vomits naturally, which gave mee a most comfortable night. (Downton 1938: 135)

In the Portuguese settlement of Daman in the 1690s a French visitor found a young Portuguese girl with fever, whose 'Indian physician, instead of letting her blood, had covered her head with pepper' (Priolkar 1961: 14). The European insisted on bleeding her with leeches, and perhaps surprisingly, she recovered quickly (Priolkar 1961: 14).

In the 1670s in South India the Abbé Carré fell ill with a fever, and insisted on being bled. Great quantities were hacked out of him by enthusiastic but amateur bleeders, with the following result:

This made me so feeble that I cannot bear to speak of it. Yet, though I felt very weak, I was not surprised that the fever grew less, as it no longer had the cause [that is, excess of blood] which had kept it up; and I further reduced it by refusing for eight days to eat many little delicacies that I would have liked—sometimes one thing, sometimes another, though I must confess I refrained with very great difficulty. For eight or ten days I still had my sight, my memory, and my senses, but so feebly that I did not remember anything that happened to me. (Abbé Carré 1948: 284–285)

There were clearly problems with this method of dealing with fevers, especially when it was used so often; patients in the Royal Hospital could be bled thirty or even forty times.

Earlier European practice had combined bleeding with feeding up the patient. In the following description of medical practice in the Goa Royal Hospital from the 1640s, we find that the Europeans had now decided that a scantier diet was more appropriate, as noted above in the case of the Abbé Carré's self-cure:

The hospital at Goa was formerly renowned throughout India; and, as it possessed a considerable income, sick persons were very well attended to. This was still the case when I first went to Goa; but since this hospital has changed its managers, patients are badly treated, and many Europeans who enter it do not leave it save to be carried to the tomb. It is but a short time since the secret of treatment by frequent bleedings was discovered [he presumably means in Goa, for bleeding was of course universally practiced in Europe]; and it is repeated, according to need, up to thirty or forty times, as long as bad blood comes, as was done to myself on one occasion when at Surat; and as soon as the bad blood is removed, which is like an apostume, the sick person is out of danger. Butter and meat are to him as poison, for if he eats them he puts his life in danger. Formerly some small ragouts were made for the convalescent, but they must nowadays content themselves with beef-tea and a basin of rice. (Tavernier 1977: I, 160–161)

Indian practice was quite different, and was described as follows by a French doctor in the mid-1600s.

On phisic they have a great number of small books, which are rather collections of recipes than regular treatises. The most ancient and most esteemed is written in verse. I shall observe, by the way, that their practice differs essentially from ours, and that it is grounded on the following

acknowledged principles: a patient with a fever requires no great nourishment; the sovereign remedy for sickness is abstinence; nothing is worse for a sick body than meat broth, for it soon corrupts in the stomach of one afflicted with fever; a patient should be bled only on extraordinary occasions, and where the necessity is most obvious - as when there is reason to apprehend a brain fever, or when an inflammation of the chest, liver, or kidneys, has taken place. (Bernier 1914: 338–339)

Bleeding, then, is an example of Europeans bringing a method with them to India, and with dubious validity. More often they accepted that Indian diseases needed Indian remedies. That some Indian diseases were different and peculiar to the subcontinent was widely acknowledged, and not just by Europeans. One Muslim author considered that there were major problems in applying the Perso-Islamic Yunani (Greek) system to Indians (Ikram 1966: 183). The eccentric alchemist and important early medical innovator Paracelsus in a book published in 1537–1538 stressed that Asian and African prescriptions did not work in Europe, and he also was not certain that his prescriptions would work outside Europe (Lach 1977: 424). In the late seventeenth century a French visitor said that for local diseases European medicines were of no use: 'For this reason the Physitians that go out of Portugal into these parts must at first keep company with the Indian Surgeons to be fit to Practice; otherwise, if they go about to cure these Distempers, so far different from ours after the European manner, they may chance to Kill more than they Cure' (Careri's account in Sen 1949).

The acceptance of these beliefs meant that for most of the early modern period. Indian medical practice was described, but usually without comment. Even though some of the 'cures' prevalent in India at this time seem today to be bizarre in the extreme, Europeans apparently found them different, but not qualitatively better or worse, than what they knew. The related notions of a lack of qualitative difference, and that Indian diseases were 'different,' meant that in Portuguese Goa even governors and clerics used Hindu doctors because of their supposed better local knowledge. In 1548 an Indian brahmin doctor was practicing in the Jesuit College of St. Paul, and another *vaidya* (healer) was doctor to Governor Barreto in 1574 (Pacheco de Figueiredo 1967: 52–53). Linschoten, in the 1580s, noted that:

There are in Goa many Heathen phisitions which observe their gravities with hats carried over them for the sunne, like the Portingales, which no other heathens doe, but [onely] Ambassadors, or some rich Marchants. These Heathen phisitions doe not onely cure there owne nations [and countriemen] but the Portingales also, for the Viceroy himselfe, the Archbishop, and all the Monkes and Friers doe put more trust in them than in their own countrimen, whereby they get great [store of] money, and are much honoured and esteemed. (Linschoten 1885: I, 230)

The reverse of this sensible arrangement was that most governors brought their own doctors out with them from Lisbon as part of their vast retinues of relatives and hangers-on, all of them hoping to make a fortune in India during the three-year term of their patron. These newly arrived Portuguese doctors were nearly always rewarded by being made the chief doctor of the important Royal Hospital, but several contemporaries noted that this was a prime cause of mortality, for they knew nothing of Indian diseases. Moreover, those who had begun to acculturate returned to Portugal with their gubernatorial patron. In 1610 the king ordered that this practice cease and that the doctors and surgeons who went out with the viceroys not be allowed to practice in the Royal Hospital, 'because they have no experience of the region and its medical methods.' This order seems to have provoked a storm of complaints from Goa, and three years later it was lifted (Bulhão Pato 1880–1935: I, 304; II, 300).

This sort of exclusivity was unusual. It was much more common for various medical techniques to mingle. Dysentery was a great, if unglamorous, killer in Goa. Most often treatment started by a vigorous purge. Apparently not all healers did the purging first, but regardless there were several other methods to cure patients and build them up. Some used a type of dog-bane, others a more complicated mixture. Neither Indians nor Portuguese gave any wine. Rather kanji, rice broth, was provided, with chicken pieces soaked in it (Markham 1913: 27). A Portuguese doctor said all doctors, Brahmin, Canarin, and Malabari, used the skin or husk of nutmeg, mixed with butter milk ('leite azedo'), for all kinds of dysentery. This was given twice a day, in the morning and at night, and then the patient was given to eat some boiled rice without salt or butter (that is, kanji), again with chicken mixed in. If the attack was severe opium might have been given, though this was done more by Muslims than by Hindus (Costa 1964: 28).

Garcia d'Orta wrote the classic *Colloquies*, the first extensive account of disease and curing in India by a European. As such he provides invaluable data for our study. His work, much translated, was extremely influential in Europe, though not in his native land of Portugal, for he was a converted Jew. D'Orta, however, differentiates between various Hindu practices on this matter. The Portuguese method was different from Malabar and again from Malayalam. (I am not sure what this distinction is based on as Malayalam is of course the language of the Malabar, now Kerala, region.) The Malabar treatment was much more rigorous than the Portuguese one, while the Malayalis mixed opium with the

nutmeg. On this matter d'Orta thought that the native methods had much to commend them when compared with Portuguese treatments (Markham 1913: 27).

Garcia d'Orta was thoroughly grounded in Greek learning, and this, in a way typical of the time, shaded off into less reliable notions. Of opium he noted that its long term use produced impotence, despite its popular use as an aphrodisiac. But he also claimed that the use of opium could help conception. This was because its use delayed ejaculation by the male by 'slowing down his imagination.' As women are slower in 'the act of Venus,' this meant 'they both complete the act at one time.' 'The opium also opens the channels by which the genital seed comes from the brain, by reason of its coldness, so that they complete the act simultaneously' (Markham 1913: 41).

He knew of Yunani medicine from its local practitioners, or *hakims*, and had a cordial relationship with these people at the court of the Nizam Shahs in Ahmadnagar. D'Orta in fact claims that his cures were often more efficacious than those of the Muslims. The general point is that he was much more attuned to Yunani methods than to Ayurvedic, and this for the obvious reason that many of the authorities he quotes, such as Galen, Ibn Sina and al-Rhazi, are also prime texts for Yunani medicine; indeed the second and third of these were of course Muslim healers. There was then a large degree of commonality between his European knowledge and that of the Yunani practitioners. He had much more to learn from Hindu healers, for their system, while not totally discrete from his own, was more different than the Yunani one. He usually appreciated the abilities of the local vaidyas with whom he had contact, often considering their cures to be superior to those he knew. However, he had no inkling of the vast and ancient body of Ayurvedic theory. Great names like Susruta and Caraka were unknown to him. All he knew of Hindu medicine was the actual practice of possibly not very well informed healers in Goa. He claimed that the Hindu doctors 'are men who cure according to experience and custom' (Markham 1913: no. 36), but in fact this merely shows that he was unaware of the Ayurvedic scholarly tradition that was passed on through the generations by its followers.

D'Orta had a quite objective attitude to other medical systems. In a general passage, which describes well his attitude to diverse medical knowledge, he noted how his patient, the ruler of Ahmadnagar:

“taught me the names of illnesses and medicines in Arabic, and I taught him the same in Latin, which pleased him very much.” The Hindu doctors often used Portuguese methods too, “But most of them not correctly. For they say there is bleeding, and they never bled before we were in the land; but they used cupping-glasses, sawing and leeches ... they were never accustomed to look at waters [i.e. do urinalysis]. I can tell you that they cure dysentery very well, can tell you whether there is fever or not from the pulse, and whether it is weak or strong, and what is the humour that offends, whether it is blood or heat or phlegm, or melancholy; and they give a good remedy for obstruction.” (Markham 1913: 35)

Sometimes they classify things incorrectly within the humoral spectrum, he says, such as getting the heat or dryness of particular drugs wrong. He considered that their knowledge of anatomy was very weak. However, d’Orta himself took many things from both Ayurvedic and Yunani healers. In general he would try European methods first, but if these failed he would then use ‘brahmin’ ones (Markham 1913: 36). Indeed he modestly claimed that he was the best informed healer in Goa, for in the Colloquies he has a Hindu doctor say: ‘Dr. Orta knows better than all of us; for we only know the Gentios [sc. Hindu], but he knows Christians, Moors [sc. Muslim], and Gentios better than us all’ (Markham 1913: 54).

A succinct statement on mingling was provided by a traveller in Persia in 1637. He wrote that ‘In Physick, or Medicine, they follow the Maxims of Avicenna and their Physicians are all Galenists’ (Olearius 1662: 338). A final example of a quite non-judgemental mingling, again from Goa. We noted above that patients were ferociously bled in the Royal Hospital. One account from the 1640s concludes by noting that:

I forgot to make a remark upon the frequent bleedings in reference to Europeans - namely, that in order to recover their colour and get themselves in perfect health, it is prescribed for them to drink for twelve days three glasses of pissat de vache [cow’s urine], one in the morning, one at midday, and one in the evening; but, as this drink cannot but be very disagreeable, the convalescent swallows as little of it as possible, however much he may desire to recover his health. This remedy has been learnt from the idolators of the country, and whether the convalescent makes use of it or not, he is not allowed to leave the hospital till the twelve days have expired during which he is supposed to partake of this drink. (Tavernier, 1977: I, 160–161)

Alongside these practitioners who to varying degrees drew on book-based knowledge were a host of alternative healers and people who pronounced on medical matters without a scintilla of training. For example, people thought nutmeg had a host of beneficial properties. It could be used for all cold illnesses of the brain, and paralysis, and other nervous problems, and also for infirmities of the womb (‘enfermidades da madre’) (Costa 1964: 23). This was also the case with the famous bezoar stone. This stone, widely described in the popular lore of many cultures, was thought to have been

formed by encrustations built up around a foreign body in the stomach of ruminant animals. Wild goats from Persia were especially fecund in producing these invaluable stones. They were believed to be an excellent antidote to poison, a purgative, a means of preserving one's youth and virility, and also a cure for the plague, bladder complaints, and so on. The Jesuits jealously guarded the recipe for their cordial stone, a bezoar stone with an amazing list of other ingredients added. It was used for heart problems, and was a good example of a mixture of Indian and European practice. Taken back to Portugal, these bezoar stones were widely used by the elite for their medicinal and amulet qualities (Markham 1913: 45; Amaro 1988–1989: 82–10–3).

Such nostrums were found everywhere. In Portugal badger powders were a very popular remedy.

One began by inebriating a badger on a wine filtered through camphor and blended with a compound of gold, seed pearls, and coral. The animal then was decapitated, all of his blood drained, and his heart and liver removed. The mixture of the blood with the powders should be effected under a 'slow sun' or in the 'heat of a fire' . . . Two ounces of paté resulting from pulverizing the heart, liver and even the skin and teeth of the badger completed the mixture. This compound, dissolved in wine or in water seasoned with vinegar, was given to the patient. (Oliveira Marques 1971: 143–144)

Several European visitors reflected the state of folk medical knowledge in Europe when they commented on popular practice in India. Cholera was probably the most feared disease, especially on the west coast and in the south. The British in India thought that cholera was caused by eating fish and meat together. They treated it by applying a hot iron to the ball of the patient's foot. If the patient winced, he or she would soon recover, but if no pain was felt the patient would soon die. For fevers in general the remedy was to 'Take an iron ring about an inch and a half in diameter and thick in proportion. Then heating it red hot in the fire, extend the patient on his back, and apply the ring to his navel, in such a manner that the navel may be as a centre to the ring. As soon as the patient feels the heat take away the ring as quick as possible when a sudden revolution will be wrought in his intestines' (Kincaid 1973: 37).

A seventeenth-century Venetian healer, Niccolao Manucci, showed in some of his stories how little difference there was between his knowledge and folk medicine. He had no formal training, noting blandly that he simply took up doctoring because the demand was there: 'little by little I began to turn myself into a physician.' In Bassein, he tells us, there was a woman of good station who produced a girl after a pregnancy of three years.

The girl married at twelve years and also had a pregnancy of three years. As to rabies, a newly married man on his wedding night cut his bride to pieces, gnawing her breasts, plucking out her eyes, and biting her face and body. The reason was that he had been bitten by a mad dog three months before. The remedy for rabies was to cauterize the wound at once. Alternatively, if the bitten person went on a sea voyage he would recover immediately (Manucci 1966–1967: III, 114, 117).

Several European travellers in the seventeenth century noted a pronounced shortage of local doctors in India, the reason presumably being that most villagers relied on non-professional healers, or merely dosed themselves with local drugs and simples. Tavernier, commenting in a very valuable passage on health care in a very extensive area of India, said:

It should be remarked that in all the countries we have just passed through, . . .there are hardly any physicians except those in the service of the Kings and Princes. As for the commonalty, when the rains have fallen and it is the season for collecting plants, mothers of families may be seen going in the mornings from the towns and villages to collect the simples which they know to be specifics for domestic diseases. It is true that in good towns there are generally one or two men who have some knowledge of medicine, who seat themselves each morning in the market-place or at a corner of the street and administer remedies, either potions or plasters, to those who come to ask for them. They first feel the pulse, and when giving the medicine, for which they take only the value of two farthings, they mumble some words between their teeth. (Tavernier 1977: I, 240)

When we look at pre-modern medical practice in Eurasia, it is important to be aware of three different levels. At the book based, often non-practicing, level, men wrote books that drew variously on medical traditions from scattered areas. The greatest dissemination location was Baghdad under the Abbasids. Here Greek learning was preserved, alongside some Indian elements. This amalgam was augmented, so that the ‘Greek’ science returned to Europe had been improved on and transformed in the Arab world. The crudities of Hippocrates and Galen were refined and improved by al-Rhazi and Ibn Sina, and then transmitted back to Europe. Yet underlying all medical theory from India to Western Europe was the notion of humours and balance. Actual practitioners drew to varying degrees on this book knowledge. This is to be seen as a continuum, with some healers having studied extensively, others very little. These last shaded off into ‘folk’ medicine, which typically did not draw on book knowledge. It did, however, draw on very detailed and valuable illiterate learning passed down through generations, experiential learning which was not necessarily inferior to or less efficacious than practice based on some degree of familiarity with book based

prescriptions. Doubtless this level was more localised than was the text based one, yet it is revealing that there seems to be no assumption of superiority from one locale as compared with another in this early modern period. All this of course changed dramatically with the rise of 'scientific' western medicine from the late eighteenth century. Working hand in hand with western imperialism, medical relations between Europe and Asia were transformed and any notion of commonality was abandoned.

Reference List

- Alavi, S. 2008, *Islam and Healing: Loss and Recovery of an Indo-Muslim Medical Tradition, 1600–1900*. Palgrave Macmillan, Basingstoke.
- Amaro, A. M. 1988–1989, 'Goa's Famous Cordial Stone,' *Revista de Cultura*, no. 7–8 (Oct. 1988–March 1989): 82–103.
- Bernier, F. 1914, *Travels in the Mogul Empire, 1656–1668*, (trans. & eds) A. Constable & V. Smith. Oxford University Press, London.
- Braudel, Fernand (1979) *Civilization and Capitalism, 15th–18th Century*, vol. I, *The Structures of Everyday Life, The Limits of the Possible*. Collins, London.
- Bulhão Pato, R. A. de, ed. 1880–1935, *Documentos remetidos da Índia, ou livros das monções*, 5 vols. Academia das ciências de Lisboa, Lisbon.
- Carré, Abbé 1948, *The Travels of the Abbé Carré in India and the Near East, 1672–1674*, vol. III. Hakluyt Society, London.
- Costa, Christovão da 1964, *Tratado das drogas e medicinas das Índias Orientais, por Christovão da Costa*, (ed.) J. Walter. Junta Nacional de Ultramar, Lisbon.
- Downton, N. 1938, *The Voyage of Nicholas Downton*. Hakluyt Society, London.
- Figueiredo, J. M. P. de 1967, 'The Practice of Indian Medicine in Goa During the Portuguese Rule, 1510–1699,' *Luso-Brazilian Review*, vol. 4, no. 1: 48–57.
- Figueiredo, J. M. de 1984) 'Ayurvedic Medicine in Goa According to European Sources in the Sixteenth and Seventeenth Centuries,' *Bulletin of the History of Medicine*, vol. 58: 224–230.
- Gaitonde, P. D. 1983, *Portuguese Pioneers in India: Spotlight on Medicine*. Sangam Books, Bombay.
- Ikram, S. M. 1966, *Muslim Rule in India and Pakistan*, 2nd ed. Ashraf, Lahore.
- Jones, E. L. 1981, *The European Miracle*. Cambridge University Press, Cambridge.
- Kincaid, D. 1973, *British Social Life in India, 1608–1937*, 2nd ed. Routledge & Kegan Paul, London.
- Kumar, D., ed. 2001) *Disease and Medicine in India: A Historical Overview*. Tulika Books, New Delhi.
- Lach, Donald F. 1965, *Asia in the Making of Europe*, vol. 1. University of Chicago Press, Chicago.
- _____. 1977, *Asia in the Making of Europe*, vol. 2. University of Chicago Press, Chicago.
- _____. 1993, *Asia in the Making of Europe*, vol. 3. University of Chicago Press, Chicago.
- Linschoten, J.H. van 1885, *The Voyage of John Huyghen van Linschoten to the East Indies*, 2 vols. Hakluyt Society, London.
- Manucci, N. 1966–1967, *Storia do Mogor, or Mogul India*, 4 vols. Editions Indian, Calcutta.
- Markham, C., (trans. & ed.) 1913, *Colloquies on the Simples and Drugs of India by Garcia da Orta*. Henry Sotheran, London,
- Olearius, A. 1662, *The Voyages & Travels of the Ambassadors Sent by Frederick Duke of Holstein to the Great Duke of Muscovy, and the King of Persia. Begun in the Year MDCXXXIII and Finish'd in MDCXXXIX*, trans. J. Davies, T. Dring & J. Starkey. No publisher, London.
- Oliveira Marques, A. H. de 1971, *Daily Life in Portugal in the Late Middle Ages*. University of Wisconsin Press, Madison.
- Ovington, J. 1929, *A Voyage to Surat in the Year 1689*, ed.) H. G. Rawlinson. Oxford University Press, London.
- Owen, N. G., ed. 1987, *Death and Disease in Southeast Asia: Explorations in Social, Medical and Demographic History*. Oxford University Press, Singapore.
- Pearson, M. N. 1995, 'The Thin End of the Wedge: Medical Relativities as a Paradigm of Early Modern Indian-European Relations,' *Modern Asian Studies*, vol. 29, no. 1, 141–170.

- _____. 1996, 'First Contacts between Indian and European Medical Systems: Goa in the Sixteenth Century,' in *Warm Climates and Western Medicine: the Emergence of Tropical Medicine, 1500-1900*, (ed.) D. Arnold, Editions Rodopi, Amsterdam: 20–41.
- _____. 2001, 'Hindu Medical Practice in Sixteenth-Century Western India: Evidence from the Portuguese Records,' *Portuguese Studies*, vol. 17: 100–13.
- Pearson, M. N. 2001, 'The Portuguese State and Medicine in Sixteenth Century Goa,' in *The Portuguese and Socio-Cultural Changes in India, 1500–1800*, (eds) K. S. Mathew, T. R. de Souza & P. Malekandathil. Fundação Oriente, Tellicherry, 401–419.
- Pearson, M. N. 2006, 'Portuguese and Indian Medical Systems: Commonality and Superiority in the Early Modern Period,' *Revista de Cultura*, Macau, vol. 20: 116–141.
- Porter, R. (ed.) 1996, *The Cambridge Illustrated History of Medicine*. Cambridge University Press, Cambridge.
- Priolkar, A. K. 1961, *The Goa Inquisition*. A. K. Priolkar, Bombay.
- Sarkar, Jadunath 1989, *Studies in Aurangzib's Reign*, 3rd ed. Sangam Books, London.
- Sen, S. N. (ed.) 1949, *Indian Travels of Thevenot and Careri*. National Archives of India, New Delhi.
- Sharma, V. 2010, 'Life and Death: Life of Early English Settlers at Bombay, 1663–1760,' in *Coastal Histories: Society and Ecology in pre-Modern India*, (ed.) Y. Sharma., Primus Books, Delhi: 155–180.
- Silva Gracias, F. da 1994, *Health and Hygiene in Colonial Goa: 1510-1961*. Concept Publishers, New Delhi.
- Singh, A. K. 2010, 'Disease, Morbidity and Mortality in the Indian Ocean World, 1500-1800,' in *Coastal Histories: Society and Ecology in pre-Modern India*, (ed.) Y. Sharma. Primus Books, Delhi: 107–153.
- Tavernier, J.-B. 1977, *Travels in India of Jean-Baptiste Tavernier*, 2 vols, trans. V. Ball & W. Crooke. Munshiram Manoharlal, New Delhi.
- Tschanz, D. W. 1997, 'The Arab Roots of European Medicine,' *Saudi Aramco World*, May–June: 20–31.
- Wear, A. (ed.) 1992, *Medicine in Society: Historical Essays*. Cambridge University Press, Cambridge.