Reflections of Iatrochemistry In the Eighteenth Century Ottoman Medicine

Onsekizinci Yüzyıl Osmanlı Tıbbında İatrokimya Akımı Yansımaları

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Absrtact

Ottoman medical studies were grounded in the works and interpretations of important Islamic physicians such as Avicenna, Rhazes. From the second half of the 17th century onwards, as the Ottomans began to look towards the West in cultural terms, some Ottoman physicians began to take an interest in the changes taking place in Western medicine.

18th Century Ottoman physicians were influenced by the iatrochemistry movement and by its Western representatives. However, while Omer Shfaî tried to synthesize Eastern alchemical medicine and Western iatrochemical medicine from a perspective that leaned more towards alchemy, the approach taken by his student, Ali Munşî, was totally removed from alchemy and the alchemical tendencies within iatrochemistry, and instead placed special emphasis on the pharmacology-related trends within the iatrochemical movement.

Key words: Ottoman medicine, alchemy, iatrochemistry.

Özet

Osmanlı'da tıp çalışmaları 18. yüzyıldan önceki dönemlerde ibn Sîna, Râzi gibi İslam tıbbı hekimlerinin çalışmaları etkisinde yürütülürken 18. yüzyıldan sonra Batı'dan gelen tıp akımlarının etkisinde yürütülür. Batı'lı hekimlerin ortaya koydukları iatrokimya Osmanlı hekimlerini 18. yüzyıl sonrasında en çok etkileyen akımlardan biridir. Akım Ömer Şifaî gibi bazı hekimler tarafından İslam simya geleneği ile uyuşturulmaya çalışılırken, Ali Münşî gibi bazı hekimler de akımın uygulamalı kısmını almayı tercih etmişlerdir.

Anahtar sözcükler: Osmanlı tıbbı, simya, iatrokimya.

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Ottoman medical studies were grounded in the works and interpretations of important Islamic physicians such as ibn Sina, Razi and Maseveyh. From the second half of the 17th century onwards, as the Ottomans began to look towards the West in cultural terms, some Ottoman physicians began to take an interest in the changes taking place in Western medicine.

Ottoman physicians first learned of the changes occurring in the West from Salih b. Nasrullah, whose full name was Salih bin Nasrullah el-Hallabî (d.1670), but who is generally known as Sallum.[1] Sallum's two general medical treatises, *Gâyetü'l-İtkan fi Tedbir Bedenü'l-İnsan*[2] and (*Gâyetü'l-Beyân fi Tedbir Bedenü'l-İnsan)*[3] basically adopted the Galenic understanding of medicine that had become central to the Islamic understanding of medicine. As a supplement to *The Culmination of Perfection in the Treatment of the Human Body,* under the title *New Medicine (tıbbu'l-cedîd)*[4], Sallum added a treatise translated from Paracelsus, the founder of iatrochemistry.[5] It was through *New Medicine* that Ottoman physicians first came into contact with iatrochemistry.

After the 18th Century, Ottoman physicians were split into three strands of thought. The first continued to follow the long-standing traditions of mainstream Islamic medicine, which continued to remain influential for many years. The second, experimental strand took Islamic medicine and alchemy as its starting point and added iatrochemistry to create a synthesis that led to a new understanding of medicine. The third strand was based largely on a combination of Islamic medicine and pharmacology that incorporated theories taken from iatrochemistry and blended in elements involving knowledge of medicaments to develop, in particular, a different view of therapy. By looking at works that are representative of the latter two strands, this study attempts to identify the role of iatrochemistry in Ottoman medicine.

The first approach to be examined may be considered an experiment in the creation of an East-West synthesis comprising Islamic medicine, alchemy and iatrochemistry. A representative of this approach can be found in Omer Shifaî (b. 1742). Born in Sinop and orphaned at a very early age, Şifai had a difficult youth. After much time spent traveling, he entered a Mevlevî dervish convent, and shortly thereafter began to study medicine and to write on the subject.[6] Among his various medical writings and alchemical treatises are

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[1] A. Adnan Adıvar, *Osmanlı Türklerinde İlim*, Istanbul 1996, p. 65; Aykut Kazancıgil, *Osmanlı Türklerinde Bilim ve Teknoloji*, Istanbul 1998, p. 121.
[2] Ayten Koç, *Osmanlı'da 18. yüzyılda İatrokimya Çalışmaları – Ömer Şifaî'nin Çalışmaları Esas Alınarak*, Ankara 1997, (Unpublished Master Thesis), p. 12.
[3] Ibid., p. 15.
[4] Kazancıgil, *ibid*., p. 123.
[5] Ibid., p. 125.
[6] Koç, *ibid*., p. 17.

Mürşîdü'l-Muhtâr fî İlmü'l-Esrâr, Cevherü'l-Ferîd Tıbbü'l-Cedîd, Minhâcü'ş-Şifaî'-i Tıbb-ı Kimyevî, Mirâtü's-Sıhha fî Tedbîr-i Tâşü'ş-Hükemâ.

In *Cevherü'l-Ferîd fî Tıbbü'l-Cedid, Minhâcü'ş-Şifaî'-i Tıbb-ı Kimyevî* and *Mürşîdü'l-Muhtâr fî İlmü'l-Esrâr*, Shifaî takes a general look at chemical compounds that are given such names as "hot waters", "spirits" and "oils" and at how they may be used in treatment. Information is provided on the effects achieved by treating patients with various chemical compounds and processes that include mercurial compounds, sulfuric compounds, vitrioles, evaporants, inflammatories, calcifiers, distillants, mineral saffrons, synthetic lead, precious stones and alchemical compounds.[7]

Shifaî's views on medicine and his thoughts about the iatrochemical movement are presented in *Mürşîdü'l-Muhtâ fî İlmü'l-Esrâr*. The first chapter, "Hot Waters", provides information about the contents and preparation of a number of metal-dissolving chemical compounds, in particular, sulfuric acid. Only a very few of these compounds were recommended for treatment. The second and third chapters provide more information on the contents, preparations and therapeutic usage of another assortment of chemical compounds under the respective titles "Spirits" and "Oils".

The fourth and fifth chapters provide information on mercury and mercurial compounds and on sulfur and sulfuric compounds. Chapter four comprises approximately 40 pages of extremely detailed explanations regarding the composition of mercury, which can be summarized as follows: Mercury is the common name by which the metal mercury is known. It begins as an underground watery vapour that gradually condenses. As it condenses, it sinks into the depths of the earth, and as it sinks, it becomes less dense, and thus begins to rise again. As a result of this sinking and rising, at the appropriate time and in a conducive environment, mercury comes into being as an oily element characterized by a visible soft-hot white and an invisible dry-cold red.[8] Born and raised in the earth as in a mother's womb, mercury is the female principle in the formation of other metals, the mother of all minerals.

The fifth chapter of the book focuses on the formation of the element sulfur: Sulfur is also found in the earth as a vapour. When it comes into contact with mercury, the mercury attempts to surround it; however, it is unable to completely do so at once. Only after joining and parting many times can the mercury surround the sulfur, which then comes into being as the natural fourth-degree element sulfur, possessor of a hot-dry character and constituting the masculine principle of all metals.[9] Information about the metals produced

[7] Ibid., p. 15.
[8] Ibid., p. 15.
[9] Ibid., p. 15.

from the union of mercury and sulfur and mercurial and sulfuric compounds can be found in both the fourth and fifth chapters.

The metals born of the union of mercury and sulfur – gold, silver, tin, lead, copper and iron – represent a hierarchy of nobility. Gold is the noblest of metals, whereas iron is the one of least value. The principle mercury determines the interior dryness and coldness, the exterior hotness and moistness, the whiteness and the feminine attributes of each metal, whereas the sulfur determines the hotness and dryness, the redness and the masculine attributes of each metal. The potential capacity for any of the metals produced from the union of mercury and sulfur to become gold is closely related to their place in the hierarchy of nobility. The degree of purity of the mercury and sulfur and their proportions in the union determine the different metals to be produced. For example, gold is produced from pure mercury and pure-white sulfur, thus it is very easy to obtain mercury from gold. [10] Following gold, silver is the metal containing the mercury of the highest purity. The sulfur contained in silver is also pure, but it is of a smaller quantity than the mercury.[11] In the process of uniting mercury and sulfur, it the mercury is of good quality but the sulfur poor, and hollows remain in the spaces between them, then the metal produced is tin[12] Lead represents the lightest step in the process of obtaining gold; moreover, because the spiritual quality of lead overwhelms its material quality, lead is closer to gold than other metals.[13] In the formation of copper, the mercury is pure, the sulfur inferior, and the nature of the two uniting elements is unbalanced.[14] Iron occurs when a large amount of good-quality mercury and a small amount of poor-quality sulfur unite in an extremely short period of time; for this reason, iron is the metal furthest away from the perfect metal, gold.[15]

According to Omer Shifaî, the basis for his opinions lie in the distinguished work *Sırr al-Khâliqa* by the Greek Balînâs[16] and in the studies of Cabîr, the great master of the sacred art.[17] The person Shifaî referred to as Balinas was, in fact, Apollonius of Tyana, who had lived in the 1st Century AD and had adopted the teachings of Pythagoras. Apollonius was recognized for his extensive grasp of the occult knowledge of the era and as the person responsible for bringing to light the first extant version of the *Emerald Table* (*Tabula Smaragdina*) attributed to Hermes Trismegistos. His *Sırr al-Khâliqa*, or *Kitab Sirr al-Khal'qa wa San'at al-Tabi'a* (The Book of the Secret of Creation and

[10] Ibid., p. 15.
[11] Ibid., p. 103.
[12] Ibid., p. 104.
[13] Ibid., p. 105.
[14] Ibid., p. 108.
[15] Ibid., p. 109.
[16] Ibid., p. 111.
[17] Ibid., p. 117.

the Art of Nature*),* was also known as the *Kitab-ı Balaniyus al-Hakim fi'l-i'llal* (The Book of Balinas the Wise on the Causes).[18]

The person Shifaî referred to as Cabîr was Geber (Cabir ibn Hayyân)-(720-813 AD), whose mercury-sulfur theory was generally accepted by the alchemists, and after the 16th Century, by the iatrochemists, and which continued to persist until the development of the phlogiston theory of combustion towards the end of the 17th Century.

According to Geber, earthy fumes and watery vapours comprised two types of metallic compounds. While the condensation of underground vapours initiates the formation of mercury and sulfur, the union of these elements leads to the formation of all types of metals. In Geber's theory, the metals, under the influence of the planets, are the catalysts for the underground union of sulfur and mercury.[19] The various metals come into existence because mercury and sulfur are not always pure and do not always unite in the same proportions. If the mercury and sulfur are perfectly pure and combine in their most natural balance, then the material obtained is the most perfect, i.e., gold.[20] Omer Shifaî's views on the formation of mercury, sulfur and metals, and Geber's mercury-sulfur theory are in perfect agreement, and Shifaî, in his medical writings, has repeatedly referred to Geber as his spiritual mentor.

Shifaî also mentions in his works the notable physicians "Parakelsus", "Minziht" and "Korelyus". Considering the fact that he refers to the physicians Parakelsus and Minziht as iatrochemists (tıbb-ı kimaîyyûn), it is quite simple to assert, with view to the similarity of the names, that Parakelsus was, in fact, Paracelsus, and Minziht, Hadrian Mynsicht. Similarly, the identity of the individual distinguished by the name Korelyus can easily be recognized as Oswald Croll,[21] the iatrochemist who proceeded Paracelsus, since Shifaî refers to Korelyus as the physician who authored the books *Kimyâî Basilîkî* and *Kimyâî el-Melekî,* and, in fact, Croll was the author of the book *Basilica Chymica* (1609). *Kimyâî Basilîkî* was simply the Arabic transliteration of *Basilica Chymica* used by Munshî, and *Kimyâî el-Melekî* is the Ottoman Turkish equivalent of *Royal Chemistry,*[22] by which title the *Basilica Chymica* was also known.

We have already mentioned that in his work, Shifaî stated quite openly that he was an alchemist pursuing the Geberian tradition. With similar frankness, he also asserted Paracelsus, Mynsicht and Croll to be followers of the Geberian

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[18] Keven Brown, "Hermes Trismegistus and Apollonius of Tyana in the Writings of B ahá'u'lláh", *Revisioning the Sacred New Perspectives on a Baha'i Theology*, (Ed. by Jack McLean), Los Angeles 1997, pp. 153-189.
[19] E. J. Holmyard, *Alchemy*, Penguin Middlesex 1957, pp. 72-73.
[20] Seyyid Hüseyin Nasr, *İslâmda Bilim ve Medeniyet* (Trans. by Nabi Avcı, Ahmet Ünal) 2000, p. 268.
[21] J. R. Partington, *History of Chemistry*, London- Macmillan 1961, Vol. II, p. 123.
[22] Partington, *ibid*, p. 125.

alchemical tradition, and, in language somewhat more oblique and difficult to comprehend, he suggested that they had added a third element – salt – to the mercury-sulfur theory based on their religious belief in the Trinity. [23]

While Shifaî drew a long line between himself and the iatroochemical movement in his theory, in practice, his actions were unequivocally those of an iatrochemist, especially with regard to the use of chemical elements in the treatment of patients. In recommending the use of material with chemical content as a treatment protocol, he also encouraged younger physicians in this practice.

We hope that an increase in detailed textual studies will eventually reveal whether or not Ottoman physicians followed Omer Shifaî's methods in what may be considered to constitute a movement/tradition.

A student of Shifaî, the Ottoman physician Ali Munshî[24], was an advocate of the above-mentioned third strand among Ottoman medical tendencies.

Munshî's *Bidaât el-Mubtedî* presented an alphabetized list of herbal and chemical medicines, as well as information on their manner of preparation and use in the treatment of patients. In acknowledging the sources of his *Bıdaât el-Mubtedî*, Münşî included the names of numerous Western physicians along side those of Islamic physicians such as Avicenna, Rhazes, Sabuncuoglu, Omer Shifaî and Salih bin Nasrullah.

In the *Bidaât el-Mubtedî*, Münşî refers frequently to Paracelsus, using the Turkish transliteration Bırakelsus; however, information about Paracelsus, known as the father of iatrochemistry, is included in statements about a chemist-physician by the name of Korelyus. Again, this Korelyus must have been Oswald Croll, as the name Korelyus appeared in such statements as "Among the followers of Paracelsus, a doctor by the name of Korelyus … The other benefits are explained in great detail in the book *Kimyâî Basilîkî*…"[25] and "Metallic Turbid: chosen by the physician by the name of Koleryus … is

[23] Ibid., p. 123.

[24] Information about the life of Ali Munshî of Bursa (d. 1747) can quite easily be extracted from his writings. The Kına-Kına risala states that his professional life as a doctor began in 1710 (H. 1120). Taking into consideration his likely education, he was most probably born in the 1680s. According to information found in the *Bidaât el-Mubtedî*, Munshî was born in Bursa into the well-known Menteşezade family, he completed Madrasa (traditional religious school) education in Bursa, and he continued his studies as a student of Omer Shifaî, a physician at the Yıldırım Darüshifa (Yıldırım Hospital). After completing his education, Munshî took up his practice as a physician in various madrasas in Bursa and Istanbul. One of the leading 18th Century Ottoman physicians, Ali Munshî died in 1747.

[25] Ayten Koç Aydın, *18. Yüzyılda Kimya Çalışmaları – Ali Münşî'nin ÇalışmalarıTemel Alınarak*, Ankara 2002, Unpublished Doctorate Thesis.

mentioned in his book *Kimyâî el-Melekî*."[26] As mentioned above, *Kimyâî Basilîkî* and *Kimyâî el-Melekî* were written by Croll.

Besides Croll, Münshî had recourse to the knowledge of two other physicians by the names of "Zulferus" and "Etmülleryus". It can be understood from Münşî's reference to Zulferus in the phrase, "As a matter of fact, Zulferus explains this in *Agustin Akrabadini (Pharmacopie of Augustine)*,"[27] that he must have been Johann Zwelfer (or Zwölfer, 1618-1668), the author of *Pharmacopoeia Augustana* (1652), whose name simply appeared in a transliterated version in Münşî's work. There can be no doubt either that the person Münşî referred to as Etmulleryus was Micheal Etmuller, 1644-1683, one of the leading representatives of those who continued to elaborate on the subject of iatrochemistry after Paracelsus, and whose '*Terceme-i Etmulleryûs*'[28] was translated by Munshî himself.

Munshî also mentions an individual by the name Minziht, but he does not cite any work that might help to clarify Minziht's identity. Nonetheless, as mentioned earlier, considering the similarity of the names, it is likely that Minziht was Hadrian Mynsicht (1603-1638). In addition, Munshî mentions a "supplement to Mynsicht's book written by a doctor by the name of Mositanus." The fact that Münşî presents this other doctor as taking Mynsicht as a foundation shows that, in all likelihood, he was referring to another Western physician. Although Munshî provided no information on works by either Mositanus or Mynsicht, the manner in which he presented Mositanus makes it possible to suggest that he may well have been Carlo Musitano (1635-1714). Carlo Musitano (1635-1714), was both a priest and physician in Naples. He also defended Mynsicht's work against criticisms and wrote several books within the framework of iatrochemistry.

The *Bidaât el-Mubtedî* also refers to a physician known as Lemûri, who is referred to in the phrase: "This essence was prepared in the manner written by the well-known chemist, the pharmacist Lemûri."[29] Considering the similarity of names, as well as the fact that Münşî described other sources he referred to in the *Bidaât el-Mubtedî* as chemist-physicians or physicians, yet he characterized Lemûri as a famous chemist and pharmacist, it is possible to state that the individual referred to as Lemûri was in fact Nicolas Lemery (1645-1715).

A physician named Takaniyus is also mentioned in the *Bidaât el-Mubtedî* in the phrase, "In his book *Kimyaîyye-i Bokratiye,* Takaniyus states that"[30]. Unquestionably, these words indicate Takaniyus to be, in fact, Otto

[26] Ibid., p. 72.
[27] Ibid., p. 78.
[28] Ali Munshi, *Etmülleryus Çevirisi,* (*Translation of Etmüller*) Istanbul University, T. 321.
[29] Aydın, *ibid.*, p. 132.
[30] Ibid, p. 137.

Tachenius,[31] the chemist-physician who had authored the book entitled *Hippocrates Chemicus* in Venice, 1666 (*Kimyaîyye-i Bokratiye*) and who was a follower of the school of iatrochemistry. Münşî referred to the *Hippocrates Chemicus* by its Ottoman-Turkish title, *Kimyaîyye-i Bokratiye*, and to Hippocrates as Bokratiye.

Although the name of Lemûrt is mentioned by the *Bıdaât el-Mubtedî*, it does not contain any explanation that might be of help in discovering who this person was, describing him simply as a teacher.[32] However, scanning through names of those acknowledged in the field of iatrochemistry, Jacobus Le Mort (1650-1718)[33] is the only one to be found with a name resembling that of Lemûrt.

The name Helmont can also be found in the text in the phrase "one of the followers, a doctor by the name of Helmont. Paracelsus's keys to medication."[34] From this it is absolutely clear that the person referred to was a member of the school of iatrochemistry, and, based on the comment that the author was a follower of Paracelsus, it is also possible to believe him to be none other than J. B. Van Helmont (1579-1644).

Mergaraf is another name found in *Bıdaât el-Mubtedî*, and while there is no identifying information, based on the similarity of sound and spelling, one can state that with all probability the person referred to is Andreas Sigismund Marggraf (1709-1782).

In sum, the 18th Century Ottoman physician Omer Shifaî and his student Ali Münşî were both authors of important works and well-known in their profession. In addition, they were both influenced by the iatrochemistry movement and by its Western representatives. However, while Omer Shifaî tried to synthesize Eastern alchemical medicine and Western iatrochemical medicine from a perspective that leaned more towards alchemy, the approach taken by his student, Ali Münşî, was totally removed from alchemy and the alchemical tendencies within iatrochemistry, and instead placed special emphasis on the pharmacology-related trends within the iatrochemical movement.

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[31] The book '*A History of Chemistry*' by J. R. Partington provides reliable data on his dates of birth and death. Furthermore, it also states that he lived in Venice in 1699. (p. 291).
[32] Aydın, *ibid.*, p. 287.
[33] Le Mort received his chemistry education in Leyden and remained there to teach. The first edition of his first work, '*Compendium Chymicum*,' was printed in Leyden in 1682. In addition to studies on the school of iatrochemistry, he also wrote on the theory of the atom. (J. R. Partington, *A History of Chemistry*, London- Macmillan1961, p. 298.)
[34] Aydın, *ibid.*, p. 265.

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