

The Leech Craze: The Medicinal Use and Commodification of Leeches in the Nineteenth Century Ottoman Empire

Yasemin Baran

Abstract

This article is about the Ottoman Empire's gradual turn from the Arabo-Persian medical heritage to Western medicine, viewed through the lens of the medicinal leech. In pre-modern medicine, leeches were used mainly within the principles of the Arabo-Persian medical paradigm. The eighteenth century seems to have been a fluid period in which new influences from the West were welcomed and coexisted quite peacefully with old and traditional ways. Around the 1830s, medicinal leeches were presented as wonder drugs by the esteemed, "modern" medical institutions of the West. A leech craze then ensued which created large markets, especially in the Balkans and Ottoman Empire. Because the leech craze more or less coincides with the beginning of the reformation policy of the Empire, it reflects the antagonism of nineteenth century modernization for the traditional in medicine, at times through policies of banning and punishment, at times through negotiating and licensing. Leeches, however, continued to operate in both realms, as medicinal tools in modern hospitals and as traditional healing tools of the people who resented and refused to go to these modern medical institutions.

Key Words: humoral pathology, bloodletting, *tıbb-ı jadid*, medicinal leech, Broussais, Rigler

1. Pre-Modern Medicine

The sleeve that clothed his arm was filled with blood
While on the sage a stark amazement sat.
But Mejnun spoke again: Be not amazed!
The fairy idol opened now a vein,
The surgeon with his lancet cut her arm,
So here the stigma of the wound appears. For though we
Own two bodies, yet the soul is one and jointly owned
Between us now Duality is merged in single state ...¹

The medical theories and practices of an empire like the Ottoman Empire which extends and expands both diachronically and geographically are hard to trace. The vast distance that the Ottoman Empire covered in time and space meant significant variations in climate, water sources, microbe fauna, herbal flora, and, of course, cultural heritages and influences, creating diverse medical systems and subsystems. However, in all this variety, it is possible to talk about three main building blocks of Ottoman medicine: religious/prophetic medicine (*tıbb-ı nebevî*), folkloristic/popular medicine, and mechanistic medicine based on humoralism.²

Bloodletting was regarded as a viable and popular method of therapy, accepted by all three medical categories. In the Ottoman world, and in the larger Islamic medical framework, the practice operated free of the occasional resistance it met in the West, especially from the Paracelsians and the iatrochemists due to the religious restrictions and ambiguities about blood or due to the pagan origins of the therapy. Bloodletting partially owes this freedom of action to religious support emanating from the exemplar of the prophet himself, as portrayed in the hadiths of *Sahih-i Buhari*.³

In the hadiths, bloodletting is defined as one of the three main methods of healing. The hadiths state that the prophet himself underwent the therapy, implemented by an *eshab*, denoting a committed follower from the close circle of the prophet, but not necessarily somebody with medical expertise. While the therapy is recommended for various cases ranging from headache to toothache, the humoralistic undertone becomes apparent, for excess black bile is presented as the cause of leprosy, which, according to the hadiths, also fell into the therapeutic domain of the procedure. However, it is claimed that the head is the most beneficial organ to bleed, and the middle part of the prophet's head was scarified to relieve the distressing headache that caught him somewhere between Mecca and Medina.⁴ It is also claimed that the prophet set the seventeenth, nineteenth and the twenty-first days of the month as the days in which the patient would find a cure for all ills were he to let blood.⁵

Thus, acquiring religious legitimacy, bloodletting was further integrated into the Ottoman therapeutic structure by learned/academic medicine. The infrastructure of the Ottoman medical system was by and large borrowed from the Anatolian Seljuks.⁶ An institutional continuity is observed between the old Anatolian Seljuk hospitals, with their charitable foundation systems, and Ottoman medical institutions.⁷ In terms of the focal medical theory and practice, however, Ottomans followed the larger framework of Islamic medicine, which occupied a prestigious place from the ninth to fifteenth centuries. Some scholars, such as Ali Haydar Bayat,⁸ consider a basic understanding of humoral pathology indispensable if one is to make any sense of classical Ottoman medicine. It would, however be overly reductive

to relate Ottoman humoral knowledge and bloodletting practice entirely to Arabo-Farsi medical heritage as, although not well-documented, other influences like Byzantine and shamanistic traditions must also have played an important role.

In the pre-modern period, medical knowledge was generated and diffused mainly through the educational institutions called *madrasah*. The most important school in terms of medicine was the Süleymaniye Complex, built on the order of Sultan Süleyman I (r.1520–1566). The Süleymaniye Complex included the first and only medical madrasah to be integrated with its practice hospital.⁹

The second main institution were the hospitals called *dariüşşifa*, where apprentices were brought up by master doctors—an education which must have provided intense opportunity for practice alongside theoretical study.¹⁰ The famous Ottoman traveler Evliya Çelebi (1611–1682), for example, stated that he gave lessons on medicine twice a week as a permanent employee of Fatih Darrüşşifa and that he gave lessons in Manisa Darrüşşifa in Edirne hospital.¹¹

Another widespread way of becoming a medical expert was through autodidacticism, complemented by private lessons from esteemed masters of the discipline.¹² The most common method of reading oneself into being a doctor was by means of a large genre of Turkish medical books, usually written in plain and simple vernacular. The tradition of writing medical works in Turkish, which began in the fourteenth and fifteenth centuries, continued throughout Ottoman medical history.¹³ The use of the vernacular rendered medical knowledge accessible to a larger population rather than making it the exclusive commodity of the Arabic-Persian speaking intellectual elite, and it contributed to the supply of doctors by providing an easily available source of education. Furthermore, these books constituted by far the most important and revealing sources in giving meaning to the framework and fundamentals of the core medical theory operating in the pre-modern Ottoman world. The first medical books in Turkish were written in the fourteenth century by famous medical men like Hekim Bereket, Murat b. İshak, Cemaleddin Aksarayi and Hacı Paşa.¹⁴ Other medical books written in Arabic or Persian were generally commentaries (*şerh*) on famous Islamic medical works, especially on Ibn Sina's medical encyclopedia, the *Canon of Medicine* (*Al-Qanun fi al-Tibb*). All of these books were written around the humoral framework (*Ahlât-ı Erba'a*) and the cause of illness was generally understood as some imbalance of the four humors (*hiltlar*: *kan*, *safrâ*, *balgam*, and *sevda*) and the four temperaments (*demevî*, *safravî*, *balgami* and *sevdavî*). Thus, bloodletting appears in these books as a frequently prescribed therapy to restore the balance of the human machinery and temperament.

The fifteenth and sixteenth centuries did not bring about any changes in the general understanding of medicine or in the healing

information in these books, which continued to depend heavily on humors. An example of this genre would be the *Kitabu'l Müntehab fi't-Tib*,¹⁵ written by Abdülvehhab bin Yusuf ibn-i Ahmed el-Mârdânî in the first half of the fifteenth century. The word *müntehab* in the title denotes a compilation formed by the selection of important medical principles from among the pool of distinguished Arabic-Persian medical accumulation.¹⁶ It is possible to say, therefore, that the transfer of medical knowledge was not an entirely passive process of translation, but also included the more subjective process of selection.¹⁷

Through Ottoman medical works, it is sometimes possible to glimpse the Greco-Roman heritage amidst the later layers of accumulation. For example, el-Mârdânî quotes from Hippocrates (ca. 460 BCE–ca. 370 BCE), relating his statement promoting phlebotomy, in both winter and summer, as the best cure for dropsy.¹⁸ Medical books written in Turkish include the *Yadigar* by Tabib İbn-i Şerif, assumed to have been written in the fourteenth century,¹⁹ and the *Müntehab-ı Şifa* by Celalüddin Hızır (Hacı Paşa), written at the end of the fourteenth century, although this date is also controversial.²⁰ Another popular medical work, the *Kitabü'l Mühimmat*, is thought to have been written in the fifteenth century, but the author is unknown.²¹ Finally, the sixteenth century manuscript *Cerrahiyyetü'l-Haniyye* by Şerafeddin Sabuncuoğlu is distinctive in its concentration on surgical procedures and its numerous miniatures to illustrate their execution.

In general, these books remind the reader how blurred the line between folk, religious, and learned medicine was and how comfortably they overlapped with each other, as their authors obviously understood no bold and consistent demarcation lines separating these realms. These medical authors generally based their views of the cause of illness on detailed observations of the anatomy,²² pulse, and fever of the patient, and they proceeded to analytically deduce the prognosis and the required therapy in the framework of the humoral paradigm. However, now and then, they recommend a certain prayer be recited a certain number of times, a certain phase of moon be waited for, or a concoction that included weird organic chemicals, like the blood of a snake or the urine of a horse, as part of the therapy.

The books generally resemble each other in their structure, based on major selections subdivided into paragraph-long articles defining an illness, and sometimes its causes, followed by the required therapies and remedies. The therapies are by and large based on herbals complemented by phlebotomy, scarification, cupping, leeches, enemas, and purges.

In terms of bloodletting, these books do not exhibit fundamental differences: the methods of application, the illnesses the therapy is prescribed for, the preconditions that should be considered, and the bloodletting points

are more or less similar. This is not surprising, considering that the works draw from largely the same sources. They all make a clear distinction between *fasd* (venesection) and *hacamat* (*hijama*, cupping), generally recommending *hacamat*, which collects less blood in cases when the more effective *fasd* is not possible or necessary. *Fasd* is recommended for sanguine types who consume food in large quantities. For a certain kind of illness, *fasd* can be prescribed to adults, while for children and the weaker constitutions, less invasive *hacamat* is seen fit. The most appropriate veins for *fasd* are located in the arms, while the most appropriate ones for *hacamat* are located in the calves. Both ways of letting blood are recommended, especially in the beginning of the summer, but not in winter, as every kind of evacuation therapy is regarded as unfavorable in winter. It is assumed that the illnesses that were of hot temperaments were caused due to the accumulation of black bile and plethora (*ihitikan*) and that plethora often occurred in the veins of the head. Just as in the hadiths, *fasd* and *hacamat* from the veins of the head is commonly prescribed. Bloodletting therapy, in both *fasd* and *hacamat* forms, is recommended for a wide range of illnesses from leprosy to baldness and urticaria; *fasd* being the most commonly prescribed among all other methods.

It is significant that leech therapy is referred to only very few times in most of the medical literature, and mention of the leech is restricted almost exclusively to articles about methods of detachment, especially in cases of attachment to the wrong parts of the body or in cases when the annelid slides down. The *Kitabu'l-Müntehab fi't-Tıb* recommends the use of a tool called *demrenkeş* to get rid of the runaway leech,²³ while other works suggest remedies like drinking or applying mouthwashes prepared from acidic substances like vinegar, garlic and mustard.

The very infrequent mention of leeches in the early Ottoman medical literature relative to the abundant prescription of phlebotomy and scarification brings the utilization of leeches in the pre-modern Empire into question. This is also suggested by an article published in the newspaper *Constantinople* on June 15, 1852, written by the European correspondent of the *New York Times*.²⁴ The editors introduce the article by emphasizing the highly popular utilization of the leech in the West around the mid- nineteenth century: "Our readers who have had their blood drawn by these slimy monsters (and who has not?) will need no apology for the insertion of the following sketch."²⁵ The author of the article states that the demand for leeches has reached Turkey and that it is enormous both for domestic and foreign use. He then asserts that it was a custom of Turkish people to be bled once a year at least, especially in spring. However, he adds that the process was carried out by a barber in the public bath by scarifying and then drawing blood with a horn, repeating the exact definition of scarification given in the *Kamûs-ı Türkî*. Subsequently, he claims that the custom of Europeans, meaning the use of leeches instead of scarification in bloodletting, has gained more and more

popularity among the Ottomans and adds: “they (Turks) see the avidity with which leeches are sought for in commerce, they also began to use them sick or well.”²⁶ When considered alongside the infrequent mention of leeches in the medical books and hadiths in contrast to the highly recurrent use of *fasd* and *hacamat*, these statements lead one to suspect the popularity of leeches as a bloodletting instrument in pre-modern Ottoman medicine.

However, the *Cerrahiyyetü'l- Haniyye* does give a clue to the status of leech therapy among the bloodletting methods through the introduction of two new surgical instruments that are quite different from the lancet, the standard bloodletting device in the West. The manuscript introduces some original approaches to the almost standard bloodletting procedures. Sabuncuoğlu's approach seems to be highly innovative in combining the bloodletting procedure with cauterization, in which he seems to have specialized, and which is the main theme of his book. Sabuncuoğlu introduces an instrument of phlebotomy and two instruments of scarification. The instrument he introduces for scarification is called a *mhcama* and has two models; One model is for normal scarification and the other version is for bloodless scarification.²⁷ Bloodless scarification, which seems to be almost a version of cauterization, is to be applied to patients with thick skins as “it is better to ‘joggle the fats’ of these people rather than letting their blood.”²⁸

Sabuncuoğlu devotes a small section to leeches in the *Cerrahiyyetü'l- Haniyye*. Similar to the majority of the medical books of his time, rather than prescribing leeches directly for diseases, he too focuses on attachment/detachment procedures and problems, hygienic precautions, and the methods to stop bleeding once the leech has been detached.²⁹ However, Sabuncuoğlu gives an important clue about the utilization of leeches when he states that annelids are to be used on parts of the body which too small, angular, or fleshless for the scarification instrument (*mhcama*) to operate.³⁰

Although these precautions against improper attachments suggest that the use of leeches was well-understood by pre-modern Ottoman physicians, there are very few cases of direct prescription of the leech for any illness, except baldness and body aches.³¹ Either leeches were not as popular as the two most common methods of bloodletting in high medicine, i.e., phlebotomy and scarification, or they were used as an extension or subcategory of scarification in the special locations of the body where lancet or *mhcama* could not operate. The former case would imply a potential for leech therapy in most scarification prescriptions.

The presence of bloodletting therapy can also be tracked through the records of medical institutions and personnel. In the Ottoman state, the core medical professional group was comprised of physicians, surgeons (regarded as inferior to physicians), and eye doctors (*kehhal*).³² In the *Seyahatname*,

Evliya Çelebi includes a medical specialist called a *fassadan-ı cerrah-ı üstadan*, *cerrahan-ı fassadan* or *fassad-ı amil* (roughly, a phlebotomist-surgeon) among the medical personnel of some hospitals.³³

However, outside of this rather academic and “institutional” medicine, there was also a peripheral medical service group comprised of circumcisers, blood letters, hernia specialists (*fitkçi*), bone-setters (*sinikçi*), barbers, herbalists (*attar*) and pharmacists. These people worked outside the range of hospitals and madrasahs and were often auto-didacts or refugees from other countries. They might have offices or work as peddlers in bazaars.³⁴ Some royal decrees (*ferman*) and sections of Hüseyin Vâiz-i Kâşifî's (d. 1505) *Fütüvvetnâme-i Sultani* describe how these “medical” peddlers would call out to their potential customers in bazaars.³⁵ Based on these sources, Ayten Altıntaş and Hanzade Doğan suggest how the peddlers might have operated in the bazaars: “this group formed a shop by lying rugs on the ground and calling out to public under the little tents made of *kilims*.”³⁶ As well as this rather sedentary form of peddling, a miniature in the *Surname-i Vehbi* depicts a mobile barber serving his customer on his rather elegant little shop on wheels, probably transported by mules, donkeys, or horses.³⁷ In his study on the medicinal use of leeches, Osman Şevki Uludağ mentions that there were street peddlers who sold leeches, further diffusing the circulation of the *materia medica* into the backstreets and little neighborhoods of the city: “Today, one can no longer hear the noise of the peddlers calling out ‘leeches!’”³⁸ However, in order to avoid anachronism, it is important to note that Osman Şevki wrote this article in 1930, relating memories from his lifetime. It is equally possible that leech peddling had been an ancient custom or that such peddling might have arisen to meet the increasing demand caused by the leech craze of the nineteenth century.

2. *Tıbb-ı Jadid* (New Medicine)

Another influence of the Paracelsian medicine is the integration of philosophy, astrology and secret sciences mixed with theology into medical literature which could have been identified as secular before *Tıbb-ı Jadid*.³⁹

The echoes of the first serious blow to humoral pathology reached the Ottoman medical world in the seventeenth and eighteenth centuries, creating a current of modernity in medicine termed *Tıbb-ı Jadid*.

The seventeenth and eighteenth centuries are generally regarded as periods of stagnation and regression in science and medicine through association with the larger political and military frame of the Empire.⁴⁰ However, the *Tıbb-ı Jadid* period might be evaluated as a period of fresh curiosity, a spirit of exploration and opening up, and an effort to adapt to

changes. It was a period of analyzing Western medical knowledge systematically while continuing to draw on the classical tradition, making use of both currents in practice. The new and old medical theories existed side by side without much dispute, and complemented each other in practice. Furthermore, this period can also be understood as providing a foundation for the nineteenth century, when medical understanding of the Empire decisively turned its direction and attention westward.⁴¹

The foremost introducers of the famous Renaissance physician Paracelsus were Salih bin Nasrullah (d. 1699), Ömer Sinan al İzniki (eighteenth century), Ömer Shifai (d. 1742) and Gevrekzade Hasan Efendi (1727–1801). According to Nil Sarı, the major impact of Paracelsian influence is the change in the philosophy of medicine based largely on humoral pathology theory.⁴² Paracelsus did not deny the role of the four elements in illness and health, but diminished their importance by introducing three principles in organs: combustibility, volatility and incombustibility, which he identified as sulphur, mercury, and salt.⁴³ The Paracelsians and the later iatro-chemists were generally opposed to bloodletting; they believed that the practice shortened the life of the patient and was against Holy Scripture, which defined blood as the locus of soul and the source of life energy. However, they took leech therapy out of the package of bloodletting methods. They regarded medical leeching as indispensable as it was a natural remedy and did not cause “asthenia,” or lassitude, a frequent complication of venesection and cupping.⁴⁴ Due to the limited sources on the Paracelsian approach, its impact on the utilization of leeches in high medicine requires further inquiry.

This transformation in medical philosophy and the increasing influx of European doctors into the “well protected domains” were of course not completely unproblematic at the level of the daily/social life and the state control of it. In the first years of Sultan Ahmed II’s reign (1691–1695), the new therapies, the increasing practice of European doctors, as well as their incompetence, created medical problems reflected in royal prohibitions against certain doctors. The uneasiness is further reflected in rumors and cases of prostitution in Muslim and non-Muslim medical shops around Galata, Üsküdar and Eyüp, and which are recorded in the proceedings of the Üsküdar court from the year 1728.⁴⁵

The control mechanism of the state over the medical enterprise was mainly based on the *gedik* system that regulated doctors, surgeons, and pharmacists by setting a quota on the number of people that could work in these sectors. To acquire office, new doctors had to wait for a *gedik* (actually meaning “gap”) to become available through the death or cessation of those in practice. The permission and license to open a medical shop was secured from the *hekimbaşı* (head-physician), comparable to the minister of health

today though with additional responsibility as head of the Office of General Practitioners.⁴⁶ The *gedik* system was abolished in 1860.⁴⁷ Alongside the licenses, the monitoring mechanism of the central authority was regulated by a kind of municipal police called *muhtesib*. The *muhtesib* played a key role in the control of licenses and supervision of medicine in daily practice, acting as intermediaries between the state, the medical authorities, doctors, the peripheral medical sector, and patients.⁴⁸

The *madrasah* system together with the *darüştifas* were largely insufficient in supplying the medical needs of a large population, and even more so if the military medical need is subtracted from the overall supply of physicians and surgeons.⁴⁹ Therefore, in spite of these controls, it is not hard to imagine the busy unlicensed sector of foreign, Muslim, and non-Muslim doctors, surgeons and intermediaries outside the *gedik* system, complemented by a peripheral medical sector operating busily to meet the demand of a large population.

Another location of peripheral health-service was the hamams. As the seventeenth century French traveller Jean de Thévenot observed when he visited the Ottoman Empire in the 1670s, the Turks went to hamams to stay healthy as well as get clean.⁵⁰ Especially in places where medical institutions were sparse or nonexistent, hamams emerged as venues for minor therapies and even self-treatments. The medical menu of the hamam included scarification for the common cold and leeching for pain in the legs.⁵¹ This function of the hamam seems to have continued well into the twentieth century, as Uludağ states:

Until about twenty years ago, large amounts of blood were let in our hamams . . . blood clots mixed with lather used to flow over the white marble of the hamams like filthy rivers . . . in every bath of Bursa it was possible to find a blood-letter. They used to let blood with horns and attached leeches.

Thevenot also documented cases he saw of people bleeding themselves without resorting to any institution or medical intermediary.

3. The Eighteenth Century

If a person adds vinegar to his food, an angel appears at his side, remaining there and praying for that person till the end of the meal.⁵²

The eighteenth-century medical book by Dağistanlı Mehmed Efendi is kind of a crossbreed, reflecting the new chemical principles and Western

medical liaisons while its main framework remains based on humoral pathology. Bloodletting as a remedy is much less prescribed, and generally *fasd* softens into *hacamat*, while new medical fads like sulphur and mercury appear as the most effective remedies, reflecting the new Paracelsian theories. The encounter with Western medicine can also be traced in the appearance of a new cure, which Mehmed Efendi calls the salt of “Viş.” He informs his readers that this salt was being imported from the Vichy thermal spring in France in sealed jars and could be obtained from pharmacists.⁵³

The late seventeenth and eighteenth centuries also created a literature of short booklets on bloodletting (*Hacamat Risaleleri*)⁵⁴ and scarification. These booklets contain condensed, practical knowledge, written in rather a dogmatic, assertive, and pedantic format, generally reminiscent of the Talmudic writings on bloodletting. The medical data provided is legitimized by hadiths, and those who betray hadiths are in more than one case threatened with being struck down with *baras* (albinism) as a punishment.⁵⁵

The booklets all follow a similar pattern, almost repetitively so. They start with the hadiths on bloodletting and then summarize the therapy in three or four short chapters. The first part concentrates on the necessity and benefits of the therapy; the second on the diet that should be adopted before and after therapy; the third on the religiously appropriate (*caiz*) days for implementation; and the fourth on the points for scarification. Interestingly, the popular custom of bloodletting in hamams is prohibited in these books as being potentially lethal.

In the second part, it is stated that bloodletting should not be performed on Saturdays, neither Wednesdays nor Fridays, whereas Mondays, Thursdays and Sundays are appropriate for the therapy while Tuesdays remain controversial. The Talmud is another source that dictates appropriate days for bloodletting, and these are almost the exact opposites of the ones that are dictated in the booklets; while Talmudic bloodletting is proper on Sundays, Wednesdays and Fridays, it is prohibited on Mondays or Thursdays.⁵⁶ The booklets also state that the therapy should be implemented after the new moon. They recite the hadith that a person will find a cure for all illnesses if he is scarified on the seventeenth, nineteenth and twenty-first days of the month.

It is noteworthy that, in the eighteenth century when the influence of the Western medicine was increasingly felt, such a religious understanding of medicine found voice and expression in these bloodletting booklets. We can say that bloodletting and leeching were the cutting edge of early pre-modern medicine. They enjoyed mainstream scientific legitimation as part of the humoral pathology theory transferred from the prestigious Arabo-Persian tradition. However, after Paracelsus and the rise of a chemical understanding

and mechanistic approaches, humoral pathology rapidly became consigned to old/classical medicine. Bloodletting was much less prescribed and was not necessarily associated with humoralism. It was the new chemicals like sulphur, mercury or salts that were generally accepted as cutting-edge modern treatments. The existence of this “conservative” medical literature advertising bloodletting in a period when the Empire was gradually turning its focus to the West and as the “new medicine” increasingly infused itself into Ottoman theory and practice, might also be read as a statement of reaction in the face of change.

Nevertheless, such conservative medical literature also existed alongside the translations from key Western medical authors. For instance, *Domestic Diagnosis and Treatment of Illness* by the famous Dutch physician Herman Boerhaave (1688–1738) was translated by Abdülaziz Efendi on the commission of Sultan Mustafa III (r. 1757–1774); another example of the variety of medical understandings and literature that cohabited in the medical flora of the eighteenth century.

4. The Nineteenth Century

So it was in these three days at Breslau this Koch put a sword of Excalibur into the hands of men, with which to begin the fight against their enemies the microbes, they fight against lurking death; so it was that he began to change the whole business of doctors from a foolish hocus-pocus with pills and leeches into an intelligent fight where science instead of superstition was the weapon.⁵⁷

Credit for the making of nineteenth century Ottoman medical modernization is generally clustered around a few names: It is often argued that the “old medicine” finally came to an end with the *Mir’âtü'l-ebdân fi teşrihi a’zâi'l-insan* of Şanizade Mehmet Atallah Efendi (1771–1826). In fact, the first noteworthy book on anatomy, the *Risale-i Teşhir-i Ebdân*, had been written back in the seventeenth century by Şirvanlı Mehmed İtâki Efendi. The illustrated book was largely based on Avicenna’s anatomy under the influence of Vesalius and some other Western sources.⁵⁸

Şanizade was a polymath who had deep interests in literature, history, mathematics, and other areas of science alongside medicine. He is the author of the *Hamse-i Şanizade*, a compilation of five books: the *Mir’âtü'l-ebdân fi teşrihi a’zâi'l-insan*, the *Usulü't tabia*, the *Mi’yâru'l-ettbâ*, the *Kanânu'l-cerrâhîn* and the *Mizânü'l-edviye*. Şanizade was a graduate of the Süleymaniye Madrasah and is said to have had a good understanding of Italian, French, Farsi, Arabic, and Greek.⁵⁹ He was a member of the academic/scientific circle known as the *Ortaköy Yaranı*, and this cost him an

exile to Tyre as his community was associated with the Bektaşî mystical order. Şanizade is regarded as having bridged the old and new medicines. In the *Mi'yâru'l-ettibâ*, he recommends bloodletting, especially in specific cases like the initial phase of pneumonia and infections. He prescribes bloodletting and the use of leeches for children in cases of teething accompanied by swelling and fever.⁶⁰

Sometimes all of the above advised medication will not work, fever and dehydration will increase, eyes will get red, spasms and eclampsia will ensue. Then it is necessary to let blood or more practically to attach leeches behind both ears. Sanguine children with full veins or those who display very aggressive symptoms accompanied by perpetual fever will require many bloodlettings or sometimes attachment of the leech.⁶¹

While Şanizade introduced modern anatomy, modern physiology was introduced by the translations of Hekimbaşı Mustafa Behçet Efendi (1774–1816) who, together with his brother Abdülhak Molla (1786–1854), are the other famous figures associated with the beginnings of the nineteenth-century medical transformation. Hekimbaşı Behçet Efendi's efforts to reform medicine were fundamental. He did not limit himself to the theory and practice of medicine but acted at an institutional level with the advantage of his status as the head physician of the Empire. He was the founder of the *Şehzadebaşı Tıphane-i Amire* (Şehzadebaşı Medical School, f. 1827) and the quarantine organization. Behçet Efendi and Molla's medical interests were, however, not limited to the modern West. Behçet Efendi was also the author of the book *Hezar Esrar* (*One Thousand Mysteries*), completed by his brother and nephew Hayrullah Efendi after the author's death.⁶² The *Hezar Esrar* was published in 1869 and seems to have reached a large public.⁶³ It is a compilation of various subjects from magic, alchemy, astrology, thermal therapies, hygiene, cauterization, bloodletting, and other folk medicine practices.⁶⁴ Adnan Adıvar would later describe the book in his study of the science of the "Ottoman Turks" as a collection of absurd old medicine, and Behçet Efendi as one of the people engaged in positivist science while not able to free themselves from the shackles of the old and the superstitious.⁶⁵ Though Adıvar's book was written in the early twentieth century, its expression is very much consistent with the spirit of the nineteenth century, when it would have been below the dignity of positivist science to accommodate the old, backward, and superstitious ways.

The madrasah system and darrüşşifas were increasingly insufficient, especially in providing doctors and army doctors. Before the nineteenth

century, the core medical institutions had not been in conflict with but complemented by the peripheral medical sector due to the insufficiency of the system, both in terms of medical efficiency and manpower. The major change in the nineteenth century was in the institutional organization of medicine and medical teaching brought about by the establishment of the new military medical schools. The modernization/westernization of medicine was highly interconnected to the modernization/westernization of the Empire in general. As the Empire began the effort by and large through military reforms, the medical upkeep of the main source of the Empire became central, and the new *Mekteb-i Tıbbiye-i Şahane* (Military Medical School, f. 1827) became one of the foremost agents of westernization led by “European male doctors equipped with the powerful tool of modern science.”⁶⁶ The nineteenth century heralded the end of coexistence and intermingling of the modern and traditional modes of medicine, becoming the century of their dichotomy. Furthermore, the state and the new medical institutions adopted a monopolistic and combative mission to control all medical enterprise within the Empire. Europeans were also very much engaged in this war against the “charlatan doctors,” and *La Gazette Medicale de l’Orient* turned into a medium of propaganda against the Empire’s many healers.⁶⁷

However, one should keep in mind that it was practically impossible for the new medical institutions to exclude the old ways and peripheral system completely. The establishment of the new schools did not bring about relief immediately, and doctors were still in short supply. Between 1874 and 1902, there were only about four hundred graduates of the *Mekteb-i Tıbbiye-i Mülkiye* (Civil School of Medicine, f.1867), and the graduates of the Military Medical School were generally directly appointed to the army.⁶⁸

Under these circumstances, the state tried to control the peripheral medical sector and integrate it into the modern system. For example, instead of banning barbers from the art of healing altogether, around the 1840s, a license given after an examination by the Surgeons’ Commission of the Military Medical School became obligatory. Those who were successful were given a license to let blood and pull teeth.⁶⁹

With the advent of “modern medicine,” the status and social standing of doctors also began to change. A new alignment to the new institutions and a new form of hierarchy began to take shape, though not, of course, without conflict, as revealed by a document about bloodletting from the archives belonging to the 1890s.⁷⁰ The document was written to the chancellor of the palace (*Mâbeyn-i Hümayun Başkitâbet-i Celilesi*) and criticized the prohibition of bloodletting through the influence of physicians who wanted to diminish the importance of surgeons. As the ban on bloodletting had caused otherwise preventable deaths, the document demands that doctors should be let free to let blood, a practice still used in Europe, in cases where they saw fit, and that this permission should be announced in the

newspapers and declared to the Council of Physicians. While trying to reserve the therapy for the use of doctors, the document tries to secure the exclusion of other groups, demanding that barbers and blood letters should be banned from bloodletting. The timing and content of this document is consistent with the *Kamus-ı Türki*, which also declares the practice to be abandoned around the same year.⁷¹

As all of this philosophical and institutional change was taking place and as bloodletting continued its journey from being the cure for all ills to being a controversial cure for a few specific illnesses and finally to abolishment, leeches crawled out of the bloodletting package and were adopted by modern medicine as the new wonder drug and the *dernier cri* of Parisian medicine. In fact, the leech was crowned a prince among cures by the French physician François-Joseph-Victor Broussais (1772–1838). The popularity of the leech would continue from the 1830s well into the 1870s, rapidly spreading to the rest of the continent and America.

Indeed, Broussais' medical understanding had even reached and had an impact on medicine in the Ottoman Empire. Evidence for this is found in the memoirs of the Austrian physician Lorenz Rigler (1815–1862), invited to the Empire as part of the medical modernization process. Rigler was sent to Istanbul at the request of Ottoman Empire with a mission to reorganize the large hospitals. In 1844, Rigler was appointed as General Inspector of all the Empire's hospitals and the Chief of the Health Office in the Ministry of Defense. After the end of his duties, following his request to prolong his stay in İstanbul, he was appointed director of hospitals and became a lecturer in the Galatasaray School of Medicine. He also performed an eye operation on Sultan Abdülmecid I (r. 1839–1861). Rigler founded six new hospitals between 1842 and 1849, and also founded a hospital for civilian patients.⁷² In his memoirs, he estimated there were six to seven thousand inexpert doctors functioning in a city of 800,000, most of whom were political fugitives from Italy, Poland, and eastern Mediterranean, and mostly former pharmacists and translators. These people, according to Rigler, adopted the theories of Broussais: "They believed bloodletting to be a remedy against all diseases and therefore arranged a cure of bloodletting every year in spring."⁷³ However, Rigler did not think that the combined medical knowledge of the Turkish surgeons added up even to the level of a practicing doctor. According to Rigler, the therapeutic principles of the Broussais School were not just implemented on civilians but were also used in military hospitals by Armenian and Greek doctors that the Ottoman state sent to Paris for medical education. These doctors, according to Rigler, were working completely within the framework of Broussais.⁷⁴ Significantly, a French surgeon called Sat Desgalliers began giving lessons in Cerrahane in 1832 and could have also transmitted Broussais' theories for at least one year until his sudden

death. Subsequently, the Vienna École entered medical studies in the Empire with the appointment of Karl Ambrose Bernard (1808–1844) and Jacob Neuner (1806–1842), and Broussais' ideas slowly died out.⁷⁵

After Broussais, leeches evidently became much more sought after. As Michalsen et al. argue, with the increase in the price of leeches and based on the assumption that they were necessary to treat battlefield injuries, governments now began to subsidize leech farming.⁷⁶ In the Ottoman Empire, the provision of leeches to hospitals was a persistent concern that can be traced through archive documents. Problems with leech farmers contracted to provide leeches for hospitals were quite common. Also, hospitals evidently included leech therapists in their staff. In the 1840s, the wage of a leech therapist called Haçador who worked in the Toptaşı Military Hospital was two hundred piastres.⁷⁷ A few documents show progression between leech therapists and surgical assistants as some leech “doctors” were promoted to surgeon's assistants. One Bekir, for example, a leech therapist at the Gülhane Hospital, was appointed a surgeon's assistant in the Tersane-i Amire in 1858.⁷⁸ This does not seem to be an extraordinary practice, as Ekrem Koçu also relates that nurses, especially in military hospitals, were trained as surgeons and the successful ones were given a surgeon's license by the chief physician.⁷⁹

Apart from direct delivery from the leech farmers, pharmacies also acted as intermediaries of distribution. With the increase in the number of military hospitals, a military pharmaceutical depot was established in 1836. The hospitals provided for their needs through lists that they sent to these pharmaceutical depots, and one such extant booklet, from Maltepe Military Hospital, includes leeches and some earthenware jars, probably for their conservation.⁸⁰

Dr. Süheyl Ünver states that the pharmaceutical trade occupied a very important place in the orient. There were two groups occupied by this trade: Druggists, who were wholesale dealers, managed both the import and export and sold the supply to pharmacies. These people often had offices in old inns and kept their supplies in depots. The other group was herb and spice sellers (*aktar*). Some of these people had shops in the Spice Bazaar, and some of them had their shops in residential areas.⁸¹ They could also recommend certain medications and advise a certain course of therapy, but this authority was limited by their *kethüda* (steward) from time to time. The customs tax taken from imported drugs was 3 percent. Ünver adds that the export of leeches, produced by a state monopoly, was especially important.⁸²

It was not only the military or civilian hospitals that made use of leeches; archival documents also show that palace residents and top government employees also consumed the little annelids. One document from 1839 which was sent directly from the high office of the *Sadrızam* inquires whether the ailing health of the *Başkatib* (chief clerk) will allow him to attend

an important meeting in the Sublime Porte. The Başkatib requests the meeting be postponed, confirming that he has health issues, involving unspecified medications and the implementation of his seasonal leech therapy. Leech therapy as part of a course of treatment must thus have been regarded as a legitimate health excuse and serious enough to postpone an important state meeting as the Başkatib was granted leave.⁸³

In a document belonging to the Royal Treasury office dating from 1860,⁸⁴ we sense the uneasiness in the palace—also communicated to the minister of medicine—when a leech farmer did not bring the due leeches to the palace on time. It is understood he was under contract to the Ottoman court pharmacy for approximately two and a half kilos of leeches on a monthly basis. Due to his violation of the contract, the pharmacy ran low on its supply of leeches “in a season when leeches were desperately needed.”

Another treasury document is a bill for the cost of all the medicine the chief pharmacist of the Palace, Panayot, handed out with and without prescription. The bill was expected to be paid from the treasury account. It is stated in this document that one and a half *okes* of leeches cost 600 piastres.⁸⁵

For the year 1850,⁸⁶ another document gives a long list of harem residents against the number of leeches they were provided. As the first two columns were written in the Latin alphabet and the last two columns in Arabic alphabet, the distributor of leeches might have been a non-Muslim or even a European, as he misspells some names, such as “Hoursid” for Hurşid or “cadim” for kadim. Because the document is in fact a cost account of the Ottoman Court Pharmacy (*Mabeyn Eczanesi*), we can assume that the writer/distributor was an employee of the pharmacy. The list registers the leeches handed out to individuals and sometimes their specific locations. The list includes names like “Muzaffer Bey,” “the horse attendant Hasan,” “the eunuch İbrahim,” “the master barber,” “the laundry master,” “the harem of Selim Efendi,” or locations like the fourth tent quarters, chief service quarters, quarters of the chief woman, and quarters of the secondary woman. The list is divided into leeches provided with and without prescription. From 13 April to the end of the month, the Ottoman court pharmacy distributed 1,816 leeches, with an average of twenty leeches per person or location. Two larger quantities, a pack of sixty and another of seventy leeches, were delivered to the “hospital.” This picture immediately creates an impression of habitual self-application of leeches.

The belief that the leech is itself a doctor that will attach itself to the ailing part or to where there is “dirty blood” still persists today. Contemporary self-application of leeches is a strong possibility, but it is also possible that people kept the leech jars in case the doctor, the blood letter, the barber, or the elderly leech women required it as part of the therapy. For any kind of medical attendant, it would have been unpractical to carry leeches

around, and it may have been customary for the patient to supply a reserve of leeches at home. In the above document, leeches also seem to have been handed out on prescription, suggesting care by a medical attendant.

Outside the military and the upper class, the medicinal use of leeches by the common people is hard to trace. We know from the memoirs of Lorenz Rigler, for example, that though the first civilian hospital was open for everyone, no women walked into it in the beginning.⁸⁷ Probably not all social groups began to use the western-style modern hospitals immediately. There must have been people who were opposed, reluctant, or even embarrassed to go to the new hospitals. Therefore, leeches must have operated at two levels; in the modern hospitals as part of modern medicine and in homes or hamams along with the rest of the traditional medicine as part of the reaction to the new hospitals.

Dr. Rigler states that, after finding doctors and medical understanding in İstanbul operating *a la* Bourssais, he and his colleagues successfully turned the general medical understanding to that of the Vienna School in ten years. Rigler was obviously not too appreciative of the leech or the French understanding of medicine. He remembers an incident involving two Turkish doctors in which he seems to relate leech therapy to the backwardness of the doctors:

The Turkish doctors were trying to heal a tumor located in the lower abdomen of a patient with chronic dysentery. As a course of therapy they had tried leeches, cataplast, and iodine lotions, all in vain . . . in vain because what these doctors diagnosed as a tumor was in fact nothing other than the spinal bones that had become apparent due to the extreme weight loss in the patients from dysentery.⁸⁸

5. Conclusion

Through the nineteenth century, the meaning of the “modern” in medicine was fundamentally changing, and the medical vogue for the leech was coming to an end. After the late nineteenth century German physician Heinrich Hermann Robert’s germ theory and the isolation of anthrax, which proved that one single microbe caused one single disease, microbe mania replaced leech mania. All scientists became engaged in a race to isolate the microbes of the fundamental diseases of the time. Pasteurization, sanitation, disinfection and hygiene, and bacteriophobia became the medical trends of the day, while the leech, a potential breeder of bacteria that could not be disinfected, lost ground suddenly and swiftly.

As this article has attempted to show, as opposed to the eighteenth century and earlier, the nineteenth century in the Ottoman Empire was a

period when modern medicine set out to conquer or even to terminate the traditional wherever it could. However, due to the lack of medical institutions and health personnel, modern medicine had to make use of the traditional after taming it through mechanisms like giving courses and examinations or providing licenses. It is also possible to conclude that, by the nineteenth century, the meaning of modern was itself more or less determined by Western medical theories. The medicinal leech is a perfect example that reflects this impact by demonstrating how a shift in Western medical theories initially opened up and then gradually closed an international and domestic leech market in the Ottoman Empire that operated throughout the second half of the nineteenth century.

Notes

- ¹ Fuzûlî et al., Leyla and Mejnun, (London: Allen and Unwin, 1970).
- ² Miri Shefer-Mossensohn, *Ottoman Medicine: Healing and Medical Institutions 1500-1700* (New York: Suny Press, 2009), 21–23.
- ³ Konyalı Mehmed Vehbi, *Sahih-i Buhari ve Tercümesi* (İstanbul: Hikmet Neşriyat, 1993). Sahih al-Bukhari, collected by the Persian Muslim scholar Muhammad al-Bukhari (810–870), is accepted as one of the most trusted collections of hadiths and the most esteemed and pure book after the Quran. It is the first of the six hadith books that bring around seven thousand hadiths together. *İslami Bilgiler Ansiklopedisi* (Hikmet İstanbul: Neşriyat, 1993), 106–107 and 80–81.
- ⁴ Konyalı Mehmed Vehbi, *Sahih-i Buhari ve Tercümesi*, 308.
- ⁵ *Ibid.*, 307.
- ⁶ Sabahattin Aydın, “Modern Tıp Penceresinden Osmanlı Tıp Anlayışına Bakış,” in *Osmanlılarda Sağlık*, eds. Coşkun Yılmaz, Necdet Yılmaz (İstanbul: Biofarma, 2006), 28.
- ⁷ Süheyl Ünver, *Osmanlı Türklerinde Hekimlik ve Eczacılık Tarihi Hakkında* (İstanbul: Hüsnü Tabiat Basımevi, 1952), 3.
- ⁸ Ali Haydar Bayat, *Tıp Tarihi* (İzmir: Sade Matbaa, 2003), 98–101
- ⁹ Ali Haydar Bayat, “Osmanlı Devletinde Tıp Eğitimi” in *Osmanlılarda Sağlık*, eds. Coşkun Yılmaz, Necdet Yılmaz (İstanbul: Biofarma, 2006), 241.
- ¹⁰ Esin Kahya and Ayşegül D. Erdemir, *Bilimin Işığında Osmanlıdan Cumhuriyete Tıp ve Sağlık Kurumları*, Türkiye (Ankara: Diyanet Vakfı Yayınları, 2000), 86.
- ¹¹ Necdet Yılmaz and Coşkun Yılmaz, “Evliya Çelebi’nin Seyahatnamesine Göre Osmanlılarda Sağlık Hayatı,” in *Osmanlılarda Sağlık*, eds. Coşkun Yılmaz, Necdet Yılmaz (İstanbul: Biofarma, 2006), 343–359.
- ¹² Mossensohn, *Ottoman Medicine*, 142; Bayat, “Osmanlı Devletinde Tıp Eğitimi,” 237–244.

¹³ Nil Sarı and Zülfikar Bedizel, “The Paracelsian Influence on Ottoman Medicine in the Seventeenth and Eighteenth Centuries” in *Transfer of Modern Science & Technology to the Muslim World*, ed. Ekmeleddin İhsanoğlu (İstanbul: Research Centre for Islamic, History, Art and Culture, 1992): 157–179.

¹⁴ Kahya and Erdemir, *Bilimin Işığında*, 98-100.

¹⁵ Abdülvehhab bin Yusuf ibn-i Ahmed el-Mârdânî, *Kitabu'l-Müntehab fi't-Tib* (823/1420), ed. Ali Haydar Bayat (İstanbul: Merkezefendi Geleneksel Tıp Derneği, 2005).

¹⁶ The dictionary meaning of *müntehab* is “selection of the eminent Ahmed el-Mârdânî,” and explains the structure of his book. See, Ahmed el-Mârdânî, *Kitabu'l-Müntehab fi't-Tib*, 13.

¹⁷ It would thus be interesting to know which parts of the Arabo-Persian heritage were taken, which were left out, and if/how they were adapted to fit into Ottoman medical requirements.

¹⁸ *Ibid.*, 105b, 424.

¹⁹ Tabib İbn-i Şerif, *Yadigar*, eds. Ayten Altıntaş et al., *15. Yüzyıl Türkçe Tıp Kitabı* (İstanbul: Yerküre, 2004), 27.

²⁰ Celalüddin-i Hızır, *Müntehab-ı Şifa*, ed. Zafer Önler (Ankara: TDK Yayınları, 1990).

²¹ Anon., *Kitabü'l Mühimmat*, ed. Sadettin Özçelik (Ankara: AKM Yayınları, 2001), 8.

²² Of course, at this point, we are not talking about accurate anatomical knowledge. The Islamic anatomical data generally followed the Roman physician and philosopher Aelius Galenus (better known as Galen of Pergamon), whose anatomical knowledge was mostly acquired through dissections of pigs and therefore made many errors. It would be the sixteenth century textbook *De Humani Corporis Fabrica Ilbri Septem* written by Andreas Vesalius (1514–1564) which would introduce accurate anatomy for the first time. In the Ottoman Empire, modern anatomy was introduced by Şânizade Mehmet Ataullah Efendi (1771–1826) in the nineteenth century.

²³ Ahmed el-Mardani, *Kitabu'l-Müntehab*, d. 91b, 6, 116.

²⁴ James Dunwoody Brownson De Bow, *De Bow's Review of the Southern and Western States*, Vol.13, Vol. 313 of *American Periodical Series 1800-1850* (Princeton University, 1852), 300–301.

²⁵ De Bow, “The Trade in Leeches,” in *De Bow's Review of the Southern and Western States*.

²⁶ *Ibid.*

²⁷ Şerafeddin Sabuncuoğlu, *Cerrahiyetü'l- Hanniye*, Yazma Eserler Kütüphanesi, Ali Emiri-i Tıp, 95. Sabuncuoğlu calls the phlebotomy tool *ettiba fasd* and explains its use: “You put the mouth of the instrument on the vein and then hit it with your hand or another object till it bleeds . . . the tip of

the instrument should not be too pointy, it should penetrate the vein and yet not get into the bone.” Likewise, he warns the user to be careful not to penetrate the nerves lying under the veins. (Extract translated by the author. Unless otherwise indicated, all translations are my own.)

²⁸ Sabuncuoğlu, *Cerrahiyyetü'l- Hanniye*, 96, fasıl 2: “Stretch your index finger and middle finger and that is how wide the mouth of the instrument should be. And its length should be half a hand span. Next to it, in the middle, there should be a little hole, a measure that a needle would fit. This *mıhcama* should be made of tile or copper. So as not to hurt anybody during scarification, its side should be thickish and glazed. And in the middle . . . the connecting part (*kibürcek*) should be made of copper or iron and there should be a little hole in the middle of this part to insert a candle . . . The flaming part of the candle should be towards the bottom of the *mıhcama*. If the head of the candle looks downwards, the flesh might burn.”

²⁹ Sabuncuoğlu, *Cerrahiyyetü'l- Hanniye*, 97, fasıl 2.

³⁰ *Ibid.*, bab (158a).

³¹ Tabib İbn-i Şerif, *Yadigar*, 242b, 328.

³² Ayten Altıntaş and Hanzade Doğan, “Osmanlı’da Serbest Hekimlik Yapan Esnef Tabip” in *Osmanlılarda Sağlık*, 265.

³³ Necdet Yılmaz and Coşkun Yılmaz, “Evliya Çelebi’nin Seyahatnamesi’ne Göre Osmanlılarda Sağlık Hayatı ” in *Osmanlılarda Sağlık*, 343–359.

³⁴ Altıntaş and Doğan, “Osmanlı’da Serbest Hekimlik Yapan Esnef Tabip,” 267.

³⁵ *Ibid.*, 267.

³⁶ *Ibid.*, 267.

³⁷ *Surname-i Vehbi*, TSMK, III. Ahmed, nr. 3593, vr. 75b.

³⁸ Osman Şevki Uludağ, *Tıp Tarihimizde Sülük Hekimliği*, Dirim, Ağustos-Eylül, 8–9, 1–3.

³⁹ Sarı and Bedizel, “Paracelsian Influence on Ottoman Medicine.”

⁴⁰ Aydın, “Modern Tıp Penceresinden Osmanlı Tıp Anlayışına Bakış,” 30.

⁴¹ Salim Aydın, “Onsekizinci Yüzyıl Osmanlı Tıbbında Değişim: Doğu Tıbbından Batı Tıbbına Geçiş Üzerine bir Deneme,” in *Proceedings of the 38th International Congress on the History of Medicine*, 1–6 September 2002, Volume II, eds. Nil Sarı et al. (Ankara: Türk Tarih Kurumu Yayınları, 2005), 689.

⁴² Sarı and Bedizel, “Paracelsian Influence on Ottoman Medicine”.

⁴³ *Ibid.*

⁴⁴ Andres Michalsen et al., *Medical Leech Therapy* (New York: Thieme, 2007), 7.

⁴⁵ Aydın, “Modern Tıp Penceresinden Osmanlı Tıp Anlayışına Bakış,” 36.

⁴⁶ *Ibid.*, 32.

- ⁴⁷ Ibid., 35.
- ⁴⁸ Ibid., 30-35.
- ⁴⁹ Uludağ, *Tıp Tarihimizde Sülük Hekimliği*, 1.
- ⁵⁰ Shefer-Mossensohn, *Ottoman Medicine*, 277.
- ⁵¹ Mebrure Değer, "Treatment in the Turkish Bath," (Drugs, Medicines, Methods) in *Uluslararası Türk Tıp Tarihi Kongresi, 10. Ulusal Türk Tıp Tarihi Kongresi Bildiri Kitabı / 1st International Congress on the Turkish History of Medicine - 10th National Congress on the Turkish History of Medicine Proceeding Book, 20-24 May 2008*, ed. Ayşegül Demirhan Erdemir et al. (Ankara: Türk Tıp Tarihi Kurumu, 2009): 1975–1981.
- ⁵² "bir kimesne sirke ekl eylese ol kimsenin başı ucunda bir melek ta fariğ-i ekl oluncaya değın ol kimesne için Allah_ı bi-zevalden mağrifet taleb eyler." Muhammed bin Mahmud, *Fasd ve Hacamat Risalesi*, Süleymaniye, Bağdatlı Vehbi Efendi, 001441, 1171.
- ⁵³ Dağıstanlı Mehmed Efendi, *Dağıstanlı Mehmed Efendi'nin Geleneksel Tıp Yazması*, ed. Uğuroğul Barlas (İstanbul: Hilmi Barlas Eğitim Vakfı, 2005), 139.
- ⁵⁴ Mehmed Halim bin Abdullah, *Risale-i Hacamat*, Süleymaniye, H. Hayri Abdullah Efendi, 000053. Osman bin Musa, *Risale-i Hacamat*, Süleymaniye, Tırnovalı, 001386, 1277. Muhammed bin Mahmud, *Fasd ve Hacamat Risalesi*, Süleymaniye, Bağdatlı Vehbi Efendi, 001441, 1171. Osman bin Musa Eskişehirli, *Risale fi'l- Hacamat*, Süleymaniye, Hacı Mahmud Efendi, 005585.
- ⁵⁵ Osman bin Musa Eskişehirli, *Tıbb-ı Nafi*, Süleymaniye Kütüphanesi, Hacı Mahmud Efendi Kısmı, Nr. 5585.
- ⁵⁶ Fred Rosner, *Medicine in the Bible and the Talmud: Selections from Classical Jewish Sources* (New York: Ktav Publication House, 1977), 168.
- ⁵⁷ Paul de Kruif, *Microbe Hunters* (London: Harcourt Brace & Company, 1926), 118.
- ⁵⁸ Aykut Kazancıgil and Bedizel Zülfikar, *XIX. Yüzyılda Anatomi* (İstanbul: Özel Yayınlar, 1991), 1.
- ⁵⁹ Bedizer Zülfikar, "Şanizade," (masters thesis, Cerrahpaşa Tıp Fakültesi, 1986), 18.
- ⁶⁰ F. Kelestimur, A. Kamil Cihan, A. Sevgi, T. Sakallı, *Miyar'ul Ettıba in Şanizade Ataullah Efendi*, Erciyes Üniversitesi Gevher Nesibe Tıp Tarihi Enstitüsü, Yayın no. 5.
- ⁶¹ Şanizade Ataullah Mehmed Efendi, *Hamse-i Şanizade* (İstanbul: Darü't-Tıbbatü'l Amire, 1235/1820), 246–252.
- ⁶² Musa Çimen, "Hekimbaşı Mehmed Efendi'nin Hezar Esrar'ı," *Toplumsal Tarih*, Vol. 197 (May 2010), 85.
- ⁶³ Ibid., 87.
- ⁶⁴ Ibid.

- ⁶⁵ Abdülhak Adnan Adıvar, *Osmanlı Türklerinde İlim* (İstanbul: Maarif Matbaası, 1943), 189-196.
- ⁶⁶ Khaled Fahmy, "Medicine and Power: Towards a Social History of Medicine in Nineteenth-Century Egypt," *Cairo Papers in Social Science*, 23/2 (2000), 15.
- ⁶⁷ Çimen, "Hekimbaşı Mehmed Efendi'nin Hezar Esrar'ı," 86.
- ⁶⁸ *Ibid.*, 86
- ⁶⁹ Nuran Yıldırım, "Berberlerden Diş Hekimlerine İstanbul'da Dişçiler Mektebi Kurma Çabaları ve Dişçi Mektebi'nin Açılışı," *Toplumsal Tarih*, Issue: 146 (February, 2006), 38-43.
- ⁷⁰ BOA. DH.MKT 184/150 [22/B/1308].
- ⁷¹ Şemseddin Sami, *Kamus-ı Türki* (İstanbul, 1317/1900), 541.
- ⁷² Alois Kernbauer, "Lorenz Rigler İstanbul ve Tıp Coğrafyası," in *Österreichische-Türkische Medizinische Beziehungen, Berichte des Symposiums vom 28. Und 29. (April 1986)* in İstanbul, pub: Arslan Terzioğlu, Erwin Lucius, (İstanbul, 1987), 135.
- ⁷³ *Ibid.*
- ⁷⁴ *Ibid.*, 136.
- ⁷⁵ Ahmed Yaramış, "On Sekizinci Yüzyıl Osmanlı Tıbbında Değişim: Doğu Tıbbından Batı Tıbbına Geçiş Üzerine bir Deneme," in the *38. Uluslararası Tıp Tarihi Kongresi bildiri kitabı, 1-6 Eylül 2002*, edited by Nil Sarı et al. (Ankara: Türk Tarih Kurumu, 2005), 1210-1218.
- ⁷⁶ Michalsen et al., *Medical Leech Therapy*, 10.
- ⁷⁷ BOA. İ.DH 19/886 [12/C/1256].
- ⁷⁸ BOA. A.MKT. NZD 245/100 [22/R/1274].
- ⁷⁹ Reşat Ekrem Koçu, *İstanbul Ansiklopedisi* (İstanbul: Tan Matbaası, 1968), 4613-4614.
- ⁸⁰ Süheyl Ünver, *Osmanlı Türklerinde Hekimlik ve Eczacılık* (İstanbul: Hüsnü Tabiat Basımevi, 1952), 28.
- ⁸¹ Indeed, leeches are still sold today in the Spice Bazaar.
- ⁸² Ünver, *Osmanlı Türklerinde Hekimlik ve Eczacılık*, 9-10.
- ⁸³ BOA. HAT, 1620/22, [1255/R/13].
- ⁸⁴ BOA. HH.İ, 1/64, [1267/M/24].
- ⁸⁵ BOA. HH.İ, 2/51_10 [24/Ca/1267]. One *oke* is approximately 1,300 grams.
- ⁸⁶ BOA. HH.İ, 6/23_4, 5 [11/B/1266].
- ⁸⁷ Kernbauer, "Lorenz Rigler İstanbul ve Tıp Coğrafyası," 135.
- ⁸⁸ *Ibid.*, 135.

Bibliography

- Adıvar, Abdülhak Adnan. *Osmanlı Türklerinde İlim*. İstanbul: İstanbul Devlet Matbaası, 1943.
- Altıntaş, Ayten and Hanzade Doğan. “Osmanlı’da Serbest Hekimlik Yapan Esnef Tabib.” In *Osmanlılarda Sağlık*, edited by Coşkun Yılmaz and Necdet Yılmaz, 265-271. İstanbul: Biofarma, 2006.
- Applebaum, Willbur. *The Encyclopedia of Scientific Revolution from Copernicus to Newton*. London: Routledge, 2008.
- Arikha, Nora. *Passions and Tempers*. New York: Harper Perennial, 2007.
- Aybet, Nahid. *Fuzuli Divanında Maddi Kültür*. Ankara: Kültür Bakanlığı, 1989.
- Aydın, Sabahattin. “Osmanlılarda Sağlık, Modern Tıp Penceresinden Osmanlı Tıp Anlayışına bir Bakış.” In *Osmanlılarda Sağlık*, edited by Coşkun Yılmaz and Necdet Yılmaz, 21-32. İstanbul: Biofarma, 2006.
- Aydüz, Salim. “Onsekizinci Yüzyıl Osmanlı Tıbbında Değişim: Doğu Tıbbından Batı Tıbbına Geçiş Üzerine bir Deneme,” in *Proceedings of the 38. International Congress on the History of Medicine, 1-6 September 2002*. Vol. 2, edited by Nil Sarı, Ali Haydar Bayat, Yeşim Üman and Mary Işın. Ankara: n.p., 2005.
- Bayat, Ali Haydar. *Tıp Tarihi*. İzmir: n.p., 2003.
- Bayat, Ali H. “Osmanlı Devletinde Tıp Eğitimi.” In *Osmanlılarda Sağlık*, edited by Coşkun Yılmaz and Necdet Yılmaz, 235-247. İstanbul: Biofarma, 2006.
- Bamfort, Iain. *The Body in the Library: A Literary Anthology of Modern Medicine*. London: Verso, 2003.
- Conrad, L.I., M. Neve, V. Nutton, R. Porter and A. Wear, eds. *The Western Medical Tradition*. Cambridge: Cambridge University Press, 2006.
- Çimen, Musa. “Hekimbaşı Mehmed Efendi’nin Hezar Esrar’ı.” *Toplumsal Tarih* 197 (May 2010): 85-89.
- Dağıstanlı Mehmed Efendi, *Dağıstanlı Mehmed Efendi’nin Geleneksel Tıp Yazması*, edited by Uğuroğ Barlas. İstanbul: Hilmi Barlas Eğitim Vakfı, 2005.
- Dallas, Eneas Sweetland. *Once a Week* 6, n.p.: Bradbury and Evans, (1862).
- De Bow, J. D. B. “De Bow’s Review of Southern and Western States.” *American Periodical Series* 13-313 (1800-1850): 300-315.
- Değer, Mebrure. “Treatment in the Turkish Bath (Drugs, Medicines, Methods).” In *Uluslararası Türk Tıp Tarihi Kongresi, 10. Ulusal Türk Tıp Tarihi Kongresi Bildiri Kitabı / 1st International Congress on the Turkish History of Medicine - 10th National Congress on the Turkish History of Medicine Proceeding Book, 20-24 May, 2008*,

- edited by Ayşegül Demirhan Erdemir, Öztan Öncel, Yusuf Küçükdağ, Berrin Okka and Sezer Erer, 1975-1981. Ankara: Türk Tıp Tarihi Kurumu, 2009.
- De Kruif, Paul. *Microbe Hunters*. New York: Harcourt Brace, 1996.
- el-Mardani, Abdülvehhab bin Yusuf ibn-i Ahmed. *Kitâbu'l-müntehab fi'ttub*, Kitabu'l- Müntehab fi't-Tıb (823/1420), edited by Ali Haydar Bayat. İstanbul: Merkezefendi Geleneksel Tıp Derneği, 2005.
- “Famous Figures of the Turkish Modern Medicine School.” www.muslimheritage.com. Last modified October 27, 2007. <http://www.muslimheritage.com/topics/default.cfm?ArticleID=825>.
- Finger, Stanley. *Minds behind the Brain: A History of Pioneers and their Discoveries*. Oxford: Oxford University Press, 2005.
- Fuzuli, Alessio Bombaci, Sofi Huri, and Elizabeth Davies. *Leyla and Mejnun*, London, Allen and Unwin, 1970.
- Glasscheib, Hermann S. *The March of Medicine*. New York: G. P. Putnam, 1964.
- Grunner, O. C. *A Treatise on the Canon of Medicine of Avicenna, Incorporating a Translation of the First Book*. 1st ed. London: Luzac, 1930.
- Hızır, Celalüddin-i. *Müntehab-ı Şifa*, edited by Zafer Önler. Ankara: TDK Yayınları, 1990.
- Hippocrates. *Hippocratic Writings*, edited by Geoffrey Ernest Richard Lloyd London: Penguin Books, 1983.
- “Humoral Theory.” *Contagion: Historical Views of Diseases and Epidemics*. Harvard University Open Library Collections Program. Last modified 1 March, 2008. <http://ocp.hul.harvard.edu/contagion/humoraltheory.html>.
- İslam Bilgileri Ansiklopedisi*. İstanbul: Hikmet Neşriyat, 1993.
- Kaya, Esin and Ayşegül D. Erdemir. *Bilimin Işığında Osmanlıdan Cumhuriyete Tıp ve Sağlık Kurumları*. Ankara: Türkiye Diyanet Vakfı Yayınları, 2000.
- Kazancıgil, Aykut and Zülfikar Bedizel. *XIX. Yüzyılda Anatomi*. İstanbul: Özel Yayınları, 1991.
- Kernbauer, Alois. “Lorenz Rigler, İstanbul ve Tıp Coğrafyası.” In *Österreichische-Türkische Medizinische Beziehungen: Berichte des Symposiums*, edited by Erwin Lucius and Arslan Terzioğlu. İstanbul: Arkeoloji ve Sanat Yayınları, 1987.
- Khaled, Fahmy. “Medicine and Power: Towards a Social History of Medicine in Nineteenth-Century Egypt.” *Cairo Papers in Social Science* 23, no. 2 (2000): 15-62.

- Kitabü'l-Mühimmat*, edited by Saadettin Özçelik. Ankara: AKM Yayınları, 2001.
- Konyalı Vehbi Efendi. *Sahih-i Buhari Muhtasarı*. İstanbul: Doğan Güneş Yayınları, n.d.
- Kuhn, Thomas S. *The Structure of Scientific of Scientific Revolutions*. Chicago: University of Chicago Press, 1970.
- Lloyd, G. E. R. *The Transformations of Ancient Medicine*. The Fielding H. Garrison Lecture, American Association for the History of Medicine, Cleveland, Ohio, 2 May, 1991.
- Magner, Lois N. *A History of Medicine*. Boca Raton: Taylor and Francis, 2005.
- Michalsen, A., M. Roth, and G. Dobos. *Medicinal Leech Therapy*. New York: Thieme, 2007.
- Miller, W.H., Macalua, J., Stevens, W. *The Leisure Hour*, 158–209. n.p.: Paternoster Row, 1855.
- Mossensohn, Miri Shefer. *Ottoman Medicine: Healing and Medical Institutions, 1500-1700*. New York: Suny Press, 2009.
- Özden, Akil Muhtar. *Fenni Tedavi: Tesirat-ı Edviye Dersleri*. İstanbul: Devlet Matbaası, 1929.
- Porter, Roy, ed. *The Cambridge History of Medicine*. Cambridge: Cambridge University Press, 2006.
- Porter, Roy, ed. *Greatest Benefit to Mankind*. New York: W.W. Norton, 1997.
- Rashed, Roshdi, ed. *Encyclopedia of the History of Arabic Science*. 3 vols. London: Routledge, 1996.
- Rosner, Fred. *Medicine in the Bible and the Talmud*. New Jersey: KTAV; Yeshiva University Press, 1977.
- . *Bloodletting in Talmudic Times*, Lancaster, N. Y.: New York Academy of Medecine, 1986.
- Sami, Şemseddin, *Kamus-ı Türki*, n.p., 1317.
- Sarı, Nil and M. Bedizel Zulfikar. *The Paracelsian Influence on Ottoman Medicine in the Seventeenth and Eighteenth centuries*, www.muslimheritage.com, last modified February 25, 2009. <http://www.muslimheritage.com/topics/default.cfm?TaxonomyTypeID=11&TaxonomySubTypeID=56&TaxonomyThirdLevelID=-1&ArticleID=1084>.
- Schumacher, Joseph. *Antike Medizin*. Vol. 1. Berlin: Walter de Gruyter, 1963.
- Simmons, John G. *Doctors and Discoveries: Lives that Created Today's Medicine*. Boston: Houghton Mifflin Harcourt, 2002.
- Şanizade Atallah Mehmed Efendi, *Hamse-i Şanizade*. İstanbul: Dâru'ttîbâ'ati'l-Âmire, h. 1235 (m. 1820).

- Şerif, İbn-i. *Yadigar-İbn-i Şerif: 15. Yüzyıl Türkçe Tıp Kitabı*. İstanbul: Merkezefendi ve Halk Hekimliği Derneği, 2003.
- Temkin, Owsei. *Galenism: The Rise and Decline of a Medical Philosophy*. New York: Cornell University Press, 1973.
- Torun, Serap. *Kırım Savaşında Hasta Bakımı ve Hemşirelik*. PhD diss., Adana University, 2008.
- Ullmann, Manfred. *Islamic Medicine*. Edinburgh: Edinburgh University Press, 1978.
- Uludağ, Osman Şevki. "Tıp Tarihimizde Sülük Hekimliği." *Dirim* 8–9, (Ağustos-Eylül) n.d.: n.p.
- Ünver, Süheyl. *Osmanlı Türklerinde Hekimlik ve Eczacılık*. İstanbul: Hüsni Tabiat Basımevi, 1952.
- Warner, Harley, ed. *Locating Medical History: The Stories and their Meanings*. Baltimore: John Hopkins University Press, 2004.
- Wear, Andrew, ed. *Medicine in Society: Historical Essays*. Cambridge: Cambridge University Press, 1992.
- Yaramış, Ahmed. "On Sekizinci Yüzyıl Osmanlı Tıbbında Değişim: Doğu Tıbbından Batı Tıbbına Geçiş Üzerine bir Deneme." In the 38. *Uluslararası Tıp Tarihi Kongresi bildiri kitabı, 1-6 Eylül 2002*, edited by Nil Sarı, Ali Haydar Bayat, Yeşim Üman, Mary Işın, 1210-1218. Ankara: Türk Tarih Kurumu, 2005.
- Yıldırım, Nuran. "Berberlerden Diş Hekimlerine İstanbul'da Dişçiler Mektebi Kurma Çabaları ve Dişçi Mektebi'nin Açılışı." *Toplumsal Tarih*, sayı. 146 (Şubat 2006): 38–43.
- Yılmaz, Necdet and Coşkun Yılmaz. "Evliya Çelebi'nin Seyahatnamesi'ne Göre Osmanlılarda Sağlık Hayatı." In *Osmanlılarda Sağlık*, edited by Coşkun Yılmaz and Necdet Yılmaz, 343-359. İstanbul: Biofarma, 2006.
- Zimmerman, L. M. and İlza Veith. *Great Ideas in the History of Surgery*. Novato CA: Norman Publishing, 1993.
- Zülfikar, Bedizer. *Şanizade*. Master's thesis, Cerrahpaşa Tıp Fakültesi, Deontoloji Anabilim ve Tıp Tarihi Bölümü, 1986.

Archival Materials

Başbakanlık Osmanlı Arşivleri (BOA)

HATT-I HÜMAYUN

BOA. HAT. 1620/22, 13.R.1255, [26 Haziran 1839]

HAZİNE-İ HASSA İRADELER

BOA. HH. İ. 1/64, 24.M.1267, [29 Kasım 1850]

BOA. HH. İ. 2/51_(10), 24.Ca.1267, [27 Mart 1851]

SADARET MEKTUBİ KALEMİ EVRAKI

BOA. A. MKT. 37/27, 8.Ra.1256, [10 Mayıs 1840]

BOA. A. MKT. 53/99_2, 15.Za.1262, [4 Kasım 1846]

SADARET MEKTUBİ KALEMİ NEZARET VE DEVA'İR KALEMİ

BOA. A. MKT. NZD. 145/30, 2.Ş. 1271, [20 Nisan 1855]

BOA. A. MKT. NZD. 245/100, 22.R.1274, [10 Aralık 1857]

İRRADE DAHİLİYE

BOA. İ. DH. 19/886, 12.C.1256, [11 Ağustos 1840]

Sabuncuoğlu, Şerafeddin. *Cerrâhiyyetü'l-hanniye*. İstanbul: Yazma Eserler Kütüphanesi, Ali Emiri, 95. Fasıf.

Mehmed Halim bin Abdullah, *Risale-i Hacamat*. Süleymaniye, H. Hayri Abdullah Efendi, 000053.

Muhammed bin Mahmud, *Fasd ve Hacamat Risalesi*, Süleymaniye, Bağdatlı Vehbi Efendi, 001441, 1171.

Osman bin Musa, *Risale-i Hacamat*, Süleymaniye, Tırnovalı, 001386, 1277.

Osman bin Musa Eskişehirli, *Risale fi'l- Hacamat*, Süleymaniye, Hacı Mahmud Efendi, 005585.

Yasemin Baran is a PhD student in the History Department at Boğaziçi University.