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Origin and Development of *Unani* Medicine: An Analytical Study

Arshad Islam*

Abstract: This study traces the history of the origin and development of *Unani* medicine in the Islamic world and its later blossoming in Persia. Based mainly on Arabic, Persian, Urdu and English sources, the study focuses on the intellectual legacy of the Muslims in the development of *Unani* medicine and their interest in the progress of medical sciences, when a number of classical works were produced by great Muslim scholars during this period that provide evidence of organized medical care that provided the basis for modern medicine as it emerged from the 17th century onwards in Europe. The early Muslim scholars' works were focused on the integration or Islamicisation of human knowledge in the areas of medical and health-care sciences as well as those who seek to understand the role of moral values and *Maqāṣid al-Sharī'ah* ('objectives of Shari'ah) in medical and healthcare practices in a more comprehensive framework, exposing the dynamic contribution of Islamic civilization to medical progress that was later obscured in modernity by Western ideologies.

Keywords: *Ayurvedic* medicine, Egyptian medicine, Greek medicine, Persian medicine, *Unani* medicine

Abstrak: Kajian ini menjejaki sejarah asal dan pembangunan perubatan Unani dalam dunia Islam yang mana kemudiannya ia turut berkembang di Persia. Berdasarkan sumber-sumber penting dalam Bahasa Arab, Persia, Urdu dan Inggeris, kajian ini memfokuskan tentang legasi intelek orang Islam dalam perkembangan perubatan Unani. Seterusnya, kajian ini juga turut melihat tentang minat mereka dalam kemajuan sains perubatan. Terdapat kerja-kerja klasik yang telah dikeluarkan oleh cendekiawan Islam yang hebat ketika itu

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yang dapat memberikan bukti-bukti terhadap rawatan perubatan yang tersusun yang dapat juga memberikan asas kepada perubatan moden. Ini adalah disebabkan bahawa perubatan Islam muncul dari abad ke-17 lagi di Eropah. Hasil kerja cendekiawan-cendekiawan Islam yang lalu telah memberikan tumpuan terhadap integrasi mahu pun Islamisasi terhadap pengetahuan manusia dalam bidang perubatan dan sains kesihatan. Ini termasuklah mereka yang cuba memahami peranan nilai moral dan Maqasid al-Shari'ah (tujuan Shari'ah) dalam amalan perubatan dan kesihatan. Dalam rangka kerja yang lebih mendalam ini, ia turut mendedahkan sumbangan ketamadunan Islam kepada kemajuan perubatan yang kemudiannya dikaburkan dalam modenisasi oleh ideologi Barat.

Kata kunci: Perubatan Ayurveda, Perubatan Mesir, Perubatan Macedonia, Perubatan Parsi, Perubatan Unani

Introduction

The history of medicine is a fascinating account of the human battle against illness. As civilization advances and disease patterns change, medical science also develops. *Unani* is the ancient Greek system of medicine that evolved throughout the ancient world and which was fostered in the Islamic realms, based on ancient logic and timeless rules encapsulating a cosmological view of human health and the universe. Generations of Muslim scholars acquired and developed Greek treatises and commentaries on medicine and science in general, critically examining, collating, revising and enriching the knowledge of ancient Greek, Persian, Egyptian and Indian science during what is known as the Golden Age of Islam. This paper highlights the subtler and perhaps more important aspects of classical *Unani* medicine that contributed to the development of the entire body of scientific knowledge. Through an analysis of socio-cultural and historical contexts, the paper concludes that the contribution of *Unani* medicine in the Muslim world lies in: (a) preserving the ancient Greek tradition of medicine, and (b) safeguarding and advancing utilitarian medical science and treatment into the early modern period with dynamic research and original contributions.

The main contribution of this paper is perhaps to emphasise the latter point. While European science as it emerged from the Renaissance picked up Islamic medicine, particularly from the 17th century onwards, its later economic and political dominance of the Muslim world, including colonial control over many centuries, obscured this intellectual

provenance and led to the deliberate suppression of the debt owed by medicine – and modern science in general – to the medieval and early modern Islamic civilizations until a self-conscious and often confused revision in recent decades. Indeed, the appropriation of ‘medicine’ by European socio-economic and political power and institutions led to the suppression of all non-Western world traditions of medical treatment, most egregiously its Arab-Islamic forbear and the traditional medical paradigms of Chinese and Indian civilization. While the world and generations of ill people have consequently lost out on a lot of potential efficacious remedies in those traditions, the most overarching weakness in the Western/ ‘modern’ medical paradigm is its commodification of the human body as a mechanistic problem to be solved, rather than part of a holistic cosmology. It is only with the political decline of Western imperialism that a burgeoning openness to alternative perspectives has begun to emerge.

Knowledge is the collective legacy of all humanity, and nowhere is this more significant than in the case of medicine and healthcare, which have always been venerated and sacralised in all cultures, retaining an aura of ethical responsibility even in modern materialist globalisation. The organized study of illness is as old as civilization itself, with ancient Mesopotamia, Egypt, India and China all devising medical systems from their earliest roots. Modern medicine, which continues to develop, is the outcome of the combined efforts of untold generations of physicians and healers throughout the earth, with civilizational growth and the distinctive work of brilliant people and communities making striking individual contributions to the theory and practice of the discipline of health. However, ‘modern’ medicine as it emerged from Western Europe from the 17th century onwards has a distinctive pedigree traceable to the ancient Babylonians, Egyptians, Indians, Chinese, Greeks, Persians and Romans, all via the Islamic civilizations of West Asia and the Mediterranean World. The present study does not seek to recount the historical narrations of the preservation of *Unani* medicine in the Muslims world, which are extensively documented in various histories of medicine (e.g. *Arabian Medicine* by E. G. Browne, and *A Medical History of Persia and the Eastern Caliphate* by Cyril Elgood), but to discuss the Muslims’ role in safeguarding and developing the system.

The Origins of Medicine

Medical ideas emerged during the fourth millennium BCE among the people of southern Mesopotamia, who developed a systematic medical system known as Assyro-Babylonian medicine. This spread and was developed in Egypt by the second millennium BCE. These two primordial traditions persisted in folk medicine and scattered fragments of pre-historical knowledge in the milieu from which Hippocratic medicine emerged in the Greek world and Indian medicine in South Asia.

Babylonian and Egyptian Medicine

Babylon was a highly advanced centre of culture and civilization, and Mesopotamia in general can confidently be declared as the earliest origin of organized human civilization. The generally contemporaneous civilizations of Mesopotamia and the Nile were distinguished by their large cities, houses, forts and irrigational canals. Their medical systems were part of a coherent cosmological system calibrating the human microcosm with the celestial motion of the stars and planets, incorporated a large amount of incantations and herbal potions designed to treat the body, its energies and the soul. Malevolent demonic forces were believed to be the main causes of illness, and physicians were largely indistinguishable from priests, and their more serious medical activities were based around temple complexes (Geller 2010, p. 8).

Imhotep (2667-2648 BCE), a minister of Zoser, founder of the Third Dynasty, was an ancient Egyptian polymath and physician later worshiped as a god of medicine in ancient Egypt. His temple was crowded by the sick those who stayed in the night there believing that god would divulge cures to them in their dream. The core aim of the physician was to soothe the gods and to coerce the devils out of a patient's body, or undo malicious magic spells by means of prayers, supplications, imprecations deprecations, sacrifices and other magical rites (Sarton 1993: 90-93). In terms of pharmacology, they used herbal preparations with numerous ingredients including beer or wine, seeds, olive oil, honey, wax, milk, and ground bones. Medicines were administered in the form of liquid potions, powders, tablets and enemas. The Hammurabi Code of Babylon addresses medicine in laws 206-25, stipulating the social accountability of surgeons (Geller 2010: 11), and

specifying rich rewards for success and severe punishment for failure (Geller 2010, p. 57; Sarton 1993, pp. 89-90).

The main sources for Egyptian medicine are the Smith and Ebers papyri, significant medical digests written around 1700 to 1600 BCE. The Ebers papyrus is a list of therapeutic treatments, advising the use of spells in 12 cases alongside sophisticated treatises on ophthalmology, digestive ailments, headaches, skin problems and some complex diseases of the urinary tract. The Smith papyrus is much shorter, covering 48 specific case histories containing injuries to the head, neck, arms and torso, along with the action taken. It gives details on prognosis and aetiology, and the empirical core of this treatise is much more robust than the Ebers papyrus. In general, the Egyptians had very advanced knowledge of medicine, anatomy and physiology two thousand years prior to Hippocrates (Sarton 1993, pp. 44-48).

Greek Medicine

Classical Arab-Islamic medicine was conventionally attributed to the ancient Greeks, thus it came to be known as *Unani* (from the Arabic *Yūnānī* for ‘Greek’). Hippocrates (c. 460-375 BCE) was known as the father of this system of medicine and it is he who was the first true medical codifier and commentator, building on the theoretical work of his contemporary Democritus (c. 460-370 BCE). Their teachings were propagated by the two sons of Hippocrates, Thessalus and Draco, and a student Polybus (Elgood, 1979, p. 2). Subsequently, *Unani* medicine was espoused by a number of competent Greek scholars who significantly developed the Hippocratic system throughout the Alexandrian world, from Egypt to Bactria. Later, under the benign patronage of Abbasid Caliphs, the Arab and Persian physicians imbibed the *Unani* system of medicine and elevated it the highest pinnacle, surpassing the achievements of the ancients and dynamically and persistently developing this medical paradigm for about a thousand years. Early efforts included acquiring Greek treatises and translating them into Arabic, but they additionally critically analysed, collated, corrected and enriched significantly major texts of Greek medical science, as well as synthesising new directions in medicine that remained cutting-edge in the ensuing centuries.

Islamic Medicine

Prior to Islam mostly Arabs lived an unsettled and itinerant life in the barren deserts, with sporadic settlements based around the intersections of caravan trading and pilgrimage routes, as at Makkah, Madinah and Taif. Trade caravans were the only means of contact to the people of this region with the other civilizations to their bi-annual trips from Makkah, travelling to Damascus (Syria) in the north and to Sana'a (Yemen) in the south. Apart from other products they brought medicinal herbs from China, India, Malaya and Sarandip (Sri Lanka) to Arab lands (Showket 1987, p. 9). In the pre-Islamic era there were some reputed Arab physicians like Ibn Huzawn, Harith Ibn Kalda al-Thaqfi, Nadr Ibn al-Harith, Abi Ramtha al-Tamimi and Zaynab, a Bedouin woman who treated ophthalmological cases (Usaybah I, 1884, p.116; Agha 1996; Nagrami 2000, p. 158).

Islam galvanised medicine in Arabia, most obviously by making it obligatory to try and save life:

“The saving of one life is as if one has saved humanity” (Al-Ma'idah 5:32)

If we study the initial development Muslims' interest in *Unani* medicine, there are different factors which led to the cultural awakening among the Arabs. The prominent factor is the Quran, which urged Muslims persistently to resort to reason and reflection:

Soon will We show them our Signs in the (furthest) regions (of the earth), and in their own souls, until it becomes manifest to them that this is the Truth. Is it not enough that thy Lord doth witness all things? (Fussilat 41:53).

From the very beginning in the history of Islam, medicine played a very important role. The Prophet Muhammad (ﷺ) himself emphasized the significance of seeking treatment:

“Allah never created a disease for which he did not create a cure. So seek treatment.”

“There is no disease that Allah has created, except that He also has created its remedy.” (narrated by Abu Hurayrah, Bukhari 7.582)

“There is a cure for every malady (except old age). If the right treatment is administered, Allah willing the malady is cured.”

“Allah has not Sent down a disease except that He Sent down its cure; except for one ailment, namely, old age.” (Narrated by Usamah ibn Shuraik- Tirmidhi)

All religious scholars agree that a medical doctor is obliged to find a cure for a disease, and if one is not found, he should continue to do research until it is found. Thus in Islam disease is not looked upon as an inescapable punishment (although this is one aspect of the experience of illness), but an affliction for which a cure has to be sought and administered, with patience and perseverance. Islam brought a cultural awakening among the Arabs that effaced differentiation by caste, colour and creed, and the early Arab-Islamic conquests brought many Christians, Jews, Zoroastrians and later Buddhists and Hindus within the realm of Muslim civilization. Initial efforts in the field of medicine included the translation and assimilation of ancient Greek treatises.

While the abstract knowledge of medicine in classical Islamic civilization was derived from other civilizations and empirical investigation and deduction, Islam itself provides general principles of medicine and hygiene, as well as seeking knowledge in general. There are a number of verses in the Qur'an and plenty of Prophetic traditions (*ahādīth*) giving detailed guidelines on medical science, health and hygiene, like cupping and hot baths. The Prophet Muhammad (S.A.W.) narrated medical knowledge and sought medical treatment, and most classical scholars were polymaths well versed in contemporary sciences and medicine in addition to spiritual and legal subjects. For instance, great theologians and jurists such as Ibn al-Qayyim and As-Suyuti compiled compendiums of Prophetic medicine (*Tibb-i-Nabavi*), drawing on hadith collections such as *Sahih al-Bukhari*, with the addition of their own scientific commentary and exegeses, which became a guide for Muslim students in mastering medicine. These scholars have collected and commented ample medical sayings of the Prophet and thus, it became milestone in the history of medicine. Zaynab, the first known female surgeon and eye physician from the Arabian tribe Banu Awad and Harith ibn Kaladah from Banu Thaqif in Taif was the first noted Arab physician and a contemporary of the Prophet (S.A.W.), and Jewish

physicians were also referred to in many *hadith* (Ibn al-Qayyim 2008; Hamarneh 1997; Siddiqi 1959).

Ibn Hajar in his commentary of *Sahih al-Bukhari (Kitāb al-Ṭibb)* categorised the science of medicine into two: *Ṭibb Jasad* (bodily medicine) and *Ṭibb Qalb* (spiritual medicine) in which he highlighted the significance of a holistic approach to healthcare incorporating the psycho-social and spiritual aspects of wellbeing in addition to the bodily and biomedical (Ibn Hajar, vol. 13: 165; Nurdeen 2006, p.4). Medical care and proper sanitation and cleanliness were considered essential matters of public welfare in Islam, and this was reflected in advanced systems of public hygiene and health erected and developed in Islamic civilizations throughout Asia, Africa and Spain, where the tradition of the Roman baths and plumbing systems lived on as an essential component of hygiene and religious observance while they faded from memory in Christian Europe. The availability of an expert physician was regarded as a prerequisite of urbane life in classical Islamic culture, with Abul Layth Faqih listing it among six essentials in selecting a place to reside, along with access to spring water, an intellectual jurist, a just ruler, a good market and reliable currency (Agha 1996).

The Prophet (ﷺ) said there are two kinds of exalted knowledge: *Ilm Din* (knowledge of religion) and *Ilm Ṭibb* (knowledge of medicine), and the pursuit of both is binding on all Muslims as a *farḍ al-‘ayn* (individual obligation) as well as a *farḍ al-kifāyah* (communal obligation), along with caring for ill people and supplying required medicines, which falls under *Amal Saleh* (good deeds), encouraged for public ethics and heavenly rewards (Agha 1996, pp. 53-54). The science of medicine was a noble profession of pious Muslims who were both *‘ālim* and *hakīm*, experts in religion and medicine. Unlike modern physicians they were unconcerned with worldly riches; indeed, many were itinerant travellers and pilgrims, charging nominal fees for their services or considering it beneath their dignity to request payment for services rendered *fī sabīlillah*, for the sake of Allah, in the service of humanity (Ibn al-Qayyim 2011; Agha 1996, p. 54; Nagrami 2000).

The Prophet Muhammad (ﷺ) instigated a major reformation in Abrahamic religion, with a new constitution of life and moral guidelines for Muslim society, and his sayings highlighted a number of medicines and treatments recommended for general maintenance of health or the treatment of specific illnesses. He also warned his companions not to

travel in lands where epidemic had spread and not to move from lands where epidemic has already erupted (contrary to the instinct to flee), which contained epidemics in particular locales. Al-Bukhaari (5739) and Muslim (2219) narrated from ‘Abd ar-Rahmaan ibn ‘Awf (may Allah be pleased with him) that he said: I heard the Messenger of Allah (blessings and peace of Allah be upon him) say: “If you hear that it (the plague) is in a land, do not go there, and if it breaks out in a land where you are, do not leave, fleeing from it.”

Prolonged and frequent wars gave an impetus to the development of surgery, with most modern surgical instruments being indistinguishable from those used in Medieval Spain and Central Asia, and Muslim physicians became proficient in dressing wounds and bandaging injured soldiers. Nursing also evolved as a separate discipline from the earliest period (particularly battlefield nursing, including the involvement of women), arranging medicines, water as well as food and supplying other necessary items for holistic health in war zones. Some prominent Muslim women who played a significant role in healthcare, first aid and nursing during the lifetime of the Prophet (S.A.W.) include Asma binti Abu Bakr, the Mother of the Believers Aisha, Umm Salim, Umm Mata‘a, Umm Atiyah, Layla and Rafidah Ansariyah (Agha 1996; Ibn al-Qayyim 2011).

The Prophet Muhammad (ﷺ) used to visit sick people and encouraged all Muslims to do likewise, along with enjoinders to feed the poor, visit patients and free prisoners. He also established guidelines for healthy eating and drinking, most notably the famous *hadith* that one should only eat a morsel of food sufficient to keep one’s back straight, but if one goes beyond that one should not exceed two-thirds of one’s digestive capacity:

The Prophet (ﷺ) said: “The son of Adam does not fill any vessel worse than his stomach; for the son of Adam a few mouthfuls are sufficient to keep his back straight. If you must fill it, then one-third for food, one-third for drink and one-third for air.” Narrated by al-Tirmidhi, 2380; Ibn Maajah, 3349. Classed as Saheeh by al-Albaani in *Saheeh al-Tirmidhi*, (1939).

Ibn al-Qayyim in *Tibb-i-Nabavi* recorded that the Prophet (ﷺ) when possible preferred to consume a variety of locally available foods in moderation, including dates, bread, yoghurt, meat and fruits. At

various occasions he used to advise sick people to eat a particular type of diet for curative purposes, known as '*Ilāj bil Ghiza* (dietotherapy/food remedy), and he himself avoided certain combinations of food such as milk and fish, milk and sour food and multiple 'hot' or 'cold' foods or fatty items together; rather he used to balance hot and cold foods by eating them in combination (e.g. pairing hot, dry dates with cool, wet watermelon or cucumber) (Ibn al-Qayyim 2008, 2011).

Spiritual and Medical Treatments

The Prophet Muhammad (S.A.W.) used to visit patients and recite the Qur'ān or pray for their recovery by reciting the attributes of Allah. It is significant to note that whenever he visited sick people he used to boost their morale psychologically, balancing spiritual, psychological and biomedical aspects of care. For instance, it is narrated that once when a scorpion bit his finger he asked immediately for water and salt and dipped his finger to wash the wound, along with reciting Qur'ān verses; he also used to discourage Muslims from consulting quack physicians, setting a model for Muslims to seek scientific and spiritual treatment. Furthermore, general Islamic requirements and recommendations such as washing before eating or praying, bathing for health and general cleanliness, brushing the teeth after eating or sleeping, the exercise of the five daily prayers, and fasting are beneficial for physical as well as spiritual health (Agha 1996; Ibn al-Qayyim 2011).

Progress of Tibb under the Khulafa al-Rashidun

The authority of the Successors of the Prophet (*Khulafa*) was derived from their succession to the Prophet and adherence to his path, as part of which they developed the science of medicine, surgery and nursing. The period of the Rightly-Guided Caliphs (632-661 CE) was characterised by numerous military expeditions to consolidate the fledgling Arab-Islamic State, within the Arabian Peninsula itself and in Egypt, the Levant, Mesopotamia and Persia. The first major transmitters of Greek medicine were the Roman Christians of the Middle East (i.e. the Byzantines). Healthcare continued to be propagated among the Muslim armies based on *Tibb-i-Nabavi*. In Madinah the active and famous non-Muslim Arab physician Harith ibn Kaladah and his son Nasr ibn Harith continued to serve the community. At the time of the conquest of Persia, Umar ibn al-Khattab specifically dispatched a number of physicians and surgeons to the front lines. The practice of dispatching medical teams

to the battlefield became precursor of the foundation of the itinerant hospitals (Agha 1996; Nagrami 2000).

Growth of Unani Medicine and Alchemy under the Umayyads

While their legacy was deliberately obscured by their successors, the Umayyad dynasty made many significant contributions to medicine and philosophy, inheriting the infrastructure of knowledge of the Roman civilization of the Eastern Mediterranean; the personal physician of the first Umayyad Caliph, Muawiyah (r. 661-680), was Ibn Athal, skilled in therapy as well as toxicology and rendered several medical books into Arabic for the Caliph. Masarjoyah al-Basri al-Israili, a Jewish physician from Basra, translated the *Pharmacopeia of Ahrun* (an Alexandrian priest) into Arabic from Syriac, which was the first major Arabic translation work by Muslims. Prince Khalid bin Yazid (d.704), a grandson of the Caliph Amir Muawiyah, was an expert in Islamic sciences who wanted to learn chemistry and medicine, thus he studied alchemy with Miryanis, and medicine with Yahya Daylami. Due to Khalid's keen interest in the promotion of knowledge he was called Hakim Abi Marwan. Khalid subsequently composed ten treatises in chemistry, including *Kitāb al-Hararah*, *Kitāb al-Sahifat al-Kabīr*, *Kitāb al-Sahifat al-Saghīr*, *Wasiyyat al-Abnah An Kitāb al-za'atah*, *Risālah fil-Kimiyyah*, *Risayal Khālid Miryanis al-Rāhib*, *Akhtiyarat-i-Khālid*, *Diwan al-Nujūm* and *Firdaus al-Hikmāt fil-Kimiyyah*, and he patronized many translations of different classical books into Arabic. This gave a fillip to the study of science among the early Muslims, and prevented the total decline of scientific learning in the West (al-Nadim 1884; al-Qifti 2005; Arshad 2011; Hamarneh 1997; Ibn Khallikan 1977; Nagrami 2000; Sammraei I, 1990; Shibli 1989).

The Umayyad Caliph Marwan ibn al-Hakam (r. 684-685) was a prudent ruler and an embodiment of knowledge. In his court, Thiyazuq was a famous physician, an expert in medical investigation and cure, human nutrition and the regulation of diet preserving one's health. He composed a medical compendium (*kunnash*) in Syriac and also worked as a personal physician and advisor of Hajjaj ibn Yusuf al-Thaqfi (d. 714) (Elgood 1979, p. 68). Under the Caliph Abdul Malik ibn Marwan (r. 685-705) two famous physicians, Thuzokas and Thuzon, were attached to his court; his son Walid (r. 705-715) founded the first formal hospital, Shifakhana Walid, and extended more public works and hospitals and many hospitals were established Alexandria, Kufa, Hams and Madinah

as well. He also instituted a welfare system for blind and disabled people, giving them a stipend from public funds, and opened a leprosy hospice in 706 in which free food was given to patients (Agha 1996; Ibn Asakir 1985; Hamarneh 1997; Nagrami 2000).

Away from the Umayyad heartland of Damascus, Arabic was quickly adopted by the scientific (priestly) Coptic elite of Egypt. Consequently, the Umayyads showed great interest in the translation project in which a number of Coptic books were translated into Arabic by Astafan, the most famous translator of that period. The Arabic translation of Bishop Ahrun's pharmacopoeia was kept in the royal library at Damascus on the directive of Caliph Marwan. Caliph Umar ibn Abdul Aziz (r. 717-720) personally studied Masarjoyah's translation for forty-days and realised its importance for people's health, and ordered that it be copied and distributed all over the Umayyad realms. Abdul Malik ibn Abjar al-Kinani, an Alexandrian physician who is reported to have studied and became a professor at the extant medical school in Alexandria, embraced Islam at the hands of Umar ibn Abdul Aziz who on becoming Caliph appointed him as the Chief Medical Officer in the Department of Health. Ahmad ibn Ibrahim, a prominent court physician of Caliph Yazid ibn Abdul Malik (r. 720-724), wrote *Usūl-i-Ṭibb* ('Principles of Medicine') based on Hippocratic principles and texts. The most renowned physicians under the Umayyad were Abdul Malik ibn Abjar al-Kinani, Astafan, Jabir Hayyan, Khalid bin Yazid, Masarjoyah, Thiyazuq, Thuzokas and Thuzon (Agha 1996; Dunlop 1988; Ibn Juljul 1955; Ibn Nadim 1884; Ibn Usaybah 1884; Iqbal 2002; Nagrami 2000; Roshdi 1996, 909; Shibli 1989).

***Unani* Medicine under the Abbasids**

In the history of the development of Arab medicine, the Abbasid period is known as the golden era for the translation movement of medical books into Arabic from different languages, and it is the Abbasid form of *Tibb-i-yūnānī* that still continues as a tangible living tradition today. After the Abbasid Revolution in 750, the second Abbasid ruler Abu Jafar al-Mansur (r. 754-775), who was a keen patron of knowledge, gave prime importance in the development of natural sciences including medicine. His reign was contemporaneous with a galaxy of great scholars, and for the awakening of medical and health sciences including translation of various Syriac and Greek books into Arabic (Ibn Usaybah 1884;

Shibli 1989). Abdullah ibn Muqaffa alias Nawbakht (c.720-757) was a Persian and the celebrated scholar of his time embraced Islam who translated the *Panchatantra* as *Kalila-wa-Dimna* (Ibn Nadim 1884). Jurjis ibn Bakhtishu (d.771), a Syrian Nestorian Christian physician, was a classic example in the field of medicine called from Jundishapur to Baghdad for the cure of Caliph al-Mansur in 765 (Elgood, 1979, 68). Abu Yahya ibn Batriq, a Christian physician, translated into Arabic the books of Hippocrates and Galen at the behest of Caliph al-Mansur. The latter was a great admirer of classical Greek books and he wrote a letter to Caesar (the Byzantine Emperor) requesting books on philosophy (Ibn Nadim 1884; Ibn Usaybah 1884; Hitti 2002, 311; Mirza and Iqbal 2003; Shibli 1989; Young 1990, 481).

Bakhtishu's family became the main player in the translation movement of Greek medical books into Arabic. Jibril ibn Bakhtishu (d. 828), a scion of Bakhtishu family also known as the 'Galen' of his time, was the secretary and advisor of Caliph Harun al-Rashid (r.786-809). Jibril garnered great prestige in Harun al-Rashid's court and without his approval no visitor was allowed to meet with the Caliph.

Yuhanna ibn Masawayh (777-857), the son of a pharmacologist born in Jundishapur famous in Europe as Mesue Senior, was a Syrian Nestorian Christian and a student of Jibril ibn Bakhtishu and a teacher of Hunayn ibn Ishaq (809-877). Yuhanna moved to Baghdad studied under Jibril ibn Bakhtishu and became a prominent ophthalmologist and one of the personal physicians of Caliph Harun al-Rashid, writing treatises in Syriac and Arabic. His important books on the subject e.g. *Daghal al-'ain* ('Disorder of the Eye') is still extant and *Ma'rifat mihnāt alkahhalin* ('Knowledge of the Oculist Examination'). He is credited with treatises on the medicinal properties of barley water and other nutritional works *Kitāb Ma'ash Sha'ir*, *Kitāb Dafa' Madhar al-Aghdhiyyah*, *Kitāb Fi al-Ashritah* and *Kitab at-Tabikh*. He was also an advocate of bathing (*Kitab al-Tadbir al-Ashar*) for its health benefits, and on poisons, their antidotes and the use of laxatives. He wrote an anatomical monograph entitled *Kitāb at-Tashrīh* (al-Faruqi and Lamya 1988; Al-Qifti 2005; Anis and Hamarneh 1984; Campbell 2002; Hitti 2002; Ibn Usaybah 1884; Iqbal 2002; Nasr 1984; Selin 1997) and a treatise of 132 medical dictums, *Kitāb al Nawādir al-Ṭibbiyah* (Latin *Aphorismi Iohannis Damasceni*) including *Kitab al-Mushajjar al-Kabir*, a therapeutic guide to diseases, symptoms, diagnosis, treatments and diet. Yuhanna gained

recognition in his field. Caliph Harun Rashid established a specialist hospital in Baghdad and he was appointed its superintendent, as well as being directed by the Caliph to supervise translation works (Al-Faruqi and Lamy 1988; Ibn Usaybah 1882; Nasr 1984; Shibli 1989).

Under Harun al-Rashid a huge collection of books was housed in a large book store known as *Khizanāt al-Kutub* ('Treasury of Books'), coalescing the libraries of Abu Jafar al-Mansur and Muhammad al-Mahdi (r.775-785). Harun al-Rashid also set up a scientific institute known as *Bayt al-Hikma* ('House of Wisdom'), a great centre of intellectual research as well as a repository for all sorts of books, and he appointed experts in various languages and religions for the translation of classical tomes including Assyrian, Chaldean, Greek, Nabatian, Persian, Sanskrit and Syriac works. This was later expanded by Caliph al-Ma'mun (r. 813-833), who transformed it a magnificent centre of knowledge and a hub of Mutazilite thought, with significant doctrinal and political ramifications (Ibn Usaybah 1884; Shibli 1989).

Hunayn ibn Ishaq (809-877) or Abu Zeid ibn Ibadī (Johannitius Onan and Humainus), also known as the Sheikh of Translators, was born in Hira in Iraq. As a youth in search of knowledge he moved to Baghdad and enrolled under the circle of Yuhanna ibn Masawayh, but he quickly lost interest due to his teacher's elitism, as in his offensive comment that a *sarrāf* (money-changer) would always be a *sarrāf*, not a physician. Due to this contemptuous remark, Hunayn departed to Alexandria to gain mastery in Greek. Khalil Basri taught him Arabic and he learned Persian too; combining all that made him a cherished intellectual (Campbell 2002; Hitti 2002; Mirza 2003; Nasr 1984; Selin 1997; Shibli 1989). Subsequently, Caliph al-Ma'mun appointed Hunayn as superintendent of *Bayt al-Hikma*. In his colossal translation work, Hunayn benefited from the teamwork of his son Ishaq and nephew Hubaysh ibn al-Hasan al-A'sam (d.912), and two of his students Isa ibn Yahya and Musa ibn Khalid. Apart from them Hunayn translated Galen's *De partibus artis medicativae* ('On the Parts of Medicine', *Fi Ajza' al-Tib*) and authored the original work *Kitab al-Masa'il fil Ayn*, a distinctive work on eye diseases. He also translated into Arabic Ptolemy's *Al-magest*. To fulfil Caliph al-Ma'mun's dream, Hunayn journeyed far and wide in Asia Minor, Syria, Palestine, Egypt and Alexandria hunting rare books. He rendered into Arabic 21 books and treatises of Galen by the age of forty-eight and compiled the first draft of *Risālāt Hunayn Ibn Ishāq ila Ali Ibn*

Yahya fi Dhikr ma Tarjima min kutub Jalinus bi 'Ilmih wa-ba'd ma 'lam Yutarjam ('Missive to Ali ibn Yahya with Regard to the Translation of the Book of Galen') (al-Faruqi and Lamya 1988; Anis and Hamarneh 1984; Campbell 2002; Hitti 2002; Mirza 2003; Nasr 1984; Sarton 1993; Shibli 1989).

Hunayn translated seven books of Hippocrates into Arabic and his student Isa ibn Yahya rendered three books; Hunayn's another student, Hubaysh ibn al-Hasan al-A'sam assisted him in translating Galen's *De anatomicis administrationibus* ('On Anatomical Procedures', *Fi 'Amal al-Tashrīh*), which comprises fifteen treatises. However, Hubaysh also concluded Hunayn's *Ars Parva*, *al-Masa'il fit-Tibb lil Muta'allimin* known in Latin as *Isagoge Johannitius*. Hunayn's translation infrastructure provided a strong basis for Arabic medicine and allied sciences (Anis and Hamarneh 1984; Nasr 1984; Shibli 1989). Hunayn's another student Isa ibn Ali *alias* Jesu Haly, a Christian, practised ophthalmology in Baghdad in the 9th century. He translated Greek books into Arabic and wrote a book on ophthalmology entitled *Tadhkirat al-kahhalin*. It consists of three parts: the first part demonstrates ophthalmic anatomy and physiology, the second part elucidates the external eye diseases, and the third part observes the inner eye infections. It contains ample information based on his knowledge in which he records 130 eye diseases and 143 drugs (Campbell 2002; Nasr 1984; Siddqi 1959).

Abu al-Hasan Ali ibn Sahl Rabban al-Tabari (c.810-861), a scion of a learned Jewish family of Merv, continued his ancestral profession of medicine. He was educated by his father and became a well-known physician, establishing a popular practice in Baghdad where in addition to treating patients he devoted his time and energy to studying the Greeks, Syrians and Indians and accessible Babylonians medical literature, based on which he wanted to prepare a medical compendium for students for future reference. Al-Tabari consulted a number of significant Ayurvedic and Greek books as his sources by including the Indian system of medicine in *Firdaus al-Hikmah* (Paradise of Wisdom, 236/850), a masterpiece which he translated into Syriac and dedicated to Caliph al-Mutawakkil (r. 847-861). In his *Firdaus al-Hikmah*, *Al-Tabari precisely discussed the account of the Ayurvedic method of treatment based on four important Sanskrit works: the Charaka, the Susruta, the Nidana and the Ashtanghradaya*. He also referred to a gynaecological work written by a female Ayurvedic physician, Rusa, in citing prescriptions

for some uterine problems. The last part of *Firdaus al-Hikmah* is fully devoted to *Ayurvedic* medicine, and it makes a substantial contribution to the understanding of the Indian system (Siddqi 1959).

He also wrote an encyclopaedia of medicine with careful reference to paediatrics and child development. He pointed out the gravity of tuberculosis and explained its adverse affects. His two books *Firdaus al-Hikmah* ('Paradise of Wisdom') and *Kitab al-Dini-wad-Daulat* ('Book of Religion and State' 241/855) were extremely important intellectual works in their time (al-Faruqi and Lamyā 1988; Anis and Hamarneh 1984; Campbell 2002; Khan 1990; Lochan 2003; Mirza 2003; Nasr 1984; Saini 2016; Siddqi 1959). His other important books are *Tuhfat al-Muluk* ('The King's Present'); *Kunnash al-Hadrat* ('The Excellent Compendium'); *Kitāb Manāfi 'il-Adwiyati wal-Atimati wal'Aqaqir* ('The Book of the Utility of Foods, Drinks and Drugs'); *Kitabun fil-Amthālī Ala Madhahib il-Farsi wa'r Rumi wal-'Arab* ('A Book on Proverbs and Etiquettes According to the Persians, the Greeks and the Arabs'); *Kitāb Hifzi al-Ṣiḥḥah* ('The Book for Preservation of Health'); *Kitab Irfaq il-Hayat* ('The Book of Complementarity in Life'); *Kitabun al-Ruqa* ('Book of Spiritual Healing'); *Kitāb fil-Hijāmah* ('Treatise on Cupping'); *Kitābun fī Tartib al-'Aghdhiyah* ('A Book on Diet'); *Bahrul Fawāid* ('Ocean of Benefits'); *Kitābud Dinī Wad-Daulāt* ('The Book of Religion and Empire'); *Kitābun fir-raddi ala asnafil-Nasara* ('A Book in Reply to the Different Denominations of the Christians), and *Kitāb al-Adwa* (Book of Infection) (Al-Faruqi and Lamyā 1988; Khan 1990; Nasr 1984; Siddqi 1959).

The renowned philosopher Abu Yusuf Yaqub ibn Ishaq al-Kindi (c. 185/801-c. 260/873), popularly known as al-Kindi in the Muslim world and Alkindus in the West, contributed to medicine, science, philosophy and astrology (Campbell 2002; Nagrami 2000, 237-38; Nasr 1984). He sought knowledge in Basrah and then in Baghdad, where he developed his expertise in algebra, arithmetic, astrology, logic (*mantiq*), medicine, music and numerology. In philosophy he was a follower of Aristotle (384-322 BCE). He was held in high esteem in the courts of al-Ma'mun and al-Mu'tasim and he became a celebrated physician, philosopher, astronomer and mathematician. He was a prolific writer and penned 225 encyclopaedic books, including 22 on medicine. Gerard of Cremona (d.1187) translated his books into Latin, including *Risālah dar Tanjim*, *Ikhtiyarat al-Ayyam*, *Ilahyat-e-Aristu*, *al-Mosiqa*, *Mad-w-Jazr*, and

Adwiyah Murakkaba. His books include *Kitāb al-Tarfiq Kimiyyah al-'Itr* ('Book of the Chemistry of Perfume') and *Kitāb fi Isti'mal al-Adad al-Hindī* ('On the Use of the Indian Numerals') (Campbell 2002; Mirza 2003; Nagrami 2000, 239-40; Nasr 1984).

The most renowned Arab-Islamic physician, comparable to Hippocrates and Galen in his formative influence, was Abu Bakr Muhammad ibn Zakriya ar-Razi (841-924), famous in the West as Rhazes and Alubator. He was born in the city of Al-Rayy, where he worked as a chemist, and pursued his learning of medicine to become a renowned physician. He started his professional career in the hospital of Al-Rayy as a general physician and soon promoted to the position of superintendent. A thinker and pioneer of Muslim physicians, Ar-Razi became superintendent in the hospital of Baghdad. Due to his high standing he was famous as 'The Experienced; (Campbell 2002; Khan 1997; Nasr 1984). He was one of the most insightful and creative writers of his age, and left capacious writings and authored 237, few of which remain extant. Apart from being an expert in different disciplines he was a very successful physician due to his experimental clinical investigations. He was the leader of medical knowledge in his time and had a notably holistic approach to maintaining the health of the body and mind (Ibn Khallikan 1977; Nagrami 2000, 266).

Ar-Razi's book *al-Kitāb al-Mansuri* was dedicated to Mansur ibn Ishaq ibn Ahmad ibn Asad, the ruler of Khurasan. Gerard of Cremona translated this work into Latin in Toledo with the title *Liber ad Almansorem*, a widely read medical guide in Europe, published in Milan in 1487 and 1510. In this manual he discussed the topics of anatomy and physiology including medicine, and offered a special study of the different organs of the body diet for preserving health, skin disease and wrote valuable advice for antidote and poisons and their effect on the human body. Ar-Razi took general ideas and pursued particular applications, continuing in the vein of Hippocrates, Galen and Oribasius (Campbell 2002; Mirza 2003; Nadvi 1953; Nasr 1984). He discussed the special tastes of particular foods, drinks and medicines in terms of sweet, sour, bitter or severe and categorized the features of drugs into theory ('*ilm*) and practice ('*amal*). Applying theoretically sound and consistent treatments, he then observed the effects on patient care during the period of recovery.

In *al-Ṭibb ar-Ruḥānī* ('Medicine of the Soul') he observed the logical and creative nature of mankind, and the problems related to human miseries, limitations, pleasure, aspiration, frustration, discomfort, voracity, impairments (intoxication), virtues and death. Ar-Razi was extremely intelligent and realistic in his judgements based on psychological analysis, and he authenticated the importance of psychotherapy and psychology as two vital areas of the therapeutic art. In the European medical institutions Ar-Razi was the standard source for centuries (Anis and Hamarneh 1984; Nagrami 2000, 267), particularly *Kitāb Al-Hawī fit Ṭibb (Liber Continens)*, an encyclopaedia on medicine and surgery summarising medical knowledge in 25 discourses. In his book Ar-Razi frequently quoted from the renowned *Ayurvedic books Charaka, Susruta, Nidana, Ashtanghridaya, Sidhdhayoga, and numerous other texts dealing the 'nature and properties of drugs in which Indians and the Greeks having conflicting opinion', 'the book concerning the treatment of pregnant woman', 'the booklet on Indian drugs', 'the book dealing with one hundred ailments and one hundred remedies by Tugashtal', 'the book on woman's cure by Rusa' (an ancient Indian female physician), 'the book concerning intoxication by an Indian', 'the book concerning the opinion of the Indians regarding the different types of snakes and their venoms' and 'the book regarding the effect of mania on different ailments'* (Nagrami 2000, 278-79; Siddqi 1959, 41-43). *Al-Hawī* focuses the areas concerning pharmacy in the therapeutic art, with *materia medica* written in an alphabetical order, collective medicines, suggested pharmaceutical dosages and toxicology including several medical formulas, and tested remedies that profoundly directed 'medical treatment' in Islam and in the West (Anis and Hamarneh 1984; Ar-Razi 1967).

Kitāb fi al-jadari waal-hasbah ('Book on Smallpox and Measles') was rendered twice into Latin in the 18th century, and W. A. Greenhill translated it into English (London: Sydenham Society, 1848), and in a variety of other European languages. Smallpox and Measles were earlier identified together a single disease, but Ar-Razi's minute examination noticed differences in the skin's exterior appearance (i.e. in the nature of abscesses) as well as the physical symptoms. Based on his investigations he concluded that they were two distinct diseases. The May 1970 Bulletin of the World Health Organization (WHO) paid tribute to Ar-Razi in these words: "His writings on smallpox and measles

show originality and accuracy, and his essay on infectious diseases was the first scientific treatise on the subject” (Al-Ghazal 2003, 9-11; Fenner et al. 1988; Hopkins 1983; Rashed 2009).

Gerard of Cremona translated Ar-Razi’s *Kitāb al-Taqsīm al-Ilal* (‘Book on Division of Diseases’) into Latin, which became popular throughout Europe. Ar-Razi in *al-Ifrat fī al-himyah* explicates the detrimental consequences of undue starving or dieting to the physical condition of the body. A number of his well-known books are *Kitāb-fī-Haeyat-al-Ain*, *Kitāb-fī-Haeyat-al Kabad*, *Kitāb-fī Haeyat-al-Qalb*, *Kitāb-fī-Haeyat-al-Samq*, *Kitāb-fī-Haeyat-al-Mafassil*, *Jami-fī-al-Ṭibb*, *Maqalah fī al-Hasat fī Kuli wa al Mathana*, *Kitāb-al-’Ilaj al-Ghoraba*, *Bar al-Sa’ah*, and *al-Taqseem wa al-Takhsir* (Anis and Hamarneh 1984; Campbell 2002; Haque 2005; Nagrami 2000, 266-271; Nasr 1984).

While many of these geniuses were clearly in the right place at the right time to benefit from the patronage and facilitation of the Arab-Islamic State, and to make their stupendous contributions, it should be noted that the state itself made stringent and active efforts to seek knowledge. Harun al-Rashid’s prime minister Yahya ibn Khalid al-Barmaki sent envoys to bring traditional Ayurvedic medicine from India and he invited prominent Indian physicians like Manka al-Hindi, Salih ibn Bahlah, Ibn Dahan, Sanjhal and Qulbarqul to Baghdad. Manka al-Hindi was originally enticed to Baghdad to treat al-Rashid during his prolonged illness, and the successful cure he administered sealed his renown. An expert in Sanskrit, Persian and Arabic, he translated medical books from Sanskrit into Arabic and Persian. Ibn Dahan was appointed as superintendent of the Bramkah hospital in Baghdad (Ibn-Nadim 1884; Mubarakpuri 1976, 382; Shibli 1989; Usaybah 1884). In those days there were many hospitals in Baghdad but only the Bramkah hospital had an Indian physician, who was elevated to the rank of superintendent.

Yahya al-Barmaki appointed Manka to translate Sushruta’s *Samhita*, a comprehensive book on the eight branches of Ayurvedic medicine and surgery. It gives a wide description of drugs of animal, plant and mineral origin. This classical tome was kept in each hospital as a source book of pharmacopoeia (Ibn Nadim 1884; Nasr 1984; Shibli 1989), and *the Ashtanghridaya* by Ibn Dahan (Ibn Nadim 1884; Ibn Usaybah 1884; Khan, 1990; Siddqi 1959, 41, 61; Shibli 1989). In Baghdad, other

prominent Indian scholars enrolled in *Bayt al-Hikmah* or attached to hospitals included Qulbarqul, Bahla, Salih ibn Bahla, Hassan ibn Salih ibn Bahla and Khatif Hindi. In India at this time, knowledge remained monopolized by caste specialists, and medicine (i.e. Ayurvedic and other forms of healing) was a specialty of the priestly Brahmin caste. Consequently, the Muslims were the first to unshackle Indian learning from sacerdotal monopoly and introduce it to the service of humanity at large (Athar Mubarakpuri 1976, p. 382).

The period of Al-Ma'mun is often considered the tipping point during which Persian culture came to dominate Abbasid court and society, reflected in architecture, clothing, cuisine, and most enduringly, knowledge. Greek philosophy was the most prominent discipline in Baghdad during Al-Ma'mun's regime; contrary to popular belief, this was not imported wholesale from the Byzantines, rather it had always survived as a living tradition from the Bactrian civilization, as expressed in Buddhist as well as Islamic cultural development in North-West India and Central Asia. However, the Byzantine ruler Michael II (r. 820-829) did ardently respond to al-Ma'mun's letter in 825 requesting the supply of Aristotle's books on philosophy and the works of other philosophers, which inspired a search that uncovered a cache of manuscripts sealed by the Emperor Constantine (272-337), to prevent heretical deviations in Christianity. The emperor sent to Al-Ma'mun all of the books loaded on five camels, which were then rendered and disseminated by *Bayt al-Hikmah*, where noted translators included Hunayn ibn Ishaq al-Idabi (809-77) and Abu Yusuf Ya'qub ibn Ishaq al-Kindi (800-73), the famous philosopher. The institution of *Bayt al-Hikma* played a pivotal role in the development of *Unani* medicine (al-Maqrizi 1854; Ibn Nadim 1884; Ibn Juljul 1955; Nagrami 2000; Shibli 1989).

The intelligent efforts of Hunayn and his team of translators Muslims fruitfully gained almost all branches of the curative arts in Islam. He made available all important Greek and Syriac medical literature into Arabic, and laid a firm base for the growth of Arab medicine by developing a unique style, which was followed, customized and idealised during the subsequent years. All over the Islamic realm the existing works of Hippocrates, Dioscorides, Galen and the more recent physicians of seventh century were made accessible to specialists and students, which is largely attributable to Hunayn (Hayes 1992, 174). It is entirely due to Muslim translators that many rare works (particularly of

Hippocrates and Galen) were saved from extinction, and we would not possess an understanding of Plato (428-348 BCE), Aristotle (384-322 BCE), Euclid (fl. 300 BCE), Archimedes (c.287-c.212 BCE), Claudius Galen (131-201 CE) or Ptolemy (c. 90-c.168 CE) without their efforts (Campbell 2002; Khan 1997).

A plethora of distinguished polymaths benefited from the patronage of knowledge extended by the Abbasids and later provincial potentates (e.g. the Seljuqs), including the sponsoring of observatories and hospitals. Within a short time Muslim philosophers, mathematicians, physicians, geographers, alchemists, botanists and their peers in different disciplines had worked throughout the caliphate and achieved the amazing feat of uncovering the vast intellectual heritage received from the earlier civilizations (Campbell 2002).

Persian Contributions

While the Arab-Islamic State of the Umayyads and Abbasids is indelibly associated with the spectacular cultural flourishing known as the Golden Age of Islam, aside from their political metropolises in Damascus and Baghdad this phenomenon spread far and wide through Asia, Africa, and the Iberian Peninsula. In the beginning Greeks, Romans, Egyptians and Arabs played a major role in the evolution and growth of *Ṭibb-i-ʿUnānī* after which it was upheld by the Persians like Abu al-Hasan Ali ibn Sahl Rabban al-Tabari (c.810- c.861), Abu Bakr Muhammad ibn Zakriya ar-Razi (841-924), Ali Ibn Abbas al-Majusi (d. 996), Abu Sahl Masihi (d. 1010) and Ibn Sina (d. 1037), all of whom were Persian courtiers of the Abbasids. With the decline of Abbasid authority the rising local dynasties of Central Asia (i.e. the Samanids, Ghaznavids and later the Ilkhanids) undertook the patronage of the arts and medical sciences, with notable instances being the construction of a military hospital by Sultan Nasir al-Din Mahmud I (1092-1094), the Seljuq ruler and the endowment by the Ilkhanid vizier, Rashīd al-Dīn Faḍlullāh Hamadānī (1247-1318), of Bimaristan Hamadani and Rashidi at Hamadan and Tabriz, respectively (Agha 1996, 124-26; Nasr 1984, 89; Shibli 1989, 190; Turner 2002, p. 133).

Firdausi (d. 1020) credited Jamshid, an ancient king of Persia, with the introduction of medicine to Iran. However, the knowledge of medicine had already been early acquired by the Babylonians and Assyrians and would naturally have radiated throughout Greater Persia

(Elgood, 1979, 3). The Persian interest in medicine can be gauged by the foundation of medical school of Jundishapur, located near the present city of Ahwaz, which grew into the prime centre of Hippocratic medicine. This school further gained prominence after 489 CE, when the school of Edessa was closed by the order of the Byzantine Emperor, Zeno (r.474-91), whereupon many physicians migrated to Jundishapur. The Sassanid king Shahpur II (r. 325-79) expanded Jandishapur medical school into a regular university, which housed several schools of medicine. Similarly, when in 529 CE the famous Academy in Athens was closed by the order of Byzantine emperor Justinian I (r. 527-65), due to its 'pagan' intellectual culture, many of its instructors migrated to Jundishapur, which became a famous university as the heir to both Antioch and Edessa, and a sanctuary for other scholars from India, Greece and elsewhere (Istanbouli 1981; Ghazanfar 2003, 112). While Persian cultural supremacy remained supreme, the dynasties of Central Asia increasingly looked east to India as the locus of their economic and political civilizations, as West Asia descended into civil wars and occupations, including the Crusades and the Mongol invasions.

Conclusion

Illness is a universal human experience, and all civilizations have tools to address it, with varying degrees of efficacy. Encounters between different world civilizations, catalysed by certain great minds, have driven the progress in what we now call science, and during the period of approximately a millennium (c. 700-1700 CE) the normative tradition of medicine was that promulgated in Islamic civilizations and centres of learning.

Since the advent of European colonialism, particularly from the 18th century onwards, there was a conscious effort to attribute the great scientific advancement of Western civilization to empirical investigations by European scientists. This served two purposes: to deny the role of spirituality in science, due to the retreat of the Church from scientific matters after the trial of Galileo (d. 1642 CE); and to support the 'scientific' right of more advanced/evolved Europeans to impose their civilization by force on other parts of the world (Nasr 1984). According to the view that emerged from the time of the 'Enlightenment', political and intellectual freedom (i.e. from religion) enabled the flowering of commerce and science. This intellectual myth ignored the seminal

contribution of Islamic and other cultures (including the Catholic Church, conventionally regarded as the chief villain of the piece) to the formation of Western science and its own ideological roots, despite the founding fathers of this paradigm such as Oliver Cromwell (d. 1658) and Isaac Newton (d. 1727) being heavily influenced by Islamic ideas and indeed by religion itself (Matar 2008).

Nevertheless, armed with this foundation myth, European culture swept aside the venerable scientific traditions of other world civilizations, such as the Islamic, Indian and Chinese, which were regarded as spiritual and therefore backward and superstitious. It is only with the failure of Western powers to maintain their imperial domination and cultural hegemony over those cultures that the paradigm of Western supremacy has itself been exposed as a superstition, with people in the West itself becoming increasingly sceptical about 'modern' science in general, particularly medicine, which has been debased to a sales function for pharmacological companies (Moynihan, Heath and Henry 2002), and looking for alternatives in the East.

As this paper has demonstrated, the rest of the world got along perfectly well during the European 'Dark Age' and its later 'Enlightenment'. Furthermore, contrary to the popular assumption, the classical learning of the ancient Greeks and Romans was not 'kept warm' by Islamic civilization until it could be restored to Europe, after the latter disabused itself of the Church; rather the tradition of the ancients continued in its historical geographical and demographic homelands – among the peoples around the Mediterranean Sea, and in West, Central and South Asia, all of which were part of the Hellenic civilization of Alexander the Great and his successors, with ancient civilizations predating even that, unlike the primitive existence of the forbears of the modern European nations. After the Western Roman Empire descended into barbarism, the material legacy of that world (mainly manuscripts from Byzantium) was but one tributary stream in the river of classical Islamic scientific knowledge, and perhaps not the main one, with more significant living contributions from more important Roman civilizations in North Africa (particularly Egypt) and the Levant, as well as the parallel Greco-Bactrian inheritance of Central Asia, and the highly developed strand that re-emerged from its incubation among the Brahmins of India.

All of these contributions were enriched by the environment of learning fostered by the patronage of the Umayyad, Abbasid and later Turkish and Indian Islamic civilizations and the remarkable efforts of innumerable great scientists and polymaths, including both Muslims and non-Muslims, who combined theoretical and cosmological knowledge with empirical investigations all grounded in spirituality and the desire to uplift the spiritual as well as physical afflictions of the body and thus the world:

يَا أَيُّهَا الَّذِينَ آمَنُوا لَا تَخُونُوا اللَّهَ وَالرَّسُولَ وَتَخُونُوا أَمَانَاتِكُمْ
وَأَنْتُمْ تَعْلَمُونَ ﴿٢٧﴾

“O ye who believe! give your response to Allah and His Messenger, when He calleth you to that which will give you life; and know that Allah cometh in between a man and his heart, and that it is He to Whom ye shall (all) be gathered”

(Al-Anfal, 8: 24).

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