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The discovery of the two new trade routes to Asia and to the Americas marked the beginning of the Age of Commerce. Christopher Columbus and Vasco da Gama had ventured out at the end of the fifteenth century in search of an alternative route to the spice-growing regions of Asia. Why did Western Europeans seek to find new routes to the East? The answer lies in the history of late medieval trade between Europe and Asia, which was dominated by the Mediterranean trading world. Until the sixteenth century, European and Asian trade were connected by the Caspian and the Mediterranean seas, and the Mediterranean world was the point of contact between Asia and Europe. Italian and Arab merchants controlled this trade. Asian goods were brought by Arab merchants through the Red Sea or the Gulf of Persia to the eastern Mediterranean ports, such as Tyre, Constantinople and Alexandria. From there they were taken to the Italian port cities of Amalfi, Naples, Genoa and Venice by Italian merchants who then supplied them to the rest of Europe. Spices were a vital and lucrative commodity in Europe and were used for various purposes: for meat preservation, and as condiments, perfumes and medicines. Merchants and traders in Western Europe, particularly in the then ascendant states of Spain and Portugal, were eager to establish their own direct trading links with Asia to avoid the Arab and Italian traders who consumed much of the profit.

Between 1500 and 1800, Western European commerce expanded globally, so historians have termed the period the ‘Age of Commerce’. It is important to note that the term has a predominantly Western European connotation, as Western Europe gained most from this new maritime expansion. For the Arab and Mediterranean traders it was the beginning of a period of commercial and economic decline, as most of the Asian trade passed on to the Portuguese, and then to the Dutch and English, through the new maritime routes. As for Asian traders, there was a general increase in their trade, but they now traded predominantly with the Portuguese, Dutch, French and English, rather than the Arabs. For the indigenous populations in the Americas, the Age of Commerce and the Spanish Conquest brought new diseases, death, subjugation by the Spanish and enslavement on the new plantations.

In the sixteenth century, Spain expanded its colonies in the Americas. It occupied the Caribbean islands and the conquistadors (the Spanish soldiers
and explorers who undertook the initial conquest of the Americas) toppled native empires, such as the Aztecs and Incas, on the mainland of North and South America. The small Caribbean islands occupied an important place in the Atlantic trade between the Americas and Europe. These were important entrepôts of supplies and trading commodities, and European powers struggled against each other to gain control over the islands. Initially dominated by the Spanish, the Caribbean Sea was referred to as a ‘Spanish lake’.1 Between 1519 and 1522, the Spanish achieved an important circumnavigation when Ferdinand Magellan and Juan Sebastian Elcano sailed around South America to reach Asia though the western maritime route, where the Spanish established their colonies in the Philippines. In the seventeenth century, Spain controlled an empire that covered the Americas and Asia.

Meanwhile the Portuguese initiated European trading networks in the Indian Ocean. Following da Gama’s expedition, they opened up rich areas of maritime trade for Europeans. Alphonse de Albuquerque, a naval officer, established the Portuguese Empire in the Indian Ocean, starting with Goa in India in 1510. Soon the Portuguese assumed control over Mocha in the Red Sea; Hormuz in the Persian Gulf; Goa, Diu and Daman in western India; the island of Ceylon (now Sri Lanka); and Malacca in southeast Asia. They also succeeded in cutting off much of the Arab trade and managed to have nearly all spices headed for Europe loaded on Portuguese ships.

The new trading routes that the voyages of Columbus and Vasco da Gama established marked important changes in the commercial history of Europe and other parts of the world. There were three main consequences: first, the decline of the older trading networks of Italian and Arab merchants through the Mediterranean and the Red Seas and the subsequent rise of Western European commerce; second, the establishment of first direct contact between Western Europeans and distant populations, cultures, flora and fauna; and third, these events marked the beginning of Western European maritime empires in Asia and the Americas (see Figure 1.1).

This chapter will explore the ways in which the Age of Commerce transformed the basic premises of modern medicine. Commercial and colonial expansion from the seventeenth century gave rise to a new world of interaction between Europeans, Asians, Africans and Amerindians, the emergence of a hybrid medical culture, the availability of new drugs in the markets of Asia and Europe, and the emergence of surgeons and apothecaries as the new agents of medicine. In Chapter 2 I will focus more specifically on plants as essential elements in this emerging history of medicine and colonialism.

**Commerce and empire**

A journey intended to find a new trade route to the spice islands of the East took Europeans to a ‘new’ world. Columbus landed in the Caribbean islands,
believing that he had reached India. Over time, these Atlantic islands and the
great continents lying beyond them provided Europe with several new resources.
In South America, the Spanish found something even more precious than spices
– gold and silver – a discovery that led to the growth of European bullionism and
the rise of mercantilism in the seventeenth century. American gold and silver
provided currency to facilitate the increase in intra-European trade, but, more
significantly, it also provided the bullion that the Europeans could exchange for
the products of Asia, where European goods were not in reciprocal demand. The
influx of American bullion in Asian trade also led to the decline of Venice and
the Hanseatic cities, and the rise of new trading centres along the west coast of
Europe: Cadiz and Seville in Spain; later, as the centre of trade shifted, Bordeaux,
Saint-Malo, Nantes and Calais, in France, and then Antwerp and Amsterdam in
Holland; and, finally, London and Bristol in England. All of these centres also had
trade connections with the Americas.

In Europe, this led to the Commercial Revolution of the sixteenth century. The
inflow of money, bullion and new items of trade in Europe led to the breakdown
of old feudal economies, the expansion of markets, new ports, towns, a rise in
prices and the formation of a new merchant class. Bullionism increased mone-
tarism (the belief that the supply of money is a major determining factor in the
behaviour of an economy). It also paved the way for the rise of mercantilism (the
economic theory that supposes that the prosperity of a state depends on its ability
to amass bullion by maintaining a favourable balance of trade). With American
bullion, Europeans from the late sixteenth century could obtain substantial quan-
tities of commodities such as spices, textiles, plants and herbs, and manufactured
goods from different parts of the world. How did this Commercial Revolution
lead to colonies?

The answer is in the commercial rivalries that started among different European
nations. With this rivalry came the need to secure trading monopolies – both
to secure the sources of exotic goods and products, and to reduce the outflow
of bullion to rival nations. Monopoly over commerce was crucial to mercantile
economies. Therefore European merchants sought to gain direct political and
economic control of the regions that produced the goods of their commercial
interest. This search for trading monopolies marked the beginning of European
colonial establishments in Asia and the Americas. European commercial coun-
tries, starting with the Portuguese and the Spanish, and then the French, the
Dutch, the Danes and the British, established colonies in their attempt to secure
commercial monopolies.

By the seventeenth century, the Dutch had rapidly demolished the Portuguese
power in the Indian Ocean and then displaced the Arabs and Italians to gain
complete monopoly over the East Indies spice trade. Throughout the seventeenth
century, the Dutch gained decisive shipping, commercial and financial domi-
nance in the East Indies as well as in the European markets. Due to the Dutch
control of the East Asian Spice Islands, the British settled for a relatively less
important source for spices: India.
The Dutch and the British introduced European joint stock private companies in Asian and Atlantic trade. In 1600 the English East India Company (EEIC) was established, followed by the Dutch East India Company (Oost Vereenigde Indische Kompagnie) in 1602. The Dutch West India Company (Geoctroyeerde Westindische Compagnie) was granted a charter in 1621 for a trade monopoly in the West Indies as well as in Brazil and North America. The South Sea Company, founded in 1711, was a British joint stock company that traded in the West Indies and South America during the eighteenth century. Through most of the seventeenth, eighteenth and even nineteenth centuries, these companies traded in Asia and the Americas, accumulating wealth and establishing colonies. They also employed large armies, which required the services of surgeons. The surgeons were recruited from European medical colleges and sent to the colonies in Asia and the Americas. As we shall see later in this chapter, colonial surgeons became the agents of change in European and colonial medicine in the eighteenth century.

The English made important colonial gains in North America in the seventeenth century. They established colonies on the east coast in Massachusetts and New England, and then in Pennsylvania. In the south, the Spanish retained colonies for much longer than in the north. In the Caribbean, the British earned a decisive strategic victory when they gained the colony of Jamaica from the Spanish in 1655. Jamaica became the hub of British trade in the Caribbean and, later, a rich sugar plantation colony in the eighteenth century. Because of these colonial settlements and expansion in Atlantic trade, British overseas trade during this period became ‘Americanized’. By the end of the eighteenth century, North America and the West Indies received 57 per cent of British exports and supplied 32 per cent of its imports. Between 1660 and 1775, commodities such as sugar, tobacco and coffee, which were procured from the Americas or grown in the plantations, became vital components of British imports. These had also become items of mass consumption in Britain.

The French and the Dutch secured colonies on the east coast of North America from the middle of the seventeenth century. France established a colony in Quebec in North America by the middle of the seventeenth century. The Dutch established settlements near what is now New York. In the West Indies, the French established colonies in Guyana and the islands of Martinique and Guadeloupe. They entered into a prolonged conflict with the Spanish over the major island of Hispaniola, and in 1697 the island was divided into two parts. The French secured the western part, which they named Saint-Dominique. This soon became a French plantation colony for sugarcane and coffee. The main motive for British and French expansion in Atlantic trade in the seventeenth and eighteenth centuries was to retain the profit for themselves by securing control over the sources of items of commercial import and to avoid intermediary trading groups. In the Indian Ocean throughout the eighteenth century, the French and British competed with each other for colonial expansion. India was the main base for the English trading company, where it established important trading ports in Calcutta (now Kolkata), Bombay (now Mumbai) and Madras (now Chennai). The French established a colony in Pondicherry, south of Madras on the Coromandel Coast.
Figure 1.1: The Age of Discovery, 1340–1600 (from William R. Shepherd, Historical Atlas, 1911). Courtesy of the University of Texas Libraries, the University of Texas at Austin.
The commercial and colonial rivalries led to mercantilist warfare among the British, the Spanish and the French. Large numbers of troops were mobilized and sent to fight battles in North America, the West Indies and Asia. This resulted in large-scale European mortality, which posed new medical challenges, which I will explore in Chapter 4.

The end of the eighteenth century marked the first two phases of European imperialism. The first was under the Spanish and the Portuguese who from the sixteenth century built maritime empires in Asia and the Americas, which had become large territorial colonies by the seventeenth century. From the middle of the seventeenth century there was a new phase of commercial and colonial expansion when other Northern European nations, such as the British and the Dutch, gradually established their own empires in India, South East Asia, the West Indies and in the Pacific Ocean.

Medical exchanges in the Age of Commerce

Commerce was the main conduit of European contact and encounter with other parts of the world in the seventeenth and eighteenth century. It was through trade and commercial exchanges that the rich vegetation, foliage, unfamiliar plants and animals, as well as different cultures of the tropical regions of Asia and the Americas, came to be linked with European experience. For the Europeans in trading settlements away from Europe, in the West Indies, Asia and the Americas, exchange was key to survival and making profits. Due to the commercial motif, the early colonial history has often been seen as a history of ‘exchanges’. In the Americas, this has been described as ‘the Columbian Exchange’. In Asia there has been no specific phrase to describe it, but exchanges and interactions have been seen as the key feature of early European colonialism here.

When Christopher Columbus reached the Caribbean islands, he was struck by their beauty and the variety of the plants that he saw:

so green and so beautiful, like all the other things and lands in these islands, that I do not know where to go first nor do my eyes tire of seeing such beautiful greenery and so different from our own. I believe that there are on the islands many plants and trees which would be of great value in Spain as dyes and medicinal spices, but I do not recognise them, which I much regret.

This combined sense of wonder, the disappointment of not knowing enough about these plants and the promise of the ‘value’ of these plants drove Europeans to explore and collect plants, seeds, bark and fruits, export them to European markets and include these in their own medicine. The supply of medicaments in Europe increased massively between the sixteenth and nineteenth centuries. This European exploration of exotic plants in the tropical colonies has been described as ‘colonial bioprospection’. 
Historians have studied in detail the nature of the changes that were introduced in European natural history and medicine by this contact with the wider world from the sixteenth century. On the one hand the Age of Commerce introduced items of curiosity in Europe, stimulating intellectual discussions about exotic natural objects and medicinal plants and providing European thinkers with a global view of the natural world.9

On the other hand, collecting plants, drugs and seeds also had their commercial benefits. Eighteenth-century political economists believed that a knowledge of nature was essential in amassing national wealth. They understood the potential of coffee, cacao, ipecacuanha, jalap and Peruvian bark as profitable items. The collection and study of these plant materials was also associated with commercial expansion, the acquisition of colonies and the establishment of colonial gardens and plantations.10 This combination of intellectual and commercial benefits is useful to understand the history of medicine during this period.

Although this appears to be the dominant narrative, there are other aspects besides the enrichment of the European pharmacopoeia to this history of colonial medicine in the Age of Commerce. Alongside the European encounters with the tropical world and nature, intimate interactions about nature, medicines and healing practices took place between the Amerindians and the Africans. African-American plant pharmacopoeias formed a very important part of the cultural history of the Caribbean islands. The colonization of the Americas by Europeans was accompanied by a diverse blending of diseases, medical systems and plant-based pharmacopoeias between the Old World and New World.11 In the Caribbean islands and in South America, the plantations placed Africans and Amerindians in close contact throughout the seventeenth and eighteenth centuries. As they worked together, they exchanged their knowledge about plants and therapeutics. For example, in Brazil, African slaves adopted the use of indigenous medicinal plants from the Tupinamba Amerindians.12

At the same time, Africans had carried many West African plants and weeds with them, which entered the medical practices of the indigenous populations and African healing systems often flourished in the Americas. In the West Indian plantations, slaves easily outnumbered the whites. Therefore the West Indian slaves could preserve much more of their African roots, languages and rituals compared with those in North America.13 In that process, African-based ethnomedicine travelled to, and survived in, various parts of the Caribbean islands.

These exchanges were not just about plants and therapeutics; they were about a wider sharing of spiritual and religious beliefs and worldviews between Africans and Amerindians.14 Within this system, cures were achieved through both pharmacological and magical powers.15 Thus spirituality was an important component of this hybrid healing tradition that developed in South America and the West Indies in the Age of Commerce. Even when converted to Christianity, slaves and Amerindians retained their faith in the power of magical healing. In Jamaica, for example, African healers treated their patients with herbal baths and infusions of African origin in combination with Christian prayers.
Voodoo and obeah were the two products of such diverse exchanges in plants, culture and spirituality across the Atlantic. Voodoo is a religious practice that originated from the Caribbean island of Haiti. It is based upon a merging of beliefs and practices of West African origin with Roman Catholic Christianity, from the time when African slaves were brought to Haiti in the sixteenth century and converted to Christianity, while they still followed their traditional African beliefs. Voodoo was also part of slave rebellions, as during the Haitian Revolution of 1790, voodoo priests used ritualistic chants to inspire slaves to rise against their white masters. Throughout the seventeenth and eighteenth centuries, voodoo continued as a medicoreligious practice among the slaves and peasants in the West Indies and the southern United States.

Obeah was another complex healing tradition of African origin that survived in the West Indies. It became a spiritual and intellectual institution that unified slaves from different regions and cultures of Africa. Obeahmen (those who practiced obeah) used medicinal herbs of African and American origin to treat slaves. They contributed to the assertion of cultural identity among slaves throughout the eighteenth century.16 Obeah was also an important part of slave rebellions from the late seventeenth century.17 In 1736 an obeahman was among the rebels executed in Antigua.18 In Montego Bay, Jamaica, a rebellious obeah practitioner was captured by the British authorities and burnt to death.19 Due to this link with slave rebellions, the white planters perceived obeah and voodoo as threats to their authority.20 The authorities sought to suppress them by legislation and by the end of the eighteenth century, African magic and medicine were outlawed in most parts of the West Indies, to be punished by death or deportation.

Although the spiritual and political motifs of these Afro-Caribbean practices were repressed, European naturalists and physicians often found their knowledge of local medicinal plants useful. British physician Hans Sloane, who visited Jamaica at the end of the seventeenth century, searched among the obeahs for curative herbs and plants.21 European physicians gained from the therapeutic knowledge of these practitioners and adopted this knowledge by sifting their spiritual and ritual content. They believed that the influence of Christianity would eventually ‘liberate’ these practices and their practitioners. One English surgeon wrote that he hoped that Christian faith would ‘emancipate [the slaves] from the mental thralldom of ignorance that made them so susceptible to the malady [obeah].22 The spread of the evangelical movement among the slaves did seek (and it succeeded to an extent) to abolish practices of African witchcraft and magic among slaves.23 However, these practices survived, sometimes combining African herbal practices and Christian rituals. The medical practices were passed on through generations by the slaves and survived even in the nineteenth century in the plantations in the two Americas. Some of the herbal traditions were even adopted by white physicians and slave owners.24

Another distinct and important aspect of medical exchanges in the Commercial Age was in the revival of the use of minerals in medicine. This marked a shift from
the dependence on herbal medicine. Minerals were the most important materials of early European Atlantic commerce. The Spanish, French and British searched for mines in South America and the West Indies. As William Robertson wrote in his *History of America*, ‘precious metals were conceived to be the peculiar and only valuable productions of the New World, when every mountain was supposed to contain a treasure, and every rivulet was searched for its gold sands’.25

The discovery of Peruvian silver also led to the exploration of mines in Europe in the seventeenth century.26 This was not a simple quest for great wealth in the form of rare metals. Mercantilism ushered in a new awareness in Europe of minerals in general, not just gold and silver. Europeans from Spain to Norway found a new fulfilment in minerals – these came to signify their source of wealth and wellbeing. This led to a growing interest in mineralogy among physicians in Europe and the revival of Paracelsian medicine in the seventeenth century.27 Paracelsus was an early sixteenth-century German physician and alchemist who believed in the virtue of chemicals and minerals as medicine. Physicians in the seventeenth century advocated the need to drink mineral water and explored the chemical properties of certain springs. They also stressed the use of stones and minerals in medicines. The increasing chemical analysis of the virtues of bath waters in Europe stimulated interest in mineral, metallic and chemical medicines.28 From the early seventeenth century, physicians in London showed a greater interest in mineral cures.29

The Commercial Revolution and the revival of interest in the medicinal virtues of minerals led to the growth of mineral spas in Europe in the seventeenth century as important health institutions. The French established thermal spas in Vichy and Saint Galmier.30 The British established or revived the older mineral baths in Bath, Buxton, Tunbridge Wells and Epsom.31 Even in South America and the West Indies, mineral springs and baths became popular. For several years during the early period of colonization of the West Indies, the British were convinced that these islands were rich in silver and gold mines. With the help of slaves, British surgeons and prospectors searched for minerals in the mountains and forests of Jamaica and St Kitts. They did not find any silver, but they discovered springs rich in minerals. Believing in their therapeutic virtues, the settlers established baths on these islands, which became favourite convalescent places in the eighteenth century.32

A useful way to understand how these cultural, social and geographical experiences in the seventeenth and eighteenth centuries shaped European medicine is by studying the practices and writings of European surgeons. The surgeons, who worked for the trading companies or in the plantations, or served the colonial armies, became the mediators of cultural, medical and ecological knowledge between different cultures and societies. Their colonial experiences and knowledge proved vital to European medicine, as they often distilled, incorporated and disseminated hybrid medical materials and traditions. This process also contributed to a rise in the status of surgeons in the medical fraternity in general, and their position was now very different from that of the earlier barber surgeons in Europe.
The changing world of European surgeons

Historians have shown that colonial surgeons transformed European medicine, by finding new cures and modes of preventive medicine moving away from the older practices of bleeding and expulsive drugs. European surgeons played a dual role. As surgeons, they were the principal bearers of European medicine to the colonies, but they also investigated new ingredients and medical insights among the diverse groups of people they met. At the same time, throughout the eighteenth century, the status of surgeons within European medical practice itself was changing. Surgeons rose to prominence from lowly placed barber surgeons within European medicine; came to be respected as theoreticians of diseases and cures, particularly those of exotic regions; and were invested with the care of the navy and army by the state. Physicians of the Royal College of Physicians or naturalists of the Royal Society during this period depended on the correspondences sent by surgeons from distant continents for the enrichment of their medical practice.

Surgeons who served in the West Indian islands worked in a unique geographical and social site which enabled them to study the botanical resources of the islands as well as to record the therapeutic traditions of the slaves and the Amerindians, and then to incorporate them into their own therapeutic practices. In Asia they visited local markets in search of spices and medicinal herbs, interacted with local practitioners, even learnt local languages to read and translate the medicinal texts.

The surgeons worked in diverse circumstances, which enriched their medical and cultural knowledge. In the Caribbean they even served the pirates and sometimes participated in their buccaneering activities. Richard Sheridan has provided an interesting account of the practice of medicine by British and French surgeons who were also occasionally involved with piracy and privateering in the Americas and in the Caribbean in the seventeenth and eighteenth centuries. The buccaneers who suffered from fevers, scurvy and wounds preferred to be in close contact with the surgeons, who were also ‘given special consideration in the sharing of the booty’. The buccaneer surgeons prescribed medicines drawing upon pharmacological remedies of Europe, but also used the tropical medicinal plants and folk remedies they learnt from Amerindian and African slaves. Some of the Atlantic surgeons, such as Thomas Dover and Lionel Wafer, participated in privateering piracy activities. Alexander Olivier Esquemeling, a French surgeon who served the pirate Captain Morgan, also studied the medicinal plants in Tortugas near Haiti. He wrote the book *The Buccaneers of America*. In 1666 he served the French West India Company and went to Tortugas. There he joined the buccaneers, probably as a barber-surgeon, and remained with them until 1674. After a brief stay in Europe, he returned to the Caribbean and served as a surgeon during the attack on Cartagena in 1697.

Many buccaneer surgeons amassed substantial wealth from their association with these lucrative activities. Dover, a surgeon trained under English physician Thomas Sydenham, travelled in a Bristol slaver in 1708 to the West Indies where
he learnt new cures for smallpox from the slaves. He participated in piracy activities and even organized an expedition to the Spanish Main. He invested the wealth acquired from this trade and his successful medical practice in the Bristol syndicate in backing Woodes Rogers’ privateering venture to the South Seas in 1708.

The private fortunes they amassed from the colonies also helped the social status of the surgeons back home. Hans Sloane, who went to Jamaica as a surgeon from England, married Elizabeth Langley, widow of Fulk Rose, a rich Jamaican planter, and inherited part of the income from of her former husband’s plantation. This wealth allowed him to set up his private practice in Bloomsbury in London. He also purchased the Manor of Chelsea in 1712, which made him the landlord of the physic garden. He later became president of the Royal Society.

In the Indian Ocean, European surgeons assimilated Asian spices and medicinal plants into their medical practice. Samuel Browne, an English surgeon who was stationed at Madras hospital in the late seventeenth century, spent most of his time collecting medical plants from the neighbouring forests and interacting with the locals, finding out about their curative properties and tracing their South East Asian, Dutch and Portuguese origins. He gathered a large collection of spices and aromatic and medicinal plants. His notes on Asian medicinal plants, which were published in the *Philosophical Transactions of the Royal Society*, provide a detailed account of the cultural practices associated with these plants. They described the early European, particularly Portuguese, connections in bringing aromatic and medicinal plants from places such as Batavia to India. These were then incorporated into British and even local medicine. He sent his specimens and notes to the famous London-based apothecary James Petiver, who was involved in a broad scheme of comparing these with similar other accounts sent from the West Indies, Guinea, East Asia and elsewhere in India. His aim was to compile a comprehensive treatise on the medical botany of different parts of the world.

Edward Buckley, chief surgeon and a contemporary of Browne in Madras, sent a ‘China Cabinet’ full of instruments and samples used by the Chinese surgeons to Hans Sloane at the Royal Society. Along with collecting plants and medicinal recipes, European surgeons also engaged in private trade in spice in Asia. They even ran their own commercial establishments, such as preparing and selling arrack, spices and medicines.

One episode highlights the cultural and medical experience that European surgeons had in the eighteenth century. Brown, a surgeon of the EEIC, met Mr Morad, a wealthy Armenian merchant in Masulipatnam (an old spice trade port on the Coromandel coast of India), whose wife was in labour. When Brown went to see her, he found an interesting medicinal collection at the merchant’s home. There were several French and British cordials and some other local drugs that he was not familiar with. Among them he found a bottle containing a ‘mysterious’ liquid, which Morad had collected from a nearby village. This was supposed to be a useful remedy for diseases of the bile. Brown learnt that the liquid was in fact bottled dew or fog, which fell heavily in that region in the months of September
and October and was collected by spreading a fine muslin cloth in the evening. The following morning the dew was wrenched from the cloth and poured into a bottle. When Brown narrated his experience to a Portuguese surgeon at the English hospital in Masulipatnam, the latter confirmed that he too had heard about that drug and a Portuguese trader had in fact once tried to collect it himself. Brown added that while the British had very little intercourse with the Armenians in Masulipatnam, the Portuguese, due to their long presence in Asia and familiarity with their language, were much better acquainted with them and their medicines.41

The surgeons wrote about their myriad experiences of novel therapies to physicians and surgeons in Europe. In the eighteenth century, journals such as the *Philosophical Transactions* or the *Medical Commentaries*, the latter published in Edinburgh, became important repositories for the diverse forms of experiences that surgeons wrote about in this period. Surgeons also collected these drugs and sent them to Europe through their private trading connections to be sold in the European markets. Because of this, various medical items entered Europe’s medical practice and pharmacopoeia. These transformed the European medical trade and its apothecary shops.

## Markets and medicines in the Age of Commerce

Markets were the sites around which European economic, political and cultural history revolved in the seventeenth and eighteenth centuries. In Europe in the early modern period, markets changed from the older provincial and local institutions, selling predominantly agriculture-based products, to more cosmopolitan and urban ones, which sold items collected from different parts of the world and catered to a greater number and variety of consumers. In Asia, the markets that traded locally within the Indian Ocean were from the seventeenth century integrated with the global market system. In the Americas and on the coasts of Africa, markets exchanged bullion, sugar, curiosities, animal and plant products, and slaves.

*Annales* historian Fernand Braudel has shown that the emergence of ‘national markets’ (a network of markets, which connected the cities and the provinces) in Europe in the eighteenth century was critical to the creation of nation states in Britain, France and the Netherlands. This provided a move away from the agriculture-based regional economics to a more unified fiscal structure and polity. He also argued that this fiscal and commercial unification was preceded by the expansion in foreign trade by these nations.42

Apart from fiscal unification, markets also represented the new consumer culture that developed in Europe due to the arrival of colonial goods and exotics. Fuelled by the wealth earned from the bullion trade and stimulated by exotic products from the Orient and the Americas, the European elite thronged to the markets. Over the seventeenth century, major European cities, such as London
and Amsterdam, became the centres of a new consumer culture. Colonialism transformed the consumer and manufacturing culture in London, giving rise to new forms of markets selling exotic goods. Markets in Amsterdam too became the centres of Dutch colonial and national trade. The East India companies successfully developed luxury and semiluxury markets in Europe for the middle class and gentry for Asian textiles, porcelain, teaware, dinner services and armorial ware, associating these items with taste and fashion. In this section we will see how the history of modern medicine in this period was intertwined with this emergence of markets both in Europe and in the colonies to produce a new medical practice and culture.

The Commercial Revolution led to the emergence of what is known as the ‘medical marketplace’ in Europe. Harold J. Cook coined the phrase in his book *The Decline of the Old Medical Regime* to show the declining control over the medical practice and market of the Royal College of Physicians in England and the diversity of sources from which medicines could be bought or acquired in the seventeenth century. In Britain the growth of the new medical marketplace reflected the new ‘commercial capitalist, spectacle-loving, consumer oriented society’ of the country. By the end of the seventeenth century, new drugs appeared from the Orient and the Americas in European markets, and new medical experiences that surgeons accumulated in the colonies became known to English medicine. European drug markets became harbingers of the changing times. Historians have used the concept of the ‘medical marketplace’ to analyse these changes in the history of medicine in early modern Europe. They have highlighted various aspects of the social and economic organization of medicine in early modern Europe, including the commercialization of medical practice, professional competition and restructuring of the professional hierarchies. The apothecaries who sold the drugs in the markets became the sources of information about the new medicines. Prominent apothecaries, such as Petiver in London and Jan Jacobsz in Amsterdam, ran their global medical networks collecting botanical and medical specimens from distant lands. Petiver also wrote to the Royal Society regularly about the new varieties of medicines that he collected.

Sloane worked closely with Petiver in London. He invited Petiver to the Royal Society’s meetings. Petiver in turn used his global network to secure medicine and plants for the Royal Society. He collected medicinal plants and drugs from all over the world, pushing the need to find medicinal alternatives globally. In 1699, Petiver published a piece in *Philosophical Transactions* encouraging botanists to search for alternative species of medicinal plants in areas under British colonial control.

Between 1615 and 1640, 40 per cent of drugs on the English market came from the East Indies. By the second half of the seventeenth century, this had gone up to 60 per cent. New apothecary shops opened for the sale of these ‘exotic’ drugs in London and elsewhere. Due to the sheer number of new drugs available, the apothecary shops also became highly specialized. Containers and jars were now systematically arranged, and ordered onto separate shelves. Vendors adopted innovative methods to advertise and display their exotic products. These
apothecary shops, their innovative methods of sale and their exotic merchandize popularized the use of exotic drugs in European medicine.\textsuperscript{51}

This history of markets in Europe was connected to the history of markets and ports in the colonies. The interest in Oriental drugs took European surgeons to the local markets of Asia, which were the hub of seventeenth- and eighteenth-century trade in spices.\textsuperscript{52} Markets in Asia became the nodal points of commodity exchange.\textsuperscript{53} Asian markets (or bazaars) in the eighteenth century were of various kinds – contiguous lanes of shops, situated within large roofed buildings, arranged over a large square in the village or town centre, or scattered around the ports.\textsuperscript{54} The Asian bazaars of the seventeenth and eighteenth centuries were the meeting places of diverse worlds; visited by French, British, Portuguese, Armenian and Indian merchants, local rulers, petty traders and buyers; goods arriving from across the sea and the hinterlands; and European dogs being sold next to Arabian horses.\textsuperscript{55} European surgeons and merchants explored these markets in search of exotic drugs to export to European markets or to use in their colonial settlements.

In the colonial establishments of Asia in the eighteenth century, European surgeons working for the trading companies often used what they called ‘bazaar medicines’ (medicines that were bought from the local markets) along with European ones, at times combining the two. By the middle of the century, bazaar medicines became a regular component of the supply of drugs for the British military hospitals in India. These medicines were themselves of eclectic origins. They were brought to the large marketplaces in Asia from distant and relatively obscure locations. For example, an English surgeon based in Madras, Whitelaw Ainslie, found that aloes, which was commonly found in the bazaars of India, was brought from China as well as Borneo; cardamom, commonly used as a medicine by British surgeons, grew on the Malabar Coast but was also brought from Cambodia;\textsuperscript{56} tabasheer, a popular medicine in Asia, was rarely found in India and was brought as an article of trade from West Asia;\textsuperscript{57} mercury, the vital medicine of the Coromandel Coast used for salivation, was procured from remote Tibet and brought to the Indian ports through China by country trade sloops\textsuperscript{58} (supplied mostly by the Dutch).\textsuperscript{59} Other items available in Indian markets were benzoin (brought from Sumatra and Java), \textit{Calamus aromaticus} (extracted from plants found in the Malabar region), camphor (brought to Indian markets from Sumatra and Java), China root (from south China and the East Indies), ‘Dragons Blood’ (from a kind of cane found in Java), Galingale (from South East Asia), gamboge (from Cambodia and Thailand) and myrrh (from Arabian and African coasts).\textsuperscript{60}

These drugs were then taken to Europe to be sold in European apothecary shops. European medical text and catalogues too incorporated names and used of plants and drugs herbs from different parts of the world, which I will study in detail in Chapter 2. In these diverse ways, European medicine, similar to European mercantile economies, was enriched in the Age of Commerce through colonial connections.

Before I end this story of the enrichment of European medicine, the stimulating experiences of the surgeons, the growing influence of apothecaries and
the general history of prosperity of the Age of Commerce, there is a need to take note of the darker sides of this new market economy as well. The growth of slave markets was an integral part of the Age of Commerce. The increasing commercialization and monetarism, rise of colonial power, and growth of capitalism and plantations created a paradigm in which the bodies of slaves were viewed more easily as objects or products for the market. The same is true of the sailors who were captured from the streets of European cities by pressgangs and thrown into the unknown and hard colonial voyages. The sailors in crowded ships were treated almost no better than the slaves. They were often flogged for punishment and died due to a lack of food and medicine.

Selling and buying slaves became a major commercial enterprise and slave markets developed in West Africa, in the West Indies and in South and North America from the seventeenth century. European traders earned great fortunes from this trade. Trevor Burnard and Kenneth Morgan have estimated that in one year, 1774, the total value of the slave trade in the island of Jamaica was £25 million, nearly totalling the wealth of the whole island.

Medicine played its role in these slave markets. As slaves were considered to be valuable commodities, the traders and their surgeons used ingenious ways to keep them, or make them look, healthy. The trading contract between slave merchants and slave traders obliged the captains of ships to certify that there were no contagious diseases on the ships before they were admitted to the ports. The ships involved in the slave trade employed surgeons to look after the crew and slaves. In order to deceive buyers, surgeons sometimes blocked the anuses of slaves suffering from dysentery with oakum, causing them excruciating pain. When a ship docked, slaves were greased with palm oil to make them look ‘sleek and fine’, and the prospective buyer looked into their mouths and tested their joints before buying them. Slaves and slavery were an integral part of the market economy, of the prosperity, global scale of exchange and the often brutal pursuit of profit of the Age of Commerce.

Conclusion

The history of the Age of Commerce is one of mixed shades. The Commercial Revolution ushered in a period of great economic growth in several parts of Western Europe and also in parts of Asia and the Americas. Encounters with diverse cultures, plants and markets enriched European medicine, introduced new drugs and stimulated European medicine and medical marketplaces. Commercial activities enriched Europe’s knowledge of medicine, environment and health. Europeans discovered new medical herbs, and interacted with different cultures and practices of medicine. New drugs entered medicine in Asia and the Americas as well, as Africans carried their medicines and medicinal plants to the Americas, sharing these with the Amerindians. In the Indian
Ocean, European demands and the growth in the spice trade brought new drugs and plants to the markets. European surgeons and missionaries incorporated these in their own medicine.

However, there were also negative consequences to the history of commerce. The commercial expansion brought new diseases to the Americas, which led to the extermination of large sections of the Amerindian population (See Chapter 5). Commercialization also increased in the enslavement and buying and selling of humans. The history of modern medicine is testimony to both of these aspects of the Age of Commerce. It should also be added here that seeing this history predominately in terms of exchanges could also obfuscate the military expansions and conquests that took place simultaneously in the Age of Commerce.

Notes

3 Iris Brujin, Ship’s Surgeons of the Dutch East India Company; Commerce and the Progress of Medicine in the Eighteenth Century (Leiden, 2009).
8 Schiebinger, Plants and Empire.
12 Ibid, p. 72.
14 Ibid, pp. 66–78.
21 Hans Sloane, *A Voyage to the Islands of Madera, Barbados, Nieves, S. Christophers and Jamaica, with the Natural History*, vol. 1 (London, 1707), Preface.
35 Ibid.
37 Kenneth Dewhurst, *The Quicksilver Doctor, the Life and Times of Thomas Dover, Physician and Adventurer* (Bristol, 1957), p. 54.
39 James Petiver, ‘An Account of Mr Sam. Brown, his Third Book of East India Plants, with Their Names, Vertues, Description’, *Philosophical Transactions*, 22 (1700–1), 843–64.
49 Petiver, ‘Some Attempts Made to Prove That Herbs of the Same Make or Class for the Generality, have the Like Vertue and Tendency to Work the Same Effects’, *Philosophical Transactions*, 21 (1699), 289–94.
52 For a more detailed account of the link between medicine and Indian markets in the eighteenth century, see Chakrabarti, ‘Medical Marketplaces Beyond the West: Bazaar Medicine, Trade and the English Establishment in Eighteenth Century India’, in Wallis and Jenner (eds) Medicine and the Market, pp. 196–215.

53 For an account of the East India Company and markets on the Coromandel Coast, see Arasaratnam, Merchants, Companies and Commerce on the Coromandel Coast 1650–1740 (Delhi, 1986), pp. 213–73.


56 Whitelaw Ainslie, Materia Medica of Hindoostan, and Artisan’s and Agriculturalist’s Nomenclature (Madras, 1813) pp. 8–9.

57 Ibid, p. 46.

58 Ibid, p. 57.


60 Chakrabarti, Materials and Medicine, pp. 42–4.


64 ‘The trade granted to the South-Sea-Company: considered with relation to Jamaica. In a letter to one of the directors of the South-Sea-Company by a Gentleman who has resided several Years in Jamaica’ (London, 1714), p. 10.


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