Water and Wellness: Cholera in the Nineteenth-Century Ottoman Empire

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"[….T]he emperor is the physician of the world, and the physician cannot do without the knowledge of sickness, the causes of pain, and the nature of the cure, thus in any case *it is necessary for the sultan that he know the disease of the kingdom and the way to cure it.* Since civilization is an expression for a common society among various groups, as long as each of these groups stays at its level and engages in the occupation that is its task and attains the portion that is appropriate to it of riches and favors, that is, pomp and glory, then the temperament of the city will always be on the path of balance and its affairs characterized by the way of order. But if it turns away from this rule, then it will always be the cause of dissension, which is the source of the loosening of the bond of affection and the cause of corruption and confusion. For it is decreed that *the origin of every state is the agreement of the opinions of society, which are related in mutual aid as the limbs of a single body.*" [emphasis added]

-- Jalal al-Din Davani, *Flashes of Illumination on Praiseworthy Ethics: The Fourth Flash*

Introduction: The Sultan as 'Physician of Empire'

At only four years old, the daughter of Sultan Abdulmecid II died of diptheria in 1895.[1] Devastated, but determined to take action, the Sultan sent a team of scientists abroad to the Pasteur Institute in Paris to learn to make the curative serum. Within one year, the *bakteriyolojihâne*[2] (Imperial Bacteriology Laboratory), established in 1887 under the Imperial School of Medicine in Istanbul, was itself manufacturing and distributing the diphtheria cure.[3] This was not the first or the last time the Sultan had orchestrated the acquisition of state-of-the-art modern medicine to protect the health of not only his family but that of the Empire — he sent a team of scientists (and ₮10,000) to Paris' Pasteur Institute to study the rabies vaccine in 1886, and another for cholera following the development of Haffinke's vaccine in 1892.[4] Accordingly, we can see the Sultan acting in the sense expressed by the classical philosopher Davani, quoted above, as the "physician of the empire": personally directing funds and teams of people to gain "knowledge of the senses, the causes of pain, and the nature of the cure," to prevent diseases impacting his own family's health and, consequently, the health of the empire.

Diphtheria was one of many contagious diseases in the Ottoman empire for which modern medical advancements of the (long) 19th-century transformed treatment. The devastation wrought by disease and death impelled 19th-century Ottoman public health initiatives to combat cholera, diphtheria, rabies, smallpox, and other contagious illnesses with 'modern' medical solutions. As in the examples above, this 'modernizing' transformation included the importation

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[1] Adem Ölmez, "İkinci Abdülhamid Döneminde Koruyucu Hekimlik ve Bazı Vesikalar." *Belgeler* 34 (2013): 95.
[2] For a more complete history of the laboratory and the scientists who worked there, see Emre Karacaoğlu, "Başbakanlık Osmanlı arşiv belgelerine göre Bakteriyolojihâne-i Şâhâne / Bakteriyolojihâne-i Sahane according to prime ministry Ottoman archives," (PhD Diss., Ankara University, 2018).
[3] Ölmez, 95.
[4] Ölmez, 91, 95; See also Nuran Yıldırım and Bülent Özaltay, "II. Abdülhamid'in Sağlığı ve Sağlık Hizmetleri," in *Sultan II. Abdülhamid ve Dönemi*, ed. Coşkun Yılmaz (Istanbul: Sultanbeyli Belediyesi, 2012).

of foreign expertise in the form of crucial biomedical knowledge, such as the diphtheria serum and the cholera vaccine. Importantly, though, these were not the only instruments used by state and society to combat disease in the expansive Ottoman empire. Past experience with plague in the early-modern period had shaped Ottoman public health responses, implementing multi-dimensional measures corresponding with an understanding of the intertwined nature of the physical, environmental and spiritual health of communities. However, the burgeoning cholera contagion posed a distinct concern, with a unique 'modern' nature, primarily because the disease had only appeared in Ottoman lands during the first quarter of the 19th-century. The rapid transmission of the disease along growing global networks, facilitated by technological advancements in transportation, alarmed inhabitants of Ottoman territories, together with their European and African neighbors. Although by the 20th-century the cholera vaccine was routinely administered to the Ottoman general public, the cholera contagion in the intervening years was managed with measures ranging from quarantines to talismans, a clear picture of the incorporation of 'modern' methods into existing healthcare frameworks. Though the Ottoman experience with cholera contagion in the 19th century was transformative, and precipitated a reformation of the existing healthcare paradigm that guided state and society disease response, the resulting framework retained aspects of the early-modern conception of the interdependence of environmental, spiritual and physical health whilst incorporating scientific advances.

The acquisition of modern medical technologies needed to support the new paradigm required resources, financial and intellectual; these were made possible through the Sultan's direct patronage of the imperial lab for the practice of bacteriology and sponsored study for imperial scientists at the Pasteur Institute in Paris. The relevance of the 'Sultan as physician' metaphor is thus substantiated through his continued support for modern medical treatments and

technologies, aiding the work of vital actors - the scientists and doctors practicing at the laboratory **(Figure 1)** and treating patients - in combating cholera contagion. This represents a shift away from the early-modern understanding of the metaphor, in which the Sultan was charged with establishing equilibrium among the different segments of imperial society, bringing prosperity to the empire through internal peace. This new, broader understanding of the Sultan's hand in the empire's health encompasses the transformative reforms (including broadly those of the *Tanzimat*-era and of professionalization in the medical field, explored below) which see sultanic authority and expertise as responsible for curing both the physical and metaphysical ailments of his populace. At the same time, in the context of the cholera contagion, the focus is instead on the myriad actors and institutions responsible for promoting and implementing preventative health measures. The corps of actors entrusted with public health via their professional commission becomes a foil for the Sultan as sole healer: physicians, scientists, laboratories, teaching institutions, traditional healers, police, and governing bodies operate under the aegis of the Sultan for the benefit of all, just as the organs of the metaphorical body must be tended by the Sultan to ensure corporeal health. In this paper, I argue that early-modern frameworks, including the 'Sultan as physician' and health as a balance between interconnected physical, environmental, and spiritual elements, supported the Ottoman public health response to cholera. At the same time, the Ottoman experience was also characterized by a 'modern' configuration of public health, which existed at the intersection of central and local governmental authorities, a professionalized medical sector, and the general public, and assigned agency to each of these in the shared responsibility of protecting health at each level of society, from individual home to community to metropolis.

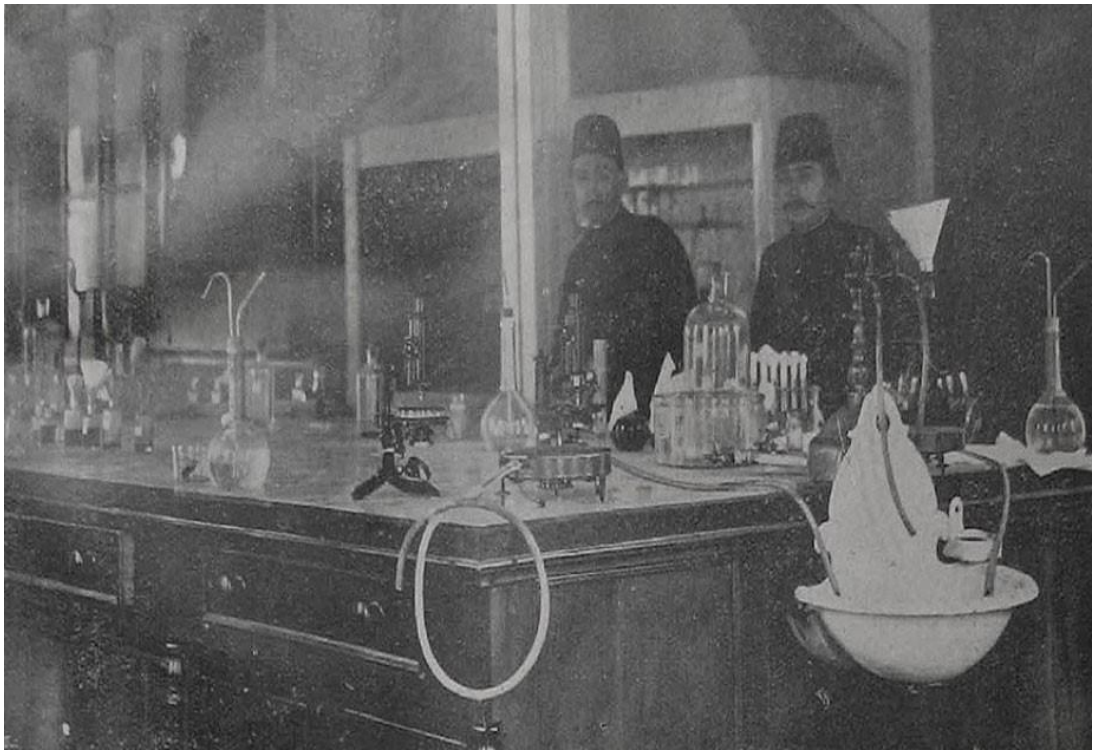

Figure 1: Constantinople Imperial Bacteriology Institute (CIBI, *Bakteriyolojihâne-i Şâhâne/Osmânî*)[5]

The nineteenth-century was characterized by the global spread of cholera and other diseases along trade and travel routes within and beyond the Ottoman lands, aided by advances in transportation technology and increases in the flow of goods and people, impacting Asia, Europe, and Africa in what have been categorized as six distinct cholera pandemics, giving rise to a transformation in public health practices and perspectives around the world.[6] In the historical record, much attention has been paid to the impact of cholera on European societies and European sciences, with less paid to its effects in the Ottoman realm. While the history of science and public health has dedicated a considerable body of scholarship to the rise of germ

[5] "A Brief History of Vaccines in Turkey," Republic of Turkey Ministry of Health (Online), accessed on March 27th 2022. https://covid19asi.saglik.gov.tr/EN-80228/brief-history-of-vaccines-in-turkey.html.
[6] Özgür Yılmaz, "The cholera epidemic of 1847–1848 and its effects on the Ottoman Empire." *Journal of Eurasian Inquiries* 6, no. 1 (2017): 23-55; Richard J. Evans, "Epidemics and revolutions: cholera in nineteenth-century Europe." *Past & Present* 120 (1988): 123-146.

theory and the microbiology of the disease (*vibrio cholerae*), focusing on key Western figures, including Robert Koch and John Snow,[7] such scholarship is situated within a broader canon of texts exploring the scientific,[8] industrial, and intellectual advances in Europe during the Enlightenment period, and is shaped by a narrative of European progress, civilization, and exceptionalism.[9] This is unsurprising, given the narrative has been fashioned and promulgated almost exclusively by Westerners with an innate bias toward, and vested interest in, its acceptance.

More recently, however, a wave of scholarship has begun to critically examine the roles of medicine, science, and technology in the historic "civilizing missions" and colonization projects carried out by European imperial powers in non-Western contexts around the globe.[10] Critical studies of health in pre-colonial contexts (including definitions of health as they pertain to non-European bodies and environments) and of how systems of knowledge operated and were transformed by colonial encounters have contributed new understandings to the world history of

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[7] Charles E. Rosenberg, *The Cholera Years: The United States in 1832, 1849 and 1866* (Chicago: University of Chicago Press, 1962, 1987)*;* Charles E. Rosenberg, *Explaining Epidemics and other Studies in the History of Medicine* (Cambridge: Cambridge University Press, 1992); Donatella Lippi et al. "Cholera." *Microbiology spectrum* vol. 4,4 (2016): 10.1128/microbiolspec.PoH-0012-2015. doi:10.1128/microbiolspec.PoH-0012-2015.

[8] J. Andrew Mendelsohn, "'Like all that lives': Biology, medicine and bacteria in the age of Pasteur and Koch." *History and Philosophy of the Life Sciences* (2002): 3-36.

[9] Richard Drayton, "Science and the European empires," *The Journal of Imperial and Commonwealth History*, 23:3 (1995), 503-510, DOI: 10.1080/03086539508582963; Joel Mokyr, *The European Enlightenment: the industrial revolution, and modern economic growth* (Fiesole FI, Italy: European University Institute, 2007); Thomas L. Hankins, *Science and the Enlightenment* (Cambridge: Cambridge University Press, 1985); Lewis Pyenson, *Civilizing Mission: Exact Sciences and French Overseas Expansion, 1830-1940* (Baltimore and London: The Johns Hopkins University Press, 1993).

[10] James E. McClellan III, *Colonialism and Science: Saint Domingue in the Old Regime*, (Baltimore and London: The Johns Hopkins University Press, 1992); Rebekah Lee, *Health, Healing and Illness in African History* (London, 2021); Karen E. Flint, *Healing Traditions: Medicine, Cultural Exchange, and Competition in South Africa, 1820-1948* (Athens, 2008); Kalala J. Ngalamulume, *Colonial Pathologies, Environment, and Western Medicine in Saint-Louis-Du-Senegal, 1867-1920* (New York, 2012); Bryan Thomas Callahan, "Syphilis and civilization: A social and cultural history of sexually transmitted disease in colonial Zambia and Zimbabwe, 1890–1960" (PhD Diss. The Johns Hopkins University, 2002); Haile Larebo, "Empire Building and Its Limitations: Ethiopia (1935-41)" in *Italian Colonialism* ed. Ruth Ben-Ghiat and Mia Fuller (New York: Palgrave Macmillan, 2005); Bruce Strang. "Places in the sun: Social Darwinism, Demographics and the Italian Invasion of Ethiopia" in *Collision of Empires (*ed.) Bruce Strang (Routledge: London, 2013).

science, medicine, and the related frameworks of health and wellbeing.[11] In contrast, the study of scientific history and public health in more-modern Islamic and Ottoman contexts remains sparse, and is often overshadowed by predominant historiographical and ideological narratives explored below, including 'fatalism,' and the 'sick man of Europe' trope.[12] Even within the early-modern period, scholars point to a lack of examination of Islamic intellectual traditions, including in the fields of science, medicine, and philosophy, and find themselves defending against false paradigms of 'decline.'[13] Together, these narratives present a picture of the Ottoman empire, and the Middle East more broadly, as ignorant of modern medicine and science, and 'blinded' by Islamic faith to resign before the threat of disease. In order to understand the effect of cholera within the Ottoman Empire in the 19th-century, we must first examine Ottoman concepts of health and well-being, and contemporary scientific knowledge, to understand how these were impacted by the advent and transmission of cholera.

Although conceptual history, including that of public health, in the Ottoman tradition is an underdeveloped field, hindered by the complicated linguistics of original sources and the vast and fluctuating regional and temporal scope of the empire, emerging scholarship centers on intellectual traditions in political, religious, and scientific thought.[14] The intellectual milieu of the

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[11] Stacey Langwick, "Witchcraft, Oracles, and Native Medicine," in *Bodies, Politics, and African Healing: The Matter of Maladies in Tanzania* (Bloomington: Indiana University Press, 2011), 39-57; Walima T. Kalusa, "Language, Medical Auxiliaries, and the Re-interpretation of Missionary Medicine in Colonial Mwinilunga, Zambia, 1922-51," *Journal of Eastern African Studies* 1, no. 1 (2007): 57-78; Bryan Callahan, "'Veni, VD, Vici?': Reassessing the Ila Syphilis Epidemic," *Journal of Southern African Studies*23, no.3 (1997): 421-40; Nancy Rose Hunt, "'Le Bébé en Brousse': European Women, African Birth Spacing, and Colonial Intervention in Breast Feeding in the Belgian Congo," *International Journal of African Historical Studies* 21, 3 (1988): 401-32; Amy K. Kaler, *Running after pills: politics, gender, and contraception in colonial Zimbabwe.* (Portsmouth: Heinemann, 2003).

[12] Layla Aksakal, "The sick man and his medicine: Public health reform in the Ottoman Empire and Egypt." (Third Year Paper, Harvard University: HSL Student Papers, 2003): 2; Miri Shefer-Mossensohn, and Nükhet Varlık, "A historiography of epidemics in the Islamic Mediterranean." *Plague and contagion in the Islamic Mediterranean* (2017): 3-25.

[13] Matthew Melvin-Koushki, "Early Modern Islamicate Empire: New Forms of Religiopolitical Legitimacy," 371-2. In in *The Wiley- Blackwell History of Islam,* (eds.) Armando Salvatore, Babak Rahimi, Roberto Tottoli (Hoboken: Wiley Publishing, 2018).

[14] Alp Eren Topal and Einar Wigen, "Ottoman Conceptual History: Challenges and Prospects." *Contributions to the History of Concepts* 14, no. 1 (2019): 93-114.

Islamicate empires is characterized by a mobilization of scholars and ideas across diverse polities and traditions; despite the formation of distinct imperial brands, such ideologies were unified by common religio-political conceptions of power and the order of civilization.[15] The Galenic theory of hormonal balance is an example of a central concept shared across early-modern Mediterranean intellectual traditions, shaping the practice of medicine and the conception of wellness, as evidenced by the widely-circulated and influential works of Ibn Sina (d. 1037) which were constructed upon the Galenic framework.[16] This theory also informed Islamist political thought, in which medical metaphors (penned by Tusi (d. 1274), Davani (d. 1502), Kashifi (d. 1504), Khawandmir (d. 1534), and Abdu'l Fazl (d. 1602), among other scholars) commonly represented the Sultan as a "skilled physician whose function is to maintain the body politic in a healthy state."[17] The writings of Davani (d.1502), a classical Persian scholar, theologian, jurist, and poet, enjoyed wide circulation in Ottoman territory and scholarly circles, and Sultan Beyezid assigned the scholar Mu'ayyadzade 'Abd al-Rahman Efendi to travel and study under Davani.[18] Davani, in *Flashes of Illumination on Praiseworthy Ethics: On the Politics of Kingship and the Manners of Kings* (quoted above), states that: "the emperor is the physician of the world" and identifies parts of society as "limbs of a single body."[19] Building upon Greek

[15] Blain Auer, *In the Mirror of Persian Kings: The Origins of Perso-Islamic court and empires in India* (Cambridge University Press, 2021); Matthew Melvin-Koushki, "Early Modern Islamicate Empire: New Forms of Religiopolitical Legitimacy," 351-375 . In *The Wiley- Blackwell History of Islam,* (eds.) Armando Salvatore, Babak Rahimi, Roberto Tottoli (Hoboken: Wiley Publishing, 2018); Emma Flatt, *The Courts of the Deccan Sultanates: living well in the Persian cosmopolis* (Cambridge University Press, 2019).

[16] Murad Ahmad Khan, Fauzia Raza, and Iqbal Akhtar Khan. "Ibn sina and the roots of the seven doctrines of preservation of health." *AMHA-Acta medico-historica Adriatica* 13 (2015): 87-102.

[17] Alp Eren Topal, ("Medical Metaphors in Ottoman Political Thought") interview with Susanna Ferguson and Sam Dolbee, Ottoman History Podcast, podcast audio, September 5th, 2019, https://www.ottomanhistorypodcast.com/2019/09/medical-metaphors.html; Vasileios Syros, "Galenic medicine and social stability in early modern Florence and the Islamic empires." *Journal of Early Modern History* 17, no. 2 (2013): 161-213; Marinos Sariyannis, *A History of Ottoman Political Thought up to the Early Nineteenth Century* (Leiden: Brill, 2018).

[18] Ahab Bdaiwi, "II. Philosophia Ottomanica: Jalal al-Din Davani on Establishing the Existence of the Necessary Being" in *The Empires of the Near East and India: Source Studies of the Safavid, Ottoman, and Mughal Literate Communities* (ed.) Hani Khafipour (New York, Chichester, West Sussex: Columbia University Press, 2019), 319-335. https://doi.org/10.7312/khaf17436-030.

[19] Jalal al-Din Davani, "On the Politics of Kingship and the Manners of Kings," in *Akhlaq-i Jalali*, trans. Carl Ernst.

moral philosophic principles and incorporating the work of theorists like Tusi (d. 1274), Davani links “the four main segments of the state (learned men, the army, traders, and farmers) and the four elements," with the Galenic humoral model, invoking balance as the key to the prosperity and health of the empire.[20] Medicine was one branch of many sciences incorporated into Islamic encyclopedic traditions, which categorized knowledge - including that translated from Greek, Syriac, Aramaic, Hebrew, and Sanskrit - though it was, at times, included alongside talisman-making, astrology, or the occult sciences under the branch ‘natural philosophy.’[21] In the early-modern era, the classical educational institution, the *medrese*, taught a wide range of disciplines from sciences to jurisprudence.[22] Though the exact curriculum of a *medrese* education is not certain, and likely varied across time and place, the number of extant copies of and commentaries on the works of classical scholars like Ibn Sina, al-Razi, Galen, Aristotle, and Plato, et al. attest to their relevance and give an idea of contemporary didactic themes, including medical principles.[23]

Galenic medicine, with its emphasis on balance within the body and its relationship with the environment, informed early-modern conceptions of health and the practice of medicine even beyond the Ottoman empire. Barbara Duden, in exploring the medical records of an 18th-century German doctor named Storch, recognizes the profound differences between the conceptualizations of health and illness during the early-modern period and in modern medicine.[24] Though Galenic theories of humoral balance began falling out of favor during 18th-century Europe, as conceptions of the body as

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[20] Vasileios Syros, "Galenic medicine and social stability in early modern Florence and the Islamic empires." *Journal of Early Modern History* 17, no. 2 (2013): 164.
[21] Gerhard Endress, "The cycle of knowledge: Intellectual traditions and encyclopaedias of the rational sciences in Arabic Islamic hellenism." In *Organizing Knowledge: Encyclopædic Activities in the Pre-Eighteenth Century Islamic World* Volume 61 ed. Gerhard Endress, (Lieden, Boston: Brill, 2006), 118-119.
[22] Miri Shefer Mossensohn, *Science among the Ottomans: The Cultural Creation and Exchange of Knowledge* (Austin: the University of Texas Press, 2015), 126-135.
[23] Nir Shafir, “The Almighty Akce: The Economics of Science and Scholarship in the Early Modern Ottoman Empire - Review of Harun Küçük's Science without Leisure” *Journal of Ottoman Studies LVIII* (2021): 251-280.
[24] Barbara Duden, "Disembodied Health." *New Perspectives Quarterly* 17, no. 1 (2000): 54-59.

a ‘mechanism’ or driven by a ‘life force’ gained traction, Duden recounts that the medical encounter was “understood as the exegesis of complaints and the reestablishment of balanced flows.”[25] As scholars including Duden, Emma Flatt, and Nükhet Varlik have noted in connection with early modern conceptions of health and wellbeing in Islamic and non-Islamic contexts, the body was conceived as a ‘microcosm’[26] in which balance represented health and healing, and imbalance represented illness and suffering. It is important to note that this “idea of cosmic correspondence, proportionality, and complementarity between nature as a whole and every human body”[27] underlay the foundation of medical traditions in early-modern Europe, as well as in Islamic society. The shared approaches were connected through sources such as Ibn Sina, translated from the Arabic, (known to the west as Avicenna), which were themselves based on earlier Islamic translation of texts from Greek, Syriac, Aramaic, Sanskrit and other languages.

In “Explaining Epidemics,” Charles Rosenberg identifies binary categories in conceptualizations of disease in the history of science, the most familiar iteration of which is contagionist/anti-contagionist, which appears in discourse and debate on cholera and yellow fever in European and American contexts;[28] similar frameworks, those of holistic/reductionist or contaminationist/configurationist,[29] are also useful in understanding the conceptual approach to disease throughout history, with ‘holistic’ or ‘configuration’ mapping well onto early-modern and Galenic conceptions of disease and health. As we will see, the Ottoman experience with cholera similarly points to a configurational or holistic understanding of health, as modern biomedical, environmental, and spiritual methods of healing were utilized in the medical responses. Importantly, though these

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[25] Duden, 57.
[26] Duden, 55; Flatt, 56; Nükhet Varlık, *Plague and contagion in the Islamic Mediterranean*, 276.
[27] Duden, 56.
[28] Charles E. Rosenberg, *Explaining Epidemics and other Studies in the History of Medicine*, (New York: Cambridge University Press 1992), 296.
[29] For a more detailed explanation of the categories see Rosenberg, *Explaining Epidemics,* 293-302.

outlooks are presented as binaries, Rosenburg explains contamination "is a style of explanation logically alternative to configuration, although historically the two have often been found in relabiely, peaceful, if not always logical, coexistence."[30] Though it is helpful to identify different categories for 'explaining epidemics,' it is also important to note that the categories are neither static nor mutually exclusive, as understandings of disease and health remain historically complex and evolving. Though Ottoman sources identify microbial contagion in connection with cholera (a 'contagonist' or contaminationist perspective), they also emphasize the role of water-works and the environment upon public health and cholera contagion (a configurationist or 'anti-contagionist' perspective) and do not hold these positions to be mutually antithetical, as the binary between contagion/anti-contagion would imply. The 'coexistence' of these different conceptual approaches to explaining epidemics influenced the Ottoman public health measures explored in Chapter III, which included the imposition of quarantines alongside a renewed focus upon water-works. Similarly, Ottoman community responses to cholera, explored in Chapter IV, incorporate a spiritual dimension to health and its protection, evidencing the coexistence of both conceptions of modern microbial contagion and traditional frameworks that integrate physical and spiritual health.

In focusing upon health and disease in response to the recurrent cholera outbreaks that afflicted the Ottoman empire in the 19th century, I will examine the following questions: (i) how did *Tanzimat*-era professionalization of the Ottoman medical field transform the public health response to cholera?; (ii) what were the public health measures implemented to protect against cholera in the cities of Baghdad and İzmir?; and (iii) how did the the Ottoman-Muslim community respond to cholera and the public health measures it precipitated?

Though I will concentrate upon cholera and the 19th-century Ottoman empire, I draw in large part on the works of Nükhet Varlık, Miri Shefer Mossensohn, and other scholars of

[30] Rosenberg, 295.

plague,[31] who have worked to establish a picture of the 'early-modern' health landscape in the Mediterranean, to guide my exploration of similar questions in the 'modern' context. Importantly, Varlık identifies the processes of medicalization and naturalization, which play an important role in the later response to cholera, in understanding the plague in early-modern Ottoman times. The public health efforts in response to plague focused on the environment, streets, buildings, water-works and fire-walls, the Ottomans implementing a holistic understanding of health to protect their communities from disease and potential disaster. Varlık also elucidates a spiritual or moral dimension to health from the various methodologies written in plague treatises, ranging from herbal drug recipes, magic squares, talismans, and prayers, to dietary advice.[32] This dimension, and the public health measures which correspond to it, align with the Ottoman term *hıfzıssıhha*, which has been variously translated as 'preventative medicine', 'public health', and 'protection of health'. Although in the 'modern' period, the Ottoman response to cholera also included the modern science of microbial contagion and corresponding quarantines and vaccines, there was not a clear rupture between the early-modern understanding of health as interconnected with spiritual and environmental conditions. The Ottoman lived-experience with the plague and other diseases informed the conceptual understandings of public health and the responses enacted by institutions and individuals in respect of cholera. As we will see in Chapter III, water and infrastructure were central to the

[31] Nükhet Varlık, *Plague and Empire in the Early Modern Mediterranean World: the Ottoman experience, 1347-1600* (Cambridge: Cambridge University Press, 2012); Nükhet Varlık (ed.), *Plague and contagion in the Islamic Mediterranean* (Newark: Arc Humanities Press, 2017); Yaron Ayalon, *Natural Disasters in the Ottoman Empire: Plague, Famine, and Other Misfortunes* (Cambridge: Cambridge University 2015); Birsen Bulmuş, *Plague, quarantines and geopolitics in the Ottoman Empire*. (Edinburgh: Edinburg University Press, 2005); Miri Shefer Mossensohn, *Ottoman Medicine: Healing and Medical Institutions 1500-1700* (New York: State University of New York Press, 2009); Miri Shefer Mossensohn, *Science among the Ottomans: The Cultural Creation and Exchange of Knowledge* (Austin: the University of Texas Press, 2015).

[32] Varlık, *Plague and Empire in the Early Modern Mediterranean World*, 223-240; For one such example see Hacı Paşa, Müntahab-ı Şifâ (Ankara: Türk Dil Kurumu, 1990) 172-79.

Ottoman public health response, and in Chapter IV, Ottoman-Muslim community publications emphasized the spiritual dimension of health.

Though some historical scholarship has been dedicated to illuminating details such as the death toll of cholera in the Ottoman Empire,[33] the adoption of quarantine measures,[34] and the promotion of International Sanitary Conferences,[35] such scholarship falls short of situating itself within an Ottoman conceptual understanding of public health, and is often isolated from theoretical and medical traditions that predate or promote such practices. Furthermore, printed and published materials in Ottoman-Turkish have been overlooked to date as crucial primary sources to shed light on societal understandings of the impact of cholera, and the corresponding public health responses. The history of cholera in the 19th-century Ottoman empire is further complicated by the two paradigms of 'fatalism' and 'modernization' .

The 'fatalist' narrative has infected the historiography of disease in Ottoman contexts since the 16th century, in connection with the experience of plague. First appearing in ambassadorial accounts, including the famed *Turkish Letters* written by the Flemish ambassador to the court of Suleiman the Magnificent (d.1566), Ogier Ghiselin de Busbeq (d.1592), the trope was later transmitted in the genre of travel writing, where it began to play a role in establishing European/Western narratives of exceptionalism, or alternatively the alterity or 'otherness' of the Ottomans.[36] The trope implies that, because of their Islamic faith, Turks resign themselves to fate rather than employ preventive or

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[33] Özgür Yılmaz, "The cholera epidemic of 1847–1848 and its effects on the Ottoman Empire." *Journal of Eurasian Inquiries* 6, no. 1 (2017): 23-55; Daniel A. Stolz, "The Voyage of the Samannud: Pilgrimage, Cholera, and Empire on an Ottoman-Egyptian Steamship Journey in 1865-66." *International Journal of Turkish Studies* 23, no. 1/2 (2017): 1-18.

[34] Aytuğ Arslan and Hasan Ali Polat, "Travel from Europe to Istanbul in the 19th century and the Quarantine of Çanakkale." *Journal of Transport & Health* 4 (2017): 10-17; Sukran Sevimli, "A historical evaluation from quarantine to compartmental model: from Ottoman Empire in 1830 to the Turkish Republic at 2020 and from cholera to COVID-19." *Eubios Journal of Asian and International Bioethics* 30, no. 6 (2020).

[35] Valeska Huber, "Pandemics and the politics of difference: rewriting the history of internationalism through nineteenth-century cholera." *Journal of Global History* 15, no. 3 (2020): 394-407.

[36] For further discussion of the fatalistic trope in European writing, and the role of experience with disease in defining 'difference' between "West" and "East" see Varlık, *Plague and Empire in the Early Modern Mediterranean World*, 72-89.

curative measures in the face of disease. In the entry on *peste* (plague) in Diderot's famed 18th-century "*Encyclopédie"*[37] the fatalist trope made its entrance into the classical European canon of knowledge, influencing standard perceptions of the experience of disease in Islamic contexts. In line with recent scholarship,[38] this paper counters the 'fatalist' trope, as the Ottoman experience with cholera includes multiple endeavors to protect health on individual and collective levels, ranging from vaccines and quarantines for the former to water-works and talismans for the latter.

Additionally, in situating the history of cholera within the context of the transformative nineteenth-century that typically marks the established boundary between the 'early-modern' and the 'modern' narratives of rupture, historiographical paradigms about modernization further complicate the picture. Though this periodization is standard across world history generally, in Ottoman historiography the 19th-century carries the additional association with 'modernization' because of the extensive reformation programs that characterized the *Tanzimat-era,* which literally bears the name 're-order'. For this reason, the transformative program of reforms, herein referred to as *Tanzimat-era* reforms, will periodically be referred to in order to contextualize the history of cholera. *Tanzimat* officially began with the *Gülhane* edict in 1839,[39] though the reformation projects of the earlier Sultans, beginning with the military and branching outwards, point to a broader wave of transformation that bleeds over each end of the 19th-century.[40] *Tanzimat* aimed to strengthen the central sultanic authority and transform sectors as diverse as

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[37] Louis Chevalier de Jaucourt, "Plague." *The Encyclopedia of Diderot & d'Alembert Collaborative Translation Project.* Translated by Philip Stewart. Ann Arbor: Michigan Publishing, University of Michigan Library, 2020. http://hdl.handle.net/2027/spo.did2222.0004.165 accessed March 20, 2022. Originally published as "Peste," *Encyclopédie ou Dictionnaire raisonné des sciences, des arts et des métiers,* 12:456–457 (Paris, 1765).

[38] Miri Shefer Mossensohn "Communicable Disease in Ottoman Palestine: Local Thoughts and Actions." *Korot* 21 (2011-2012): 20, 48-9; Varlik, 72-89; Sam White, "Rethinking Disease in Ottoman History." *International Journal of Middle East Studies* 42, no. 4 (2010): 549–67. doi:10.1017/S0020743810000814.

[39] M. Şükrü Hanioğlu,"The Tanzimat Era." In *A Brief History of the Late Ottoman Empire*, 72–108. (Princeton University Press, 2008) 73-74.

[40] Ali Yaycıoğlu, *Partners of the Empire: The Crisis of the Ottoman Order in the Age of Revolutions* (Stanford: Stanford University Press, 2016): see especially Chapters I and IV.

the military, economy, agriculture, and education.[41] Importantly, despite the centralizing ethos of the *Tanzimat-era*, with reforms aiming to strengthen the authority of the Sultan, local variables resulted in reform programs that looked and functioned differently across different aspects of the empire.[42] The case studies of Baghdad and Izmir help provide a dynamic understanding of such *Tanzimat-era* transformations in the context of cholera (Chapter III), though, as key urban centers, they cannot be understood as wholly representative of the vast empire. The Ottoman experience with cholera challenges an established paradigm of 'modernization' and rupture with the early-modern past because holistic, or integrative, conceptions of health were maintained and integrated with modern microbial knowledge. However, the transformative nature of the modern reformations and advancements in technology did impact the Ottoman experience with cholera and are, accordingly, explored in Chapter III and IV.

To begin, I will provide a brief chronology and geography of cholera in the Ottoman Empire, establishing the disease's transmission along travel routes and exploring the existing scholarship on the experience with disease in the key contexts of Istanbul and the Hajj pilgrimage. Then I will explore the professionalization of the Ottoman medical field (to establish medical practitioners with qualitatively-defined skills to meet the empire's needs and to acquire state-of the art expertise in modern medicine from foreign sources), in order to better understand the transformations undergone by the Ottoman-State and society. Next, I will explore Ottoman public health measures (quarantines and water-centric measures implemented in tandem with various *Tanzimat-era* reforms) undertaken in the context of cholera, using Baghdad and Izmir as case studies to demonstrate local variances. Finally, I will focus on contemporary

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[41] For a comprehensive review of the transformations see especially Hanioğlu Chapter 4, sections on Provincial Government (86-87), the Economy (89-93), Cultural and Intellectual Transformation (94-101), and Education (103-104).

[42] Hanioğlu, 104-108; Ceylan İrem Gençer, "Dualities in the Transformation of the Urban Realm: Smyrna and Salonica 1840-1900," *Mediterranean Historical Review*, 21, vol. 2 (2016): 157-158;

printed-publications of the Ottoman-Muslim community, including scientific and religious journals and women's gazettes, to understand community responses to cholera.

In order to unite these different levels of analysis, I will rely upon the metaphor of 'Sultan as physician,' the different societal sectors illustrating the effect of his actions, through *Tanzimat-era* reforms and public health measures, upon the health of society. The Sultan is the central actor, orchestrating efforts to treat the body so as to maintain its health and ensure its longevity; what he does to enhance physical and societal health and well-being (through funding of research and infrastructure projects, organization of medical education, allowing and promoting the communication of ideas, etc.) has practical effects for the individuals and communities affected. However, as suggested above, the vital role of individual and institutional actors with medical expertise in the response to cholera challenges the assumption that the Sultan bears the sole responsibility of maintaining public health. A second metaphor, inscribed in the popular women's gazette *Hanımlara Mahsus Gazete* (discussed in Chapter IV), allows that the health of society is dependent on the health of the families that comprise it, while the health of a family is dependent on the health of individual family members. Together, these metaphorical frameworks reveal an Ottoman understanding of public health that will underlie this examination of their response to cholera in the 19th-century: public health is personal health, and personal health is public health. Thus, the principles of the Ottoman public health philosophy are established: the family as an essential element of the state, the state an interdependency of individuals, families, and sectors, all reliant upon each other and the Sultan for health.

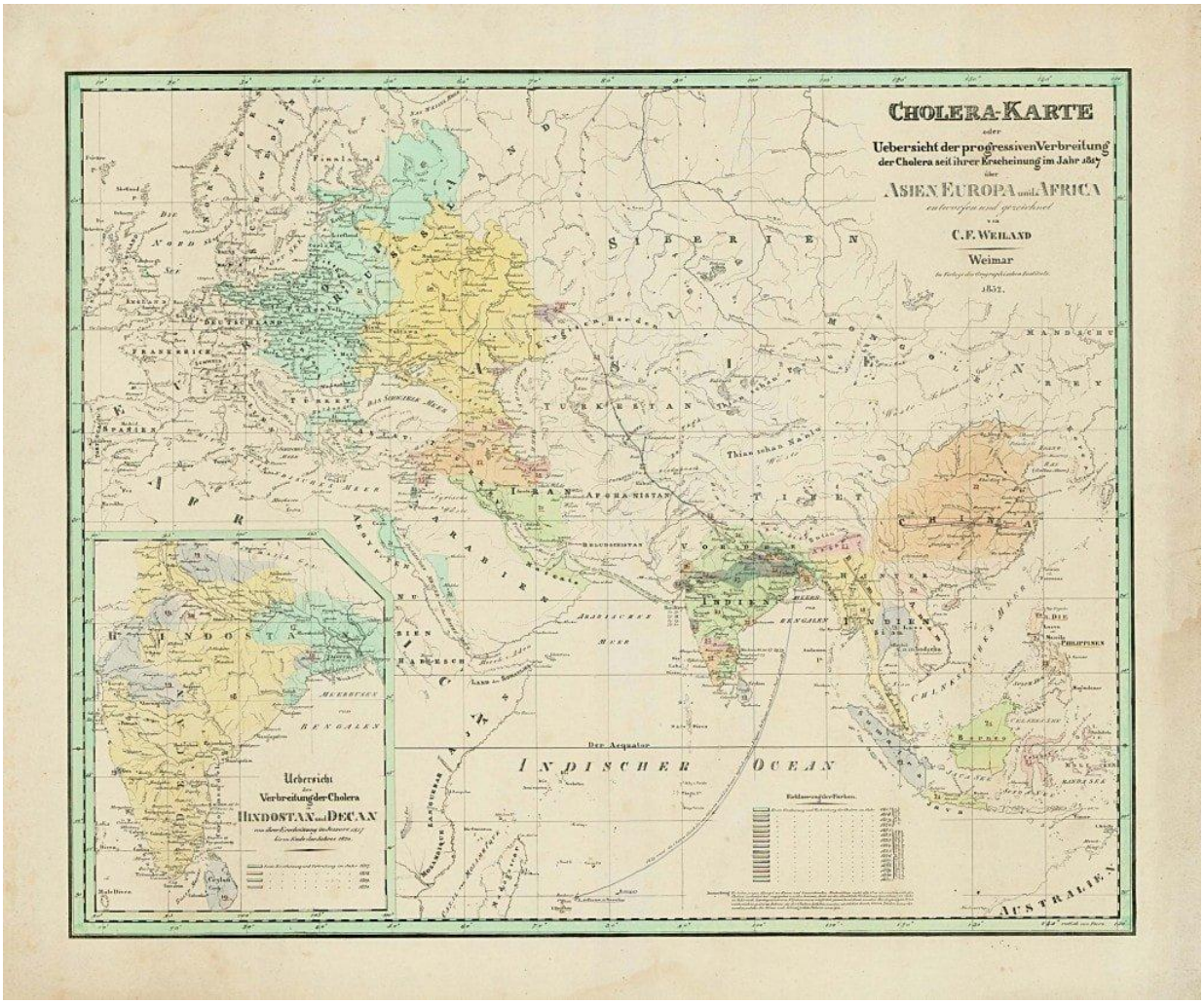

Figure 2: Carl Ferdinand Weiland, *Cholera-karte oder Uebersicht der progressive Verbreitung der Cholera seit ihrer Erscheinung im Jahr 1817 über Asien, Europa under Africa.* Weimar: Verlag des Geographischen Instituts, 1832.[43]

[43] "Rare cholera map of the first and second pandemics" *Boston Rare Maps Online*. Last Accessed March 27, 2022. https://bostonraremaps.com/inventory/rare-cholera-map-weiland/

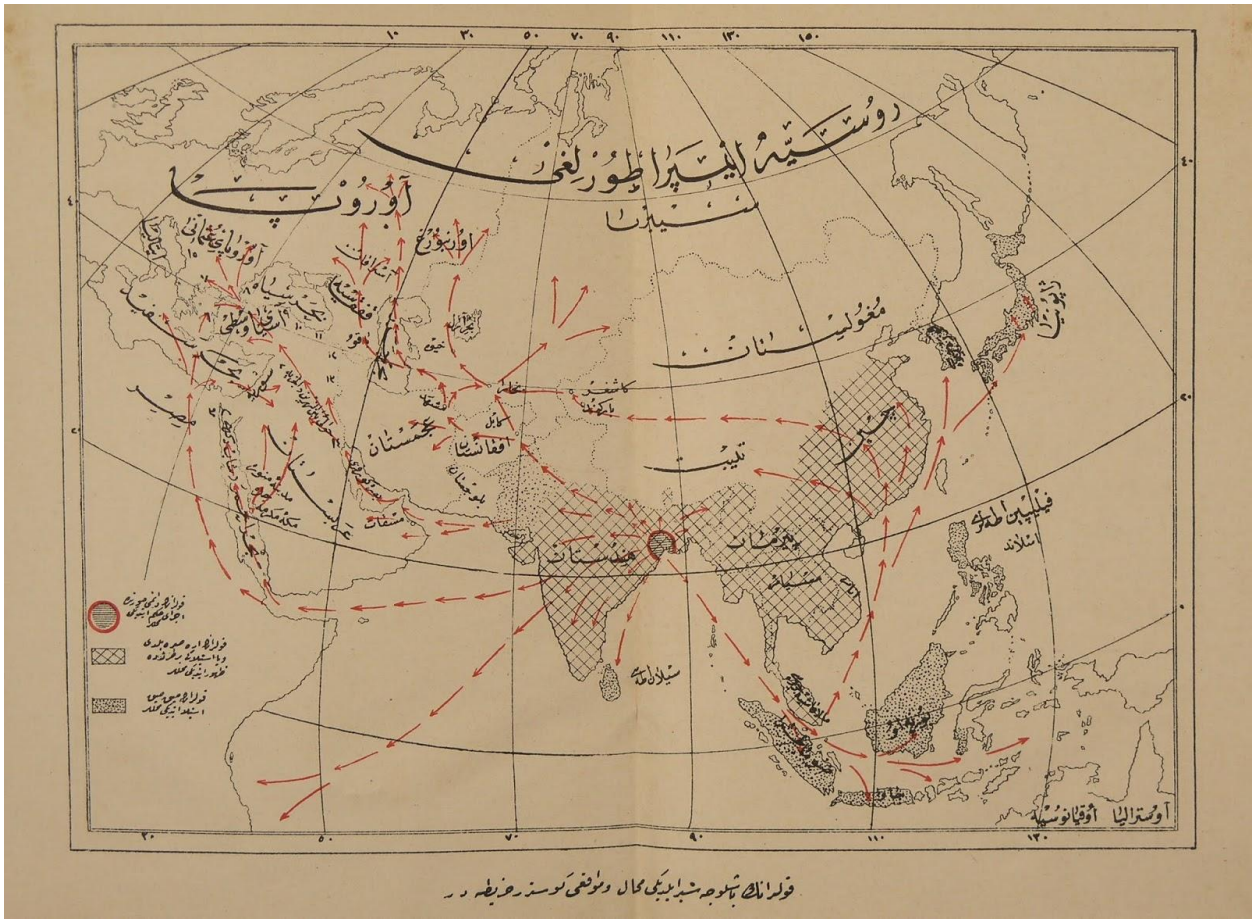

Figure 3: Koleranın Yayılma Yollarını Gösterir Osmanlı Haritası (Akil Muhtar and Besim Ömer, *Kolera Hastalığında İttihazı Lazım Gelen Tedâbir ve Ettibâya Rehber*, Dersaadet: Arşak Garveyan Matbaası, 1327).[44]

[44] İsmail Yaşayanlar, "Osmanlı Devleti'nde Salgın Hastalıklarla Mücadele" interview with *Can Gümüş*, Ottoman History Podcast, podcast audio, March 12th 2020. https://www.ottomanhistorypodcast.com/2020/03/kolera.html

Chapter I: Geography and Chronology of Cholera in the Ottoman Empire

1.1 Ottoman-Egyptian Steamship 'Samannud': Carrying Cholera Contagion

"When diarrhea and death increased among them, the sickness struck the crew of stokers (khadamat al-wabur). We chose a group of the strongest North Africans to work as stokers, instead of the sailors."[45]

- Sulayman Qadan Hallawa, *Account of the voyage of the Samannud in 1865-66*, (translated by Daniel Stolz).

These unfortunate Maghribi passengers, "the strongest North Africans", were hajj pilgrims who had paid to travel aboard the steamship *Samannud* but, by Captain Sulayman Qadan Hallawa's own account,[46] experienced disease, death, quarantines, rations and even forced labor during their long voyage from Africa to the Suez. *Hacı* (pilgrims) who had traditionally experienced the journey across land and sea routes in cavalcades with multiple stops, found themselves trapped on the open ocean, subject to the captain's orders, suffering from "diarrhea and death" alongside the ship's crew. On the *Samannud*, the outbreak of cholera killed more than 100 of the 1,845 passengers and crew, and the captain's journal details the tossing of bodies overboard, having first weighed them down with ropes to prevent them from reaching land or the attention of authorities, providing a gruesome picture of the deadly impact of cholera on steamship travel, and the lives of pilgrims, passengers, and people in port cities across the Ottoman empire and beyond.

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[45] Daniel A. Stolz, "The Voyage of the Samannud: Pilgrimage, Cholera, and Empire on an Ottoman-Egyptian Steamship Journey in 1865-66." *International Journal of Turkish Studies* 23, no. 1/2 (2017): 12.

[46] The account has been translated into English: Daniel A. Stolz, "The Voyage of the Samannud: Pilgrimage, Cholera, and Empire on an Ottoman-Egyptian Steamship Journey in 1865-66." *International Journal of Turkish Studies* 23, no. 1/2 (2017): 1-18.

1.2 Cholera Cartography: Concerning Cholera's Circulation

Throughout the 19th-century, the transmission of disease, particularly cholera, across emerging international networks of travel and trade, prompted German and Ottoman cartographers and scientists to visually map its progression **(Figures 2 and 3)**. Dr. Besim Ömer Akalın, known for his legacy as 'father of modern gynecology,' was an influential medical expert in late-Ottoman Early-Republican history,[47] involved in the creation of the Ottoman cholera contagion map (**Figure 3**), and many other publications on public health, household hygiene, and contagious diseases (as explored in 4.1.5). The Ottoman map key[48] on **Figure 3** clearly indicates the region in the Empire's east, where cholera was endemic, known to Ottomans as Hindustan,[49] as the center of transmission, the red arrows on the map showing its outward spread. The routes of transmission outlined in this representation (marked by red arrows) intersected with the voyage of the Ottoman-Egyptian steamship *Samannud* along the coasts of Africa, providing a

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[47] Emine Ö. Evered and Kyle T. Evered, "Dispensary, home, and 'a women's army': framing tubercular geographies and gender in late Ottoman Turkey." *Journal of Historical Geography* 68 (2020): 33-43;
Ayşegül Demirhan Erdemir, "Interpretations on Weather Changes in the Turkish Medical History (According to Prof. Dr. Besim Ömer Akalın)." *Journal of the International Society for the History of Islamic Medicine (JISHIM)*: 72; Hülya Öztürk, "Besim Ömer Akalın ve Üzüm İle Tedavi Bahsi." *Mersin Üniversitesi Tıp Fakültesi Lokman Hekim Tıp Tarihi ve Folklorik Tıp Dergisi*: 44-45; Yeşim Işıl Ülman, "Osmanlı'dan Cumhuriyet'e Geçiş Sürecinde bir Aydının Portresi (1861-1940) Dr. Besim Ömer Akalın." *Yeni Tıp Tarihi Araştırmaları*, 10-11, (2004-2005): 435-464.

[48] Modern Turkish transcription of Figure 3 map key: "1- Koleranın daimi surette icra-yı hükm ettiği mahaller 2- Koleranın ara sıra ... veya istilaki tarzda zuhur ettiği mahaller 3-Koleranın sık sık istila ettiği mahaller"
English translation: 1- locations where cholera is permanently present 2- areas where cholera occurs occasionally, or in an invasive manner 3- places frequently invaded by cholera"

[49] Özgür Yılmaz, "The cholera epidemic of 1847–1848 and its effects on the Ottoman Empire." *Journal of Eurasian Inquiries* 6, no. 1 (2017): 23-55; Gülcan Aras, "Hintli hacılar arasındaki kolera salgını ve alınan tedbirler (1831-1911)." Master's thesis,Afyon Kocatepe Üniversitesi, 2020; David Arnold, "Cholera and colonialism in British India." *Past & Present* 113 (1986): 118-151; James Jameson, *Report on the epidemick cholera morbus, as it visited the territories subject to the Presidency of Bengal, in the years 1817, 1818 and 1819: Drawn up by order of the Government, under the superintendence of the Medical Board.* (Calcutta: Balfour, 1820). https://babel.hathitrust.org/cgi/pt?id=chi.092824220&view=1up&seq=1&skin=2021; Henry Walter, *The history of cholera in India from 1862-1881 being a descriptive and statistical account of the disease as derived from the published official reports of the several provincial governments during that period and mainly in illustration of the relation between cholera activity and climatic conditions together with original observations on the causes and nature of cholera*, (London: Trübner, 1885). https://babel.hathitrust.org/cgi/pt?id=njp.32101068137023&view=1up&seq=9; Manan Ahmed Asif, *The Loss of Hindustan*. (Cambridge, MA and London, England: Harvard University Press, 2020). https://doi.org/10.4159/9780674249868

visual depiction of the overlap between the history of cholera in the Ottoman empire and the international history of disease transmission.

Cholera first appeared in the Ottoman Empire in 1821, and during the nineteenth-century, the disease spread from the East to the West across three key travel and trade routes, causing major pandemics in 1817, 1829, 1852, 1863, 1881, 1889, and 1892-1895.[50] The Ottoman map (**Figure 3)** shows the transmission routes by which cholera spread from the region of India through Asia and Europe, along both land and sea routes. Along the first route, cholera contagion spread from North India, Afghanistan, Persia and Central Asia into Russia. Another route reached Baghdad, passing first by water, through Persian Gulf, then across the land, and towards the Caspian Sea. A third transmission route, through the Red Sea, linked India with Egypt and the Mediterranean. The Ottoman Empire was affected by recurrent cholera outbreaks via all three of these transmission routes, as indicated by the branching red arrows on the map. It responded by implementing public health measures intended to limit the contagion, focusing on traveler quarantines and management of potable and waste water as front-line measures to slow the spread. The implementation of these public health measures relied heavily upon the newly-professionalized Ottoman medical corps (explored in Chapter II, below), working in conjunction with local governments, to be effective.

1.3 Istanbul's Experience with Disease: Countering Contagion Concerns

The relative success of these measures can be observed in the ten years it took for cholera to reach the capital, Istanbul, from its first appearance in Ottoman lands.[51] Istanbul, as the capital,

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[50] Yılmaz, 23-55; Valeska Huber, "The Unification of the Globe by Disease? The International Sanitary Conferences on Cholera, 1851-1894." *The Historical Journal* 49, no. 2 (2006): 453–76. http://www.jstor.org/stable/4091623.

[51] Yılmaz, 23-55; Gülhan Balsoy and Cihangir Gündoğdu, "Ottoman death registers (Vefeyât Defterleri) and recording deaths in Istanbul, 1838–1839" *Journal of Middle Eastern Studies* 57 no. 2, (2021): 197-208; Mesut Ayar, "Osmanlı Devleti'nde Kolera Salgını: İstanbul Örneği (1892-1895)" (PhD Diss., Marmara Üniversitesi, 2005); Varlik, *Plague and Empire in the Early Modern Mediterranean World,* 275-281.

seat of sultanic authority, and renowned urban center, has been the focus of significant scholarship, which identifies three key aspects of the Ottoman public health response that are explored in the following chapters as pertinent to outlying areas of the empire as well. The first aspect involves medicalization, regulation, and the recording of deaths and burials; the second, a focus on water and the understanding of bodily health as interconnected with environmental health; and the third encompasses health's spiritual dimension. A range of sources, including the recently published *vefeyât defterleri* (death registers) have been analyzed by scholars to understand the impact of cholera on Istanbul.[52] The 19th-century death registers built upon an existing Ottoman system of record-keeping for deaths and burials, initiated from experience with the plague[53] and evidencing a medicalized understanding of death and of the increased importance of regulated burial practices in the context of epidemics[54] that would become common in concerted Ottoman public health responses. In connection with the sea transmission routes explored earlier (1.2), scholarship has identified a ship hailing from Odessa as the initial transmission vessel of cholera to Istanbul. In the face of a similar threat of the disease in 1847 on a ship arriving from Trabzon, 10-day quarantine regulations were placed upon ships arriving from the same direction[55] – what would become a standard response to cholera outbreaks across the empire. In conjunction with quarantine, Istanbul's public health response to cholera included measures focused on water, the infrastructure for both drinking-water and wastewater.[56] This focus on waterworks drew upon past public health efforts in the city, which focused on the built and natural environment in the context of the plague. The history of early-modern Istanbul's[57]

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[52] Yıldırım, *A History of Healthcare in Istanbul*, 77-98; Balsoy and Gündoğdu, 198-204.
[53] Balsoy and Gündoğdu, 198-204.
[54] Varlık, *Plague and Empire in the Early Modern Mediterranean World,* 248-291.
[55] Yılmaz, 25.
[56] BOA., MUI., 16-3/3; Adem Ölmez, "İkinci Abdülhamid Döneminde Koruyucu Hekimlik ve Bazı Vesikalar." *Belgeler* 34 (2013): 94; Yıldırım, 90-92.
[57] Varlık, *Plague and Empire in the Early Modern Mediterranean World,* 258, 253-91.

experience with disease and the corresponding public health measures enacted (including recording deaths, regulating burials, managing water, and cleaning streets and urban spaces) give rise to an understanding of Ottoman public health that influenced the response to cholera across Ottoman geographies, explored in Chapter III below. Lastly, moral and spiritual frameworks of health, often explored by scholars in the context of the early-modern urban experience of plague in Istanbul, were unique neither to urban locales nor to this particular period.[58] Talismans were common methods of spiritual protection of health found in both urban centers like Istanbul and rural provinces like the Levant (4.1.3). Istanbul death registers from 1839, too, occasionally attribute deaths to a spiritual cause, alongside those from medical causes like tuberculosis,[59] evidencing an integration of emerging modern biomedical understandings of disease with a holistic understanding of health that included spiritual elements. Though no cholera deaths were recorded in these registers,[60] they provide evidence of the broad framework of Ottoman public health during the *Tanzimat-era,* which included spiritual and environmental dimensions that similarly influenced other Ottoman regions, including Baghdad, Izmir, and the Levant.

1.4 The Hajj and Cholera: Contamination Challenges Continue

The Hajj pilgrimage to Mecca and Media provided a catalyst for the spread of cholera through Ottoman territories beyond its borders. Accordingly, the region has, like Istanbul, been central to a considerable amount of scholarship on disease.[61] As a massive movement of persons, the Hajj pilgrimage, transformed by 'modern' revolutions in travel along steamship and train routes, drew international attention as a potential source of global cholera spread, affecting the

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[58] Varlık, *Plague and Empire in the Early Modern Mediterranean World*, 280-83.
[59] Balsoy and Gündoğdu, 202-03.
[60] Balsoy and Gündoğdu, 204.
[61] Michael Christopher Low, *Imperial Mecca: Ottoman Arabia and the Indian Ocean Hajj.* (New York: Columbia University Press, 2020); Michael Christopher Low, "Ottoman Infrastructures of the Saudi Hydro-State: The Technopolitics of Pilgrimage and Potable Water in the Hijaz," *Comparative Studies in Society and History* 57 (2015): 942-974.

Ottoman empire in particular. The impact of cholera in the Hijaz region and Persia (bordering the Caspian Sea, Persian Gulf, Russia, Ottoman Empire, Afghanistan, and the British Indies) was more devastating than in Istanbul's urban environment, as the region "served as a bridge for disease movement to the east to the west."[62] For example, one destructive 1840 outbreak had reached Persia by 1845, leaving more than 20,000 dead.[63] Similarly, cholera afflicted *Hacı* (Hajj pilgrims), deleteriously impacting their health and that of persons living along travel routes, as well as the inhabitants of the holy cities of Mecca and Medina.[64] During the 1846-47 outbreak, Hijaz cholera contagion cost approximately 15,000 lives,[65] and thus steamship quarantines and stations set up along the Ottoman-Qajar border, further explored in Chapter III, can be clearly understood as crucial public health measures aimed at combating the contagion of these interconnected regions and preventing death from disease.

1.5 Cholera Beyond the Capital: Cleanliness and Contagion Coexist

Clear transmission chains are less established for other Ottoman geographies, though records document the cholera contagion's impact through death counts from the disease. In the districts of Çildir, Ardahan, Penek, Oltu, Olur, and Narman, cholera outbreaks claimed the lives of a thousand people.[66] As the disease appeared in other parts of Anatolia and Rumelia, and

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[62] Yılmaz, 25.
[63] Yılmaz, 25.
[64] Cholera and the Hajj will be explored again briefly in Chapter III. The Hajj and cholera is the central topic of a rich body of prior scholarship in both English and Modern Turkish.
In English see especially: Nile Green, "The 'Hajj' as its own Undoing: Infastructure and Integration on the Muslim Journey to Mecca." *Past & Present*, no. 226 (2015): 197. http://www.jstor.org/stable/24545189; Michael Christopher Low, "Microbial Mecca and the Global Crisis of Cholera." In *Imperial Mecca: Ottoman Arabia and the Indian Ocean Hajj* (New York: Columbia University Press, 2020), 117–66. http://www.jstor.org/stable/10.7312/low-19076.9; Michael Christopher Low, "Ottoman Infrastructures of the Saudi Hydro-State: The Technopolitics of Pilgrimage and Potable Water in the Hijaz," *Comparative Studies in Society and History* 57 (2015): 942-974.
In Modern Turkish see: Gülcan Aras, "Hintli hacılar arasındaki kolera salgını ve alınan tedbirler (1831-1911)." (Master's thesis, Afyon Kocatepe Üniversitesi, 2020); Sinan Kuneralp and Münir Çev Atalar, "Osmanlı Yönetimindeki (1831-1911) Hicaz'da Hac ve Kolera." *Osmanlı Tarihi Araştırma ve Uygulama Merkezi Dergisi OTAM* 7, no. 7 (1996): 497-511.
[65] Yılmaz, 49.
[66] Yılmaz, 25-7.

advanced through Diyarbakir, Mardin, and Siirt, over the course of the century, it continued to claim lives, despite public health efforts.[67] Recent scholarship has focused on the impact of cholera on the specific regions of Malatya,[68] Trabzon,[69] Mosul,[70] Sivas,[71] Sniop,[72] Antalya,[73] Izmit,[74] Diyarbakir,[75] and Adana,[76] exploring the public health measures implemented in response, particularly quarantine and disinfection. This scholarship on the 'modern' experience with cholera ties in to the exploration of public health in early-modern rural and provincial contexts, where "local communities were responsible for cleaning riverbeds and drying out marshlands and swamps,"[77] to form a picture of Ottoman public health responses beyond the walls of the capital. Importantly, while the 'modern' institution of quarantine was common across these geographies and histories, so, too, was the emphasis on water measures, which had played a central role in prior early-modern public health programs.

1.6 Conclusion: hıfzıssıhha

In my focus on Baghdad and Izmir,[78] the Hijaz, and the Levant, in the following chapters I aim to form an accurate, if necessarily incomplete, picture of cholera in the Ottoman context; the vast geography and diverse communities extant within the Empire's borders cannot be

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[67] Yılmaz, 26.
[68] Gülseren, Yücel, "Malatya Sancağında kolera salgını (1892-1896)." Master's thesis, Lisansüstü Eğitim Enstitüsü, 2019.
[69] Enver Arslan, "Trabzon vilayetinde kolera (1892-1895)." Master's thesis, Sosyal Bilimler Enstitüsü, 2015.
[70] Oktay Karaman, "XIX. Yüzyılda Musul'da Kolera Vakaları (1847-1902)." *Karadeniz Sosyal Bilimler Dergisi* 12, no. 23: 284-300.
[71] Seda Şahin, "Sivas vilayetinde kolera salgını (1893-1896)." Master's thesis, Lisansüstü Eğitim Enstitüsü, 2014.
[72] Emrah Maral, "1893-1894 Yılları Arasında Sinop'ta Kolera Salgını ve Osmanlı Devleti'nde Kolera Karşı Alınan Tedbirler." *Historical Review* 11 (2021): 27-42.
[73] Mehmet Ak,"19. Yüzyılda Antalya'da Kolera Salgını." *Journal of International Social Research* 4, no. 17 (2011).
[74] Zafer Atar, "İzmit Ve Çevresinde Kolera Salgını 1894." *Uluslararası Karamürsel Alp Ve Kocaeli Tarihi Sempozyumu II, Ankara* (2016): 839-847.
[75] Oktay Bozan, "Diyarbakır Vilayeti'nde 1894-1895 Kolera Salgını ve Etkileri." *Türk Dünyası Araştırmaları* 111, no. 218 (2015): 219-240.
[76] Kurtuluş Demirkol, "Adana ve kolera (1890-1895)." *Dumlupınar Üniversitesi Sosyal Bilimler Dergisi* 56 (2018): 141-156.
[77] Varlık, *Plague and Empire in the Early Modern Mediterranean World*, 281.
[78] Metin Menekşe, "İzmir'de Kolera Salgını ve Etkileri (1893)." *Tarih Araştırmaları Dergisi* 39, no. 67 (2020): 385-433.

wholly represented in this short survey. Recognizing the interconnection between environmental, spiritual, and physical health in Ottoman contexts, the following chapters adopt a holistic approach, considering the diverse measures and responses implemented and promoted by both governing bodies and individuals in the context of cholera. The multi-dimensional Ottoman term, *hıfzıssıhha,* encompasses all of these diverse responses, ranging from the traditional methods of talisman-making used for spiritual protection to the modern medical technology of quarantines and vaccines.

Chapter II: *Tanzimat*-era Transformations: Medical Professionalization & Marginalization

2. 1 Medical Marketplace: Barbers, Kehhâl, and Traditional Healers

Beginning in 1855, barbers in Istanbul were enjoined from blood-letting and tooth-extraction, practices newly deemed to fall within the purview of the nascent medical profession.[79] In consequence, Hafız Bey, a doctor at the School of Medicine, ordered the barbers into professional training at the School, under the oversight of the *gendarmerie*.[80] The impetus for this forced instruction, rather than punishment, for unauthorized practice (as was the common practice in the latter half of this century), was likely their physical proximity to the newly established professional medical institutions: rather than allow barbers to continue their unsanctioned practice in clandestine competition with legitimate medical officers or to risk insufficient number of treatment providers by curtailing their unauthorized practice, officials instead acknowledged the barbers' extant skills and folded them into the ranks of professionals-in-training. In contrast, archival records from Tesalonika in 1860 indicate that a Jewish traditional healer, Baruh, was placed under arrest and had his practice closed after administering treatment to Mustafa Bey, the captain of the imperial fleet in the port city,[81] with fatal results.[82] Perhaps political considerations or Mustafa Bey's elevated rank influenced the harsh consequences this case engendered, as Baruh was thereafter barred from practicing his established craft, despite a finding that the pill he administered was not the cause of his patient's death; nevertheless, it portended heightened scrutiny of traditional healers and their practices

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[79] BOA A. MKT. MVL. 70 / 41.
[80] This document is also cited with a brief English summary in footnote 55 of Ceren Gülser İlikan-Rasimoğlu, "Boundaries, Education and Licence: The Nineteenth Century Ottoman Standardization of Medical Professions." *Trakya University Journal of Social Science* 19, no. 1 (2017): 240.
[81] BOA. A. MKT. MLV. 117 / 86.
Modern Turkish transcription: "[...]Korvet-i Hümayun Yüzbaşılarından Mustafa Ağa…"
English translation: "....of the Captains of the Imperial Fleet, one Sir Mustafa..."
[82] BOA A. MKT. MLV. 117 / 86.

under the new professionalization regime.[83] Enforcement of professional standards in the medical field expanded further in the later half of the 19th century, to encompass other traditionally-respected practitioners, such as *kehhâl* or eye-doctors.[84] *Kehhâl* had existed as a specialty medical practice with a long tradition dating back to the early-modern and classical past, as evidenced by the famed works (surviving today in their entirety, with translations into Hebrew and Latin) of one such practitioner from Baghdad, Isa el-Kehhâl (d.1037), in which he details the physiology of the eye with specifics for the treatment of over one hundred related diseases.[85] The background and education of el-Kehhâl are unknown, though in the introduction to his manuscript he explains the influence of classical scholars, including Hippocrates and Galen, Dioscorides and Oribasius upon his work. Similarly, from archival Ottoman records little is known about a certain Hacı Mirza Anka,[86] except that he came to the attention of authorities for practicing as a *kehhâl* without documentation certifying his education. In the early-modern past, a practitioner who had learned specialized skills (such as *kehhâl)* through a master-apprentice relationship, without official documentation or educational record, as was likely the case with el-Kehhâl himself, would not generally attract the attention of authorities. However, as the Ottoman medical field transformed and professionalized over the course of the 19th-century, certification became a necessary prerequisite to practicing healthcare, whether treating the eye, selling herbal cures, or extracting a tooth. These few anecdotal examples illustrate the ways in which diverse actors - barbers, Jewish traditional healers, and *kehhâl* -

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[83] BOA. A. MKT. MLV. 117 / 86; This document is also referenced by İlikan-Rasimoğlu, 240-1.
[84] İlikan-Rasimoğlu, 239.
[85] Ali Haydar Bayat, "Ali b. Îsâ el-Kehhâl," *TDV Ansiklopedisi,* 1989. *https://islamansiklopedisi.org.tr/ali-b-isa-el-kehhal*; Charles Greene Cumston, "A Brief Historical Summary of the Treatment of Trachoma, with Special Reference to the Arabian School and the Writing of Ali Ibn-el-Aïssa (Jesu Hali)," *Annals of Medical History*, 3:3 (1921): 244-51.
[86] BOA. DH. MKT. 1672 / 149.

experienced the impact of professionalization of the Ottoman medical field and accompanying educational and legal standards in their daily practice.

Prior to professionalization, the medical marketplace was occupied by diverse practitioners of varying traditions and skill-sets offering a range of healing and medicinal services in divergent settings, as evidenced by the anecdotes above. Central to this century's transformation were the educational and institutional changes characterized as a shift from *medrese* to medical school. Medical education in the Ottoman empire had initially been part of the larger educational institution of the *medrese*, where study included master-apprentice experiential learning, as well as the study of classical texts and sciences in the Islamic traditions of knowledge.[87] Though the *medrese* educational content (syllabus or canon) remains unknown, and almost certainly varied across place and time, the influence of classical Greek scholarship in translation is attested to by the numerous extant translations of Ibn Sina, Aristotle, and Plato, and through their influence on discourse in Islamic texts.[88] In *Science Without Leisure*, Harun Küçük posits that Ottoman medical practice prioritized experience and efficacy over formal *medrese* education, and was primarily concerned with the material and practical elements of drug remedies.[89] However, Küçük's thesis - that this focus owed to the low pay and limited number of charitable endowments and hospitals for medrese-trained physicians[90] - has been creditably

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[87] Ekmeleddin İhsanoğlu, "Emergence of the Ottoman medrese tradition." In *Studies on Ottoman Science and Culture*, 118-163. (Routledge, 2020); Madeline C. Zilfi, "The *İlmiye* Registers and the Ottoman *Medrese* System Prior to the Tanzimat," in *Contributions a l'historie Economique et Sociale de l'Empire Ottoman*, ed. Jean-Louis Bacque-Grammont and Paul Dumont (Louvain: Peeters, 1983), 309-27; Madeline C. Zilfi, "The Diary of a Muderriş: A New Source for Ottoman Biography," *International Journal of Turkish Studies* 1 (1977):157-74; Zeynep Ahunbay, "Medreseler," in *Dünden Bugüne Istanbul Ansiklopedisi* (Istanbul: Kültür Bakanlığı ve Tarih Vakfı, 1994).

[88] Gerhard Endress, "The cycle of knowledge: Intellectual traditions and encyclopedias of the rational sciences in Arabic Islamic hellenism." In *Organizing Knowledge: Encyclopædic Activities in the Pre-Eighteenth Century Islamic World* Volume 61 ed. Gerhard Endress, (Lieden, Boston: Brill, 2006), 118-119.

[89] Harun Küçük, *Science without Leisure: Practical Naturalism in Istanbul, 1660-1732*. (Pittsburgh: University of Pittsburgh Press, 2019).

[90] Küçük, 158: "They made starvation or at most poverty wages between 10 akce and 50 akce, much like the rest of the professoriate."

challenged by Nir Shafir.[91] Rather than accept a clear dichotomy in science between theory and practice, Shafir promotes an understanding that centers on individual, 'quotidian', actors and actions, and their reiterated methodological explorations, i.e., "practices that constituted the systematic study of nature, i.e. science."[92] Although renowned theory texts on medicine and science at the level of Ibn Sina or el-Kehhâl were not produced in Ottoman contexts leading up to the 19th-century, the large number of drug compendiums from that time indicate an active and engaged group of practitioners dedicated to health and healing.[93] These drug compendia also give evidence for the diverse actors of the medical marketplace, ranging from Jewish traditional healers to kahhâl and herb sellers, who, despite their different backgrounds and philosophies, had in common the production and sale of herbal and drug remedies. As we will see below, the legal, educational, and economic changes of the 1800s and the subsequent *Tanzimat* period altered the conditions of this "medical marketplace" such that those who continued to peddle or prescribe cures without proper education, licensure, and registration were subject to legal repercussions. I argue that this sea change in healthcare was a direct result of the professionalization of the Ottoman medical field, which aimed to create a sector of medical practitioners who could serve the empire's needs with standardized skill and modern scientific knowledge.

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[91] Nir Shafir, "The Almighty Akce: The Economics of Science and Scholarship in the Early Modern Ottoman Empire - Review of Harun Küçük's Science without Leisure" *Journal of Ottoman Studies LVIII* (2021): 251-280.
[92] Shafir, 245-55: "It might surprise some readers to know that many professional historians of science today rarely write traditional histories of ideas or even tackle canonical thinkers like Newton, Liebniz, or Descartes. For the past few decades they have instead focused on the practices that constituted the systematic study of nature, ie. science. The intellectual work of science is revealed not in the ideas of grand thinkers pontificating in splendid silence, but in the small, quotidian actions of its practitioners as they tinkered with instruments, smelted metals, and sold exotic materia medica. Often the larger ideas that animated these practices are implicit, found embodied in the very objects used, created, or exchanged."
[93] Shafir, 272-3.

2.2 Medrese to Modern Medical Institutions: Military and Civilian

Although the *Tanzimat* period of restructuring officially began in 1839 with Abdulmecid I's Tanzimat Reform Edict (*Gülhane Hatt-ı Şerif*), in the field of medical education there were earlier institutional and educational changes that foreshadowed the massive restructurings across sectors of Ottoman life for which the period of the mid-to-late-1800s bears the name, 're-order' or *Tanzimat*.[94] By the time the disease reached the capital in 1831,[95] a new medical school had been established, though it had not yet graduated a full class of physicians. Sultan Mahmut II founded the new army *Asakir-i Mansure-i Muhammediye* (Victorious Soldiers of Muhammad) in 1826, underwhich the *Tıphane-i Amire* (Imperial School of Medicine) opened in 1827 and the *Cerrahhane* (Imperial School School of Surgeons) opened in 1831.[96] Though this new institutional structure was founded in accordance with Sultan Mahmut II's order for "the best treatment options for sick soldiers,"[97] its reach and curriculum extended beyond immediate military concerns. The educational restructuring of the field of medicine, beginning in the military sector and then branching outwards, sought to create a new class of professionals who could serve the empire's needs with standardized skills, incorporating both foreign and local expertise.

The nature and language of medical instruction and its curriculum were shaped by Mustafa Behcet Efendi (1777-1834, an Ottoman-Muslim physican born in Istanbul and educated in the *medrese* system, known for his role in public health programs against infectious diseases) who occupied the long-established position of *Hekimbaşı* (Chief Physician) [98] at the time of the

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[94] Hanioğlu, 72-109.
[95] Yılmaz, 23.
[96] Hülya Öztürk and Ömür Şaylıgil, "From the Medicine in Ottoman Madrasahs to Faculty of Medicine." *Konuralp Medical Journal/Konuralp Tip Dergisi* 7, no. 3 (2015): 180.
[97] Öztürk and Şaylıgil, 180.
[98] Nil Sarı, "Behcet Mustafa Efendi," *TDV İslâm Ansiklopedisi,* 1992. *https://islamansiklopedisi.org.tr/behcet-mustafa-efendi;*

establishment of the new institutions and played a vital role in the transformation of the medical field.[99] Mustafa Behcet Efendi underlined in his proposals to the Sultan regarding the new school: “foreign language schools had to be opened inside medical school and medical education should be given in foreign languages. In a few years time, foreign doctors would not be needed any more for the new army.”[100] Accordingly, the first year of studies was dedicated to French proficiency, as in the “next four years, theoretical medicine should be taught in French.”[101] Additional expansion of surgical education was supported by the Sultan in 1831, though, ultimately, the separate surgical and medical schools were united into a single institution. Here, French instruction continued, though the curriculum also included lectures on Ottoman grammar and composition, alongside “general anatomy, surgery, causes of disease, medical knowledge and chemistry.”[102] In 1839, the traditional start date given for the *Tanzimat* period, the school opened for lectures in a new building in Galatasaray, with new professors and a new name *Mekteb-i Tıbbiye-i Adliye-i Şahane* (Imperial Military Medical School).[103] Under the leadership of French professor Charles Ambroisse Berhard, the language of education at this institution was entirely French beginning in 1840. The language of instruction was French, however, the Imperial Military Medical School was engaged in a crucial project of translating medical texts into

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Bechet’s legacy as Hekimbasi has been explored in English in relation to smallpox variolation and vaccination: Theodoros Kyrkoudis, Gregory Tsoucalas, Vasileios Thomaidis, Ioannis Bakirtzis, Eleni Nalbandi, Alexandros Polychronidis, and Aliki Fiska. "Vaccination of the Ethnic Greeks (Rums) Against Smallpox in the Ottoman Empire: Emmanuel Timonis and Jacobus Pylarinos as Precursors of Edward Jenner." *Erciyes Medical Journal* 43, no. 1 (2021): 100-107. Publications in Modern Turkish explore his role managing other infectious diseases as Chief Physician: Tuncay Pekdoğan, "Hekimbaşı Mustafa Behçet Efendinin tıp tarihindeki yeri, Tertîb-i Eczâ, Kolera Risalesi, Çiçek Aşısı Risalesi, Ruhiye risalesi adlı eserlerinin transkripsiyon ve değerlendirmesi." (Master's thesis, Tokat Gaziosmanpaşa Üniversitesi, 2019); Coşkun Yılmaz, "Hekimbaşı mustafa behçet efendi'nin terekesi." in *Uluslararası Üsküdar Sempozyumu VIII*, Bildiriler II (2014): 25-91; Sinem Serin, *Hekimbaşılık Kurumu* (Istanbul: Kitabevi, 2021), 263-4.

[99] For a more detailed discussion of the responsibilities of the Chief Physician in relation to the new institutions and councils of medicine created during this transformative century, see: Sinem Serin, *Hekimbaşılık Kurumu* (Istanbul: Kitabevi, 2021): 217-243.

[100] Öztürk and Şaylıgil,180.

[101] Öztürk and Şaylıgil, 182.

[102] Öztürk and Şaylıgil, 183.

[103] Ibid.

Turkish.[104] Although this new Medical School was firmly situated in the military sector, by translating medical texts it played a vital role in transforming medicine in the Ottoman empire through the integration of new scientific knowledge.

Figure 4: Mekteb-i Tıbbiye-i Adliye-i Şahane in Haydarpaşa (Istanbul Metropolitan Municipality, Atatürk Library)[105]

Following the construction of a new school building, pictured above, in 1867, the new institution *Mekteb-i Tıbbiye-i Mülkiye-i Şahane* (Imperial School of Civil Medicine) was established, opening the doors of modern medical study to civilian students.[106] In contrast to the military medical school, the language of instruction was Turkish, not French.[107] A key

[104] Layla Aksakal, "The sick man and his medicine: Public health reform in the Ottoman Empire and Egypt." (Third Year Paper, Harvard University: HSL Student Papers, 2003): 10.
[105] Image also published as figure 14 in Nil Sarı, "Medical Education and Related Institutions in Istanbul," *History of Istanbul (online)*, Volume 8, retrieved March 18th, 2022.
https://istanbultarihi.ist/658-medical-education-and-related-institutions-in-istanbul

[106] Öztürk and Şaylıgil, 183; Nuran Yıldırım, *A History of Healthcare in Istanbul: Health Organizations, Epidemics, Infections and Disease Control. Preventative Health Institutions, Hospitals, Medical Education* (İstanbul: Istanbul University, 2010), 77-98; See also Nil Sarı, "Medical Education and Related Institutions in Istanbul," *History of Istanbul (online)*, Volume 8, retrieved March 18th, 2022.
[107] Öztürk and Şaylıgil, 183.

standardizing component of the educational approach of these institutions was the implementation of examinations that preceded the licensing of practitioners and their registration with the government prior to practicing. The educational restructuring of the field of medicine sought to create a new class of professionals who could serve the empire's needs with standardized skills. This institutional restructuring originated in the military sector and then branched outwards, crediting its appreciation for foreign language, knowledge, and expertise.

2.3 Incorporation of Existing Expertise: bone-setting, pharmacy, midwifery

Additional *Tanzimat* restructurings brought other actors in the medical field under the institutional medical educational framework. *Tanzimat*-era changes "organized the duties" of the medical field, extending to include fields of traditional local expertise like pharmacy, bone-setting, blood-letting, and midwifery, practitioners of which now must pass skill-based assessments in order to obtain "certificates", or lose the right to practice.[108] Additionally, after 1841, pharmacists entered into a "special class of a three year program" at the Imperial Medical School.[109] Previously, pharmacy was practiced by physicians as well as by the diverse actors within the "medical marketplace" who were concerned with the recipes for and formulations of cures based largely on experience, and master-apprentice style educational training. [110] Similarly, bonesetters, traditionally family-trained practitioners,[111] widely employed by the Sultan with approval of the Chief Physician in the palace, military, hospitals, and districts, were also incorporated under the same central institution. After 1849, bonesetters "began to receive minor surgery diplomas and be integrated within the modern medical system."[112] In this way, existing forms of local expertise in the medical field were integrated into the centralized institutional

[108] Ceren Gülser İlikan-Rasimoğlu. "Boundaries, Education and Licence: The Nineteenth Century Ottoman Standardization of Medical Professions." *Trakya University Journal of Social Science* 19, no. 1 (2017): 233.
[109] İlikan-Rasimoğlu, 233.
[110] Cevat İzgi, *Osmanlı Medreselerinde İlim* (Istanbul: İz Yayıncılık, 1997); Küçük, 161; Shafir, 272-3, 276-77.
[111] İlikan-Rasimoğlu, 230: "Once a bonesetter died, one of his relatives would take his place."
[112] İlikan-Rasimoğlu, 230.

structure. As this evolving institutional history demonstrates, medical education in the Ottoman empire during the 19th century was a dynamic, multi-lingual and expanding field that included foreign expertise as well incorporating local expertise in healing practices such as bone-setting and pharmacy.

2. 4.1 Regulation and Restriction: Legal and Economic Frameworks

Following the graduation of the first few cohorts from the new medical institutions, the legal frameworks and regulations surrounding medical practice became more restrictive. The key legal restriction of 1861, The Regulation on the Practice of Medicine in the Provinces of the Empire, "prevented anyone lacking such a license from using the title of doctor and offered the requirement for foreign doctors who wanted to work in the Ottoman Empire to apply to the Imperial School of medicine, to register their diplomas after having registered at the embassies of their homelands at the Sublime Porte, be subject to a qualification examination and be handed a certificate." [113] Parallel to the introduction of education, examination and registration requirements for Ottoman graduates of medical school, the law enforced a similar standard upon foreign-educated doctors in the Ottoman realm. Now, foreign and local doctors, local healers, pharmacists, herbalists, and anyone without the required qualifications, would face legal consequences for engaging in the 'medical marketplace' exchange of cures that had earlier characterized the field. Furthermore, "an 1862 regulation set detailed standards for the licensing of pharmacists and the practice of pharmacy in Istanbul. Pharmacists were strictly prohibited from giving medical advice or practicing medicine in any way." [114] The sale of active medications required that the pharmacist "verify the name of the physician, surgeon, or veterinarian who signed the prescription against an official list of such practitioners who were

[113] İlikan-Rasimoğlu, 233.
[114] Aksakal, 13.

licensed by the College of Medicine."[115] These regulations, among others concerning cleanliness and the storage of ingredients, were enforced legally with a system of fines and penalties for violations.

Tanzimat-era economic and administrative marketplace restructurings further impacted the medical field by bringing the regulation of foods, drugs, and other market goods under the purview of centrally-structured administrative bodies and offices. As Aksakal explains, "[i]n 1854 establishment of the position of city prefect, or *şehir emini,* […] whose duties included some of the older functions of the *muhtasib*,[116] personally supervised and inspected guilds and merchants, prices, cleanliness of markets, and the conditions of the streets and bazaars." [117] Additionally, the *Meclis-i Sıhhiye-i Umumiye* (Health Council) founded in 1881, "worked in coordination with the [Imperial Medical School] to supervise public health in general, and its power increased as state intervention in public health and food supply increased more and more towards the end of the century."[118] Similarly, in 1885, a "regulation established a Commission of Inspection charged with inspecting foodstuff, drinks, and medicines in the interest of protecting public health."[119] This commission, "also took charge of inspecting the establishments of pharmacists, druggists, and herbalists to prevent the sale of illicit or harmful medications and to enforce compliance with the new pharmacy laws and regulations."[120] Thus, economic and marketplace regulations, in coordination with the central administration and the Imperial College of Physicians, enforced public health measures in accordance with newly-established legal and educational standards. Therefore, through the creation of legal frameworks and marketplace

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[115] Aksakal, 13.
[116] For further discussion of the older marketplace regulation office, the *muhtasib*, see page 3 of Aksakal.
[117] Aksakal, 8.
[118] Aksakal, 19.
[119] Aksakal, 19.
[120] Ibid.

regulatory bodies, the newly-professionalized standards of the medical field were enforced in the Ottoman empire.

2.4.2 Marginalization in the Medical Marketplace

The emergence of a new professional and registered class of pharmacists and doctors, with the exclusive legal right to prescribe and administer cures, served to marginalize, both socio-economically and in terms of activity, a diverse body of actors inside the 'medical marketplace.' Traditionally, merchants known as druggists or herbalists (*aktar*) sold a wide range of botanical and chemical remedies," and often ran sections of markets and bazaars.[121] People also commonly purchased medications "from the numerous itinerant salesmen who prepared and sold medical products in Istanbul and throughout the empire."[122] This 'medical marketplace' was transformed as "professional pharmacists who had graduated from the Imperial College of Medicine increasingly dominated the sector, pushing out the traditional purveyors of medicine."[123] Thus, the druggists and pharmacists who had been actively engaged with selling cures and remedies the century before,[124] now became "wholesale merchants of pharmaceuticals…. [s]trictly prohibited from selling medications directly to patients." [125] As a result of these regulations, "[l]ay practitioners were left aside by the use of the expressions "*kendisine hekimlik süsü vererek*," (presenting himself as a doctor) "*diplomasız hekimlik yapan*" (one who practices medicine without a diploma), or "*sahte doktor* (quack)."[126] Thus, with the emergence of a professionalized class of physicians and pharmacists, many traditional healers and cure-sellers were marginalized within the medical field.

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[121] Aksakal, 11-12.
[122] Aksakal, 12.
[123] Aksakal, 13.
[124] Küçük, 164.
[125] Aksakal, 15.
[126] İlikan-Rasimoğlu, 234.

2.4.3 Regulation and Restriction: Enforcement and Exemption

Interestingly, as a consequence of the newly-regulated professional medical field, the legal and judicial record reflects instances of both strict enforcement and selective exemption in the case of traditional (not formally educated and registered) healers administering cures. Official correspondences made necessary note of cases of serious injury or death in which medicine was administered by "a traditional healer, drug seller or a quack," in order to warn about the dangers of the illegitimate practice of medicine. However, trust in the medical expertise of uncertified practitioners continued and in the latter quarter of the nineteenth-century "monetary fines and strict banishments," were introduced to enforce the laws surrounding the transformation of the medical marketplace. This tightening of restrictions replaced the earlier system in which "uncertified individuals had been called to the Military School of Medicine to prove their professional capabilities."[127] For example: "[i]n Aleppo, some traditional healers and herb and spice sellers who provided drugs found out from the inspection committee that they had been banished and their shops closed by the police and municipal authorities. These people were defined as people practicing medicine without certificates; hence, they were perceived as quasi-legitimate practitioners who most probably had been trained in master-apprentice relations."[128] However, the newly-professionalized medical experts were not in all instances able to keep up with the demand for medications and cures that had previously been supplemented by the diverse actors and local expertise of the 'medical marketplace'.

[127] İlikan-Rasimoğlu, 244.
[128] İlikan-Rasimoğlu, 239.

The case of Baghdad, which will be explored in more detail in the following chapter, in 1887[129] illustrates how the empire sought to balance the professionalization of the medical field with the recognition of existing expertise (outside of the graduates and legally certified practitioners of the imperial medical college) after experiencing waves of cholera, plague and famine outbreaks. As İlikan-Rasimoğlu explains: "[t]he reply to the Ministry of Justice and the provincial center of Baghdad, who prohibited the physicians, surgeons and pharmacists practicing medicine without a legal document from the profession; was that the prohibition of these people would have disadvantageous effects on common people since all the medical staff lacked such documents by 1887. Their absence would leave people deprived of health services and medicines. So, a local commission composed of military physicians and pharmacists was demanded to test those medical staff in order to issue the successful ones a certificate."[130] This skill-based exemption of the formal educational requirement acknowledged the existence of local medical expertise in a manner similar to the earlier system which recognized bone-setters and other traditional healers following assessment. In this way, the professionalization of the medical field did not seek to entirely exclude the existence of local medical expertise, but rather incorporate it when deemed beneficial or necessary, especially in the context of re-current cholera outbreaks.

[129] The region between Basra and Baghdad had experienced outbreaks of plague, cholera, and famine during the early half of the 19th century. In the 1890s it experienced a particularly 'violent cholera epidemic'. For further discussion, see: Isacar A. Bolaños. "The Ottomans During the Global Crises of Cholera and Plague: the View from Iraq and the Gulf." *International Journal of Middle East Studies* 51, no. 4 (2019): 603-20. doi:10.1017/S0020743819000667.

[130] İlikan-Rasimoğlu, 237.

2.5 Conclusion: Medical Expertise, Trust, and Authority

The professionalization of the medical field through educational, legal, and economic changes during the 19th-century sought to restructure and centralize medical practices, incorporating both foreign and local knowledge and expertise. Though the newly established classes of professionalized medical practitioners were in some ways in competition with other traditional health practitioners, including Islamic healers, the advice of professional doctors, particularly with regard to infectious diseases like cholera, was not in competition or opposition with the beliefs and practices of the Islamic faith. In this way, the professionalization of the medical field did not represent a rupture with Islamic understandings of health and healing. Ottoman-Muslim printed-publications (explored in more detail in Chapter IV) provide insight into the way modern medicine and the advice of doctors was viewed in the context of the cholera pandemic. Mustafa Saffet, a religous scholar and poet, in "Din-i Mübin-i İslam ve Kolera" (A treatise on the religion of Islam and cholera) provides an interesting perspective on how the role of medical expertise intersects with Islamic concept *Âdetullah* (universial laws and order): "As such, the role of the science of medicine is to discover through experience and practice how the universal law Allah [*Âdetullah*] works in determining which material offers the best cure for a given illness."[131] The expertise of the doctor in healing and curing sickness was thus understood both as learned or experiential knowledge and also as knowledge existing within the universal order and laws of *Âdetullah*. The professionalization of the Ottoman medical field thus did not represent a rupture with longstanding Islamic beliefs and practices regarding public health and the role of doctors, though it did entail systemic changes to existing institutional, legal, and economic practices.

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[131] Emrenekli M. Saffet, "Din-i Mübin-i İslam ve Kolera" Istanbul:Cem'iyet-i Ilmiye-i Islamiye, 1326. http://isamveri.org/pdfosm/D00524/1326_85/1326_85_SAFFETM.pdf. Modern Turkish transcription: "Şu halde tıbbın mahâreti bir maraza hangı maddenin te'sirinde Adetullâh cârî olduğunu bi-'tecrübe anlayabilmesi demekdir."

Although, the transformative nature of these systemic changes included pathways to incorporate local expertise in the areas of tooth-extraction, blood-letting, midwifery and pharmacy through skills-based examinations, evidencing the conditional recognition of such traditional medical expertise within the 'modern' medical system; the systemic institutional, legal and economic changes that constituted the professionalization of the Ottoman medical field represented a shift in the designation of medical expertise and authority, resulting in the marginalization of practitioners who were not centrally certified or educated. In this way, we can understand the professionalization as a redefinition of who within society has the Sultan's confidence and authority to heal, or practice medicine. The *Tanzimat*-era transformations evidenced a shift in the role of 'Sultan as physician,' paralleling changes in the role of medical expertise and authority, both tasked with balancing and healing society. Broader *Tanzimat*-era changes in education, agriculture, and economics evidence the transformative nature of the Sultan-directed reforms of this century, beyond the initial military and medical sectors. Thus, we can understand the *Tanzimat*-era reforms as a shift in the exercise of sultanic authority upon different sectors of society, and in the role of 'Sultan as physician' of the empire.

Chapter III: Quarantine Regulations and Water-work Reformations: Baghdad and Izmir

3.1 International alarm: Zamzam Contamination Concerns

In 1883, the British press published claims in the *Times* and the *Lancet* that the holy water of the *Zamzam* well in Mecca was "six times more contaminated by animal waste than London sewage" and was the likely source of the spread of cholera.[132] This elicited outrage and sparked scientific enquiries from Ottoman and Indian officials, rising to the level of an international scandal pitting local authorities against distant critics.[133] The global importance of recurrent cholera pandemics, and the Ottoman role in their spread, had been a central focus of the International Sanitary Conventions from 1851 onward.[134] These Conventions, with their public health agendas, occurred within the context of developing discourses on scientific theories of contagion and disease, such discourses variously incorporating 'eastern' and 'western' understandings of health and healing.

European narratives concerning the history of science and progress in the age of Enlightenment often centralize a 'great-man' approach to the history of scientific discovery. Developments in contagion theories were treated with this approach, with work of John Snow and Robert Koch established as key developments in the germ theory of disease and the identification of cholera transmission modes.[135] Though these developments align with the

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[132] Low, *Imperial Mecca: Ottoman Arabia and the Indian Ocean Hajj,* 167. For more information on these claims and their interconnection with the history of British colonialism in India and cholera see: Low, "Ottoman Infrastructures of the Saudi Hydro-State," 944-45; David Arnold, "Cholera and colonialism in British India." *Past & Present* 113 (1986): 118-151; Ira Klein, "Imperialism, ecology and disease: Cholera in India, 1850-1950." *The Indian Economic & Social History Review* 31, no. 4 (1994): 491-518; Sheldon Watts,"From Rapid Change to Stasis: Official Responses to Cholera in British-Ruled India and Egypt: 1860 to c. 1921." *Journal of World History* 12, no. 2 (2001): 321–74. http://www.jstor.org/stable/20078912.

[133] Michael C. Low, "Ottoman Infrastructures of the Saudi Hydro-State: The Technopolitics of Pilgrimage and Potable Water in the Hijaz." *Comparative Studies in Society and History* 57, no. 4 (2015): 942-44. http://www.jstor.org/stable/43908488.

[134] Valeska Huber, "The Unification of the Globe by Disease? The International Sanitary Conferences on Cholera, 1851-1894." *The Historical Journal* 49, no. 2 (2006): 453–76. http://www.jstor.org/stable/4091623.

[135] Frank M. Snowden, "The Germ Theory of Disease." In *Epidemics and Society: From the Black Death to the Present*, 204–32. (New Haven: Yale University Press, 2019). https://doi.org/10.2307/j.ctvqc6gg5.17.

'contagionist' theory of explaining epidemics, it is important to note that other models and theories of transmission, ranging from miasma to environmental determinism, were also part of the discourse on disease.[136] Historiography has often chosen to highlight the works of Snow and Koch, flattening the conceptual models of contagion that evolved during this period in order to present a linear narrative of European scientific progress, within which many locate the foundations of modern western medicine. In such a narrative, "[s]ocieties that lacked the ability to contribute to this allegedly universal science could hardly count as dignified, civilized members of humanity according to this discourse. As a result, finding a place in this so-called history of human progress became crucial for the elites of societies that presently lagged in scientific achievement."[137] As such, 19th-century Ottoman thinkers published works aiming to 'correct the record' and highlight the contributions of Muslims, Ottomans, or Turks (sometimes interchangeably, reflecting the overlapping internal Ottoman-identity formulations in a time shortly before the rise of Turkish nationalism) to sciences ranging from geography to medicine.[138] Rather than search for a western-style 'great-man' narrative of singular transformative scientific advancement in the Ottoman experience with cholera, this chapter will explore the role of local and central governing bodies, municipal medical officials, local and everyday actors, and even newspapers, in implementing and promoting public health measures. Similarly, rather than attempt to classify the Ottoman public health program in one conceptual category of contagion theory, this chapter explores the mutual effectiveness of the

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[136] Anticontagionist or localist disease theories underlie the British claim to zamzam contamination, in that it is beneficial from the British perspective to assign cholera to some specific environmental conditions rather than recognize their actions in India as impacting endemic cholera. See: Low, "Ottoman Infrastructures of the Saudi Hydro-State," 944-45.

[137] M. Alper Yalçınkaya, "Muslims' Contributions to Science and Ottoman Identity" in *Living in the Ottoman Realm* (ed.) Christine Isom-Verhaaren (Bloomington: University of Indiana Press, 2016), 273. muse.jhu.edu/book/45073.

[138] M. Şükrü Hanioğlu, "Blueprints for a future society: Late Ottoman materialists on science, religion, and art," 35. In *Late Ottoman Society: The Intellectual Legacy* (ed.) Elisabeth Özdalga (London: Routledge, 2005)*;* More discussion on Islam and public helath/science in Chapter IV.

implementation of quarantines and the transformation of waterworks, emphasizing the intertwinement of environmental, spiritual, and bodily health among the inhabitants of the urban regions of Baghdad and Izmir.

3.2 International Sanitary Conventions: Perceptions, Politics, & Public Health

At the International Sanitary Conventions, many threads of these larger discourses can be seen contributing to the ultimate decisions and regulations; so, too, can political motivations. The Islamic Hajj pilgrimage to Mecca and Medina became a central focus in the cholera contagion debates when "British and French imperial officers branded Mecca pilgrims disease carriers par excellence, connecting them to the sanitary crisis but also to the threats of pan-Islam and anti-colonial activism."[139] With the Ottoman empire thus understood to be the pathway of cholera transmission into Europe, international attention focused on Ottoman public health measures, the subject of much of the International Sanitary Conferences debates. The Ottomans implemented quarantine regulations beginning in 1838 and, following the imposition of a system of quarantine stations along the Ottoman-Qajar border, Ottoman delegates became vocal advocates for extended quarantine systems throughout the Gulf region, to the discomfiture of European (British) commercial interests.[140] The Ottomans implemented further quarantine procedures in the Red Sea region,[141] and also imported technology to create disinfection stations in Istanbul and

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[139] Huber, "Pandemics and the Politics of Difference," 402.

[140] Isacar A. Bolaños, "The Ottomans During the Global Crises of Cholera and Plague: the View from Iraq and the Gulf," *International Journal of Middle East Studies* 51 (2019): 607.
For further discussion of 19th century European anti-contagionist positions and their relationship with commerce, see Erwin H. Ackerknecht, "Anticontagionism between 1821 and 1867," *International Journal of Epidemiology* 38 (2009): 7–21.
For further discussion of the geopolitical and imperial dimensions of European stances on cholera and the Hajj, see: William R. Roff, "Sanitation and Security: Imperial Powers and the Nineteenth Century Hajj," in *The Rise and Fall of Modern Empires vol. 1 Social Organization* ed. Owen White (London: Routledge, 2013): 365-380.

[141] Gülden Sarıyıldız and Oya Dağlar Macar, "Cholera, Pilgrimage, and International Politics of Sanitation: The Quarantine State on the Island of Kamaran," in *Plague and Contagion in the Islamic Mediterranean*, ed. Nükhet Varlık (Kalamazoo: Arch Humanities Press, 2017), 243–73.

Sinop,[142] as well as sending desalination machines to the Hijaz region.[143] Desalination machines were one element of the renewed Ottoman focus on water-works in the public health response to cholera, recognizing the need for plentiful freshwater supplies in support of health measures. Mindful of its role in containing and combating the global cholera threat, the Ottoman empire implemented a range of measures including quarantine and disinfection, with a particular focus on water-management, as explored below in Baghdad and Izmir, which it viewed as vital to an effective public health response.

3.3 Public Health Measures in Baghdad: Quarantine and Clean Water

Baghdad's rich history links this renewed Ottoman focus on water-works infrastructure in the context of cholera with the early-modern Ottoman legacy upon which it was (literally) built. This legacy encompasses the importance of water to spiritual, environmental, and bodily health, and is made manifest in water-management projects directed at protecting the health of empire communities in each of these dimensions. Past experience with plague had prompted the implementation of measures focused on water-works and waste-disposal in urban areas,[144] and river-bed cleaning and marsh-clearing in more rural areas,[145] across the empire, evidencing the Ottoman conception of environmental health as interconnected with the physical and spiritual health of communities. In Baghdad, as in many other areas of the empire,[146] initial Ottoman waterworks projects built upon previously-existing infrastructure from past empires. Here, 16th-century Ottoman renovations of Shah Ismail I's canal between the Najaf religious site and the Euphrates River, and the later construction of a new canal and embankments, served multiple purposes. The transformation of the water-works infrastructure was accompanied by both the

[142] Nuran Yıldırım and Hakan Ertin, "1893-1895 İstanbul Kolera Salgınında Avrupalı Uzmanlar ve Osmanlı Devleti'nde Sağlık Modernizasyonuna Katkıları" *Anadolu Kliniği Tıp Bilimleri Dergisi,* 25 no. 1 (2020): 90-2.
[143] Low, "Ottoman Infrastructures of the Saudi Hydro-State," 962-7.
[144] Varlık, *Plague and Empire in the Early Modern Mediterranean World,* 276-80.
[145] Varlık, *Plague and Empire in the Early Modern Mediterranean World,* 281.
[146] Low, "Ottoman Infrastructures of the Saudi Hydro-State," 954-6.

establishment and the patronage of important Islamic pilgrimage and worship sites in the Baghdad province scattered between the Euphrates and Tigris rivers, thereby supporting the spiritual and economic health of the region.[147] Rivers and waterworks connected the sacred geography of the region with environmental health, and with the health of communities that had long practiced a form of irrigation using water-wheels to support agriculture in a drought-prone area.[148] Though, materially, they supported the interconnected environmental and spiritual health, water-works projects were also of symbolic and political significance, establishing Ottoman sovereignty over the region previously ruled by Shahs.

When cholera first arrived in the vicinity of Baghdad in 1821,[149] the region had already suffered at least three major plague outbreaks in the previous century, all of which served to exacerbate the area's regular challenges of drought and famine.[150] Confronted with the task of managing cholera contagion and the calamity caused by this new illness, Governor Dâvud Paşa[151] (1774–1851) reached out to British Indian officials to request medical assistance, based on his understanding of their knowledge of and experience with the disease.[152] Perhaps the Governor deemed an appeal to the central-sultanic administration, which would not witness cholera in Istanbul for another decade, less appropriate, though political friction regarding his support for Egypt and lack of monetary support for the Ottoman war against Russia also strained

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[147] Faisal H. Husain, "Water for the Saints of Baghdad: the Hydrology of a Sacred Ottoman Geography," *Journal of Early Modern History* 25 (2021): 329; See also: Faisal Husain, "In the Bellies of the Marshes: Water and Power in the Countryside of Ottoman Baghdad," *Environmental History* 19 (October 2014): 638–664. doi:10.1093/envhis/emu067

[148] Husain, "Water for the Saints of Baghdad," 337.

[149] Bolaños, 605.

[150] Bolaños, 607.

[151] Zekeriya Kurşun, "Dâvud Paşa, Kölemen," *TDV İslâm Ansiklopedisi,* 1994. https://islamansiklopedisi.org.tr/davud-pasa-kolemen; Mehdi Jawad Habib el-Bustani, "Bağdad'daki Kölemen Hâkimiyetinin Te'sîsi ve Kaldırılması ile Ali Rıza Paşa'nın Vâliliği, 1749-1842." (PhD. Diss., İstanbul Üniversitesi, 1979).

[152] Bolaños, 606; Shimon L. Khayyat, "A Description of the Ascent of 'Alī Riẓā Pāshā in a Judaeo-Iraqi Folk Song." *The Jewish Quarterly Review* 67, no. 2/3 (1976): 129–41. https://doi.org/10.2307/1453994.

his relationship with Istanbul and the Sultanic Ottoman authority[153] and may have motivated his appeal to outside authorities. When Ali Riza Paşa (1860-1932) was sent by the Sultan to capture Baghdad and Basra (ending Mamluk rule in 1834), he exiled Dâvud Paşa and brought the territories more directly under Sultanic administration, in connection with *Tanzimat-era* reforms.[154] Over the course of the century, recurrent outbreaks of cholera in Baghdad would prompt the Ottoman central administration to implement quarantine measures beginning in 1838 and, over the course of the next decade, establish a system of quarantine stations along the Ottoman-Qajar border aimed at protecting the Gulf region and Baghdad from cholera contagion.[155] Official Ottoman correspondence with the *meclis-i sıhhiye* (Health Council) of Baghdad, includes details about "tahâret ve nezâfet" (public hygiene),[156] safe drinking water, and the management of quarantines, which were implemented and lifted in accordance with their observations about the spread of cholera contagion and their impact upon the *beyn-el ahâli* (public).[157] Though initially disfavored by Dâvud Paşa, Ottoman scientists, central government officials, and local councils ultimately came to play a crucial role in the implementation of public health measures in Baghdad in the context of cholera over the course of the century.

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[153] Zekeriya Kurşun, "Dâvud Paşa, Kölemen," *TDV İslâm Ansiklopedisi*, 1994. https://islamansiklopedisi.org.tr/davud-pasa-kolemen; Khayyat, 129–41.

[154] el-Bustani, 171-80; Keiko Kiyotaki, "Introduction," In *Ottoman Land Reform in the Province of Baghdad*, (Leiden, The Netherlands: Brill, 2019), 1-27. doi: https://doi.org/10.1163/9789004384347_002

[155] Bolaños, 608.

[156] BOA 25 - 12 H-08-01-1267, explored in further in chapter IV (*nezâfet ve tahâret*):
Modern Turkish transcription: "[...] bilcümle mevaddı mahsusa esvak ve mahallat aralarında teraküm etmiş şehir(?)rinin defiyle nezâfet ve tahâret hususlarına kemal-i itinâ [...]"
English translation: "… in the markets and neighborhoods the destruction [cholera] growing among the districts [draws] attention to the [importance of the] issues of purity and cleanliness (*nezâfet ve tahâret*) …"

[157] BOA. A. MKT. MHM. 354 / 14.
Modern Turkish transcription: "[...]olmadıktan başka bir takım cahil ve akçe almak arzusunda bulunan kimesneler vasıtasıyla îcrâ ettirilmekte bulunmuş olduğundan bu hal beyn-el ahâli karantinalarin itibarina sekte vermekte idüğü [...]"
English translation: "... because it was carried out by people for the purpose of making a profit, this situation compromised the reputation of quarantines among the public…."

In addition to the quarantine measures, which, perhaps, can be understood as emergency measures in the context of a global pandemic cholera threat, the Ottoman empire remained invested in localized ecologically- and geographically-specific disease prevention measures in Baghdad. Such projects relied upon the expertise of the centralized medical profession, including Dr. Şerefüddin bin Arif, a government official and member of the Ottoman Medical Society (*Cemiyet-i Tıbbiye-i Osmanıye*) who published a detailed report in 1883, including observations about ecology and the outbreak of diseases in the region[158] while appointed to the local health administration of Basra. A decade later, in 1893, when a "particularly violent cholera epidemic occurred between the regions of Baghdad and Basra," Ottoman officials sent Mehmet Şakir Bey (d. 1966), a sanitary official at the Haydarpaşa hospital in Istanbul who later held multiple municipal governmental positions, including serving on budgetary committees, to the region to investigate. Following in the footsteps of Dr. Arif before him, Şakir Bey examined cholera and sanitary reform in the Iraqi provinces.[159] Şakir Bey's 1895 report *Hindistan Kolerası ve Irak'ın Islahat-ı Sıhhiyesi* (Indian Cholera and Sanitary Reform in Iraq) recommended sanitary reforms focused on improved water-management, noting new developments in the science of bacteriology, the evolving pollution of the Tigris River and other water sources, and paying particular attention to environmental conditions such as severe flooding and the growing presence of marshes along the lower Euphrates which, combined with infrastructure problems like the lack of a proper sewage system in the city of Baghdad, promoted the rise of water-borne diseases.[160] Together, the works of Dr. Arif and Şakir Bey evidence the role of professional and centralized medical and scientific expertise, associated with Hadraypaşa hospital and other

[158] Bolaños, 611.
[159] Bolaños, 605.
[160] Mehmed Şakir, *Hindistan Kolerası ve. Irak'ın Islahatı*, Istanbul University, Rare Books Collection, ms. TY 5071 (Istanbul, 1895); Bolaños, 611.

modern medical institutions (2.1-2.3), in the Ottoman response to cholera in the provinces far from the city-walls of the Empire's capital. Şakir Bey's focus on water evidences the reciprocal connection between environmental health and improved public health in Baghdad, echoing in a sense the same early-modern Ottoman holistic emphasis on water-works in this region. Yet, the strength of his evidence regarding the roles of bacteriology, pollution, and flooding represents an evolving Ottoman understanding of disease that integrated 'modern' medical developments into a holistic conception of health.

Alongside these water-centric public health responses, the Ottomans also continued to implement quarantines and limit movement, evidencing symbiosis between the early-modern frameworks of spiritual and environmental health that had motivated the initial Ottoman focus on water in the region and the 'modern' medical approach focused on quarantines and microbial contagion. In addition to involving Ottoman officials from the professionalized medical field, such as Dr. Arif and Şakir Bey, in 1887 the Ottoman state also approved the involvement of existing local (non-centrally certified) healers from Baghdad to aid its afflicted population.[161] The dearth of sufficient numbers of centrally-certified medical practitioners in Baghdad to combat the cholera outbreaks motivated this 1887 exemption, which allowed a pathway for non-licenced practitioners to prove their medical skills through examination and, thus, be granted the legal right to offer treatment to those afflicted by cholera and other illness (as explored further in 2.5). Importantly, this meant Ottoman public health responses to cholera in the Baghdad region were not limited within the scope of professionalized medical expertise and centralized authority, but included creditable, and valuable, localized medical expertise. Similarly, the empire's public health responses were tailored to both curbing a global spread,

[161] İlikan-Rasimoğlu, 237.

through quarantine measures, and improving the local health situation, through water-focused[162] measures.

3.4 Public Health Measures in Izmir: Quarantine and Clean Water, continued

By the 19th-century, the Ottoman empire had established a pattern of building upon structures from previous inhabitants to protect and preserve the health of their communities, particularly in waterworks projects. In the urban context of Izmir, ancient Roman baths were the foundation for the Water Company, created in the 19th-century.[163] Water is vital for the health of any human community, and the dramatic increase in Izmir's population made the Company's task of linking the communities with water and sewage pipes difficult, though much desired by the public for their own health and well-being.[164] Because municipal waterworks projects were funded largely through taxation[165] the public was, literally, invested in them, and frequent reports in local newspapers paying particular attention to water, sewage, and the cleanliness and health of city streets regularly chronicled their progress and failings.

These public health projects were also part of broad *Tanzimat-era* reforms in urban communities, many of which were aimed at improving the health and safety of inhabitants, protecting them from the threats of disease and disaster. In Izmir, *Tanzimat-era* urban reform included re-building burnt-out sections of the city, particularly the Armenian quarter, which had been severely damaged by a fire in 1845 that spread quickly to the neighboring European and

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[162] For additional background on the early modern Ottoman public health focus on water see Varlık, *Plague and Empire*, 280-1. For further evidence of this focus on water in the context of cholera, outside of the case studies of Baghdad and Izmir, see Yıldırım, *A History of Healthcare in Istanbul*, 90-3.

[163] Ufuk Adak, "Water, Sewage and Sanitation: Infrastructure Projects and Public Health in Izmir in the Late Ottoman Empire," *Journal of Balkan and Near Eastern Studies* (2021): 6. DOI: 10.1080/19448953.2021.2006015

[164] On newspaper coverage of Izmir's water-works and public health, see: Adak, 5, 8, 11-4.
For further discussion of the importance of newspapers in the emergence of an Ottoman 'public opinion' and changing state-society relations in the 19th century, see: Murat R. Şiviloğlu, *The Emergence of Public Opinion: State and Society in the Late Ottoman Empire*. (Cambridge: Cambridge University Press, 2018). doi:10.1017/9781108120371.

[165] Adak, 5.

Greek quarters, due to the narrow streets and close proximity of houses.[166] Such urban reforms demonstrate an Ottoman awareness of environmental circumstances impacting the urban public health of their communities, through focus on providing fundamental needs like potable water, and providing greater protection from elemental disasters like fire. Infrastructure reform altered the built environment of Izmir, creating a quay along the shoreline and connecting Izmir with Anatolia by means of two railway lines, opening up these areas to commercial development and foreign investment.[167] Though these *Tanzimat-era* reforms of infrastructure and resources were aimed at a widespread transformation of the urban environment, the establishment of sewage and water systems connecting all neighborhoods proved difficult, and urban regeneration remained limited to the burnt-out areas and new investment zones,[168] leaving much of the city in a situation similar to *pre-Tanzimat*.

By 1910, cholera outbreaks in Izmir continued to threaten the public health of the community[169] and a telegram sent from the Council of Medicine (*Meclis-i Tıbbiye-i Mülkiye*) and the Head of Public Health (*Sıhhiye-i Umumiye Riyaseti*) to the governor of Izmir detailed extensive public health and quarantine measures to be taken in response.[170] The telegram, published in the *Ahek* newspaper, ordered the municipality and its peripheries divided into districts, each with a health committee comprised of physicians, pharmacists, a sanitation officer, and the head of the the police force, in order to direct responses against cholera and quarantine those infected. Further precautionary measures detailed in the telegram focused on the two major train stations in Izmir, the implementation of detailed quarantine procedures, an increase in the

[166] The renovation was completed in 1856 and included the construction of brick fire-walls between houses and widened streets, see Ceylan İrem Gençer, "Dualities in the Transformation of the Urban Realm: Smyrna and Salonica 1840-1900," *Mediterranean Historical Review*, 21, vol. 2 (2016): 146-147.
[167] Gençer, 150-52, 154.
[168] Gençer, 158.
[169] Metin Menekşe, "İzmir'de Kolera Salgını ve Etkileri (1893)." *Tarih Araştırmaları Dergisi* 39, no. 67 (2020): 385-433.
[170] Adak, 13.

number of municipal physicians, and a specific warning to the public to use only water distributed by the Water Company, taking care to boil it before consumption.[171] From the range of actors and measures detailed in the telegram, it is clear that, in Izmir as in Baghdad, the newly-professionalized medical community of pharmacists and physicians played a vital role in public health responses to cholera, though they were not exclusively tasked with the responsibility of preserving public health. The specific warning to the public about safe drinking-water demonstrates not only the importance of the ongoing water-works renovations explored above, but also shines a light on the crucial importance of public health education promoting protection from disease through actions that can be effectively implemented on an individual and daily basis, like boiling water. In this way, the telegram tasks the public with some responsibility for protecting public health through the implementation of prophylactic measures, not merely medical professionals. In a similar vein, while the Council of Medicine, a centralized administrative body, played an organizational role regarding public health measures, local involvement at the district level was equally instrumental in the establishment of these. Further, newspapers played an important role in communicating the telegram's directives to the general reading-public, and in reporting on the development of the Water Company, exemplifying the crucial role played by the media in shaping state-society relations and in engaging the public to exercise agency in furtherance of public health goals. As in Baghdad, Ottoman medical professionals worked in tandem with local district authorities and the reading-public to implement public health measures against cholera, particularly in the area of waterworks. However, Izmir's newly-constructed railway lines necessitated additional vigilance against the spread of disease, underlining the specifically local dimensions required of Ottoman disease response, a consequence of the *Tanzimat-era* transformation of urban environs.

[171] Adak, 13.

3.5 Conclusion: State & Society Combat Disease

An increase in the transmission of people, information, goods, and diseases across 'modernized' networks of the Ottoman empire also facilitated the spread of cholera, impacting life in the 19th-century. The construction of railway and telegraph lines was not limited to the Anatolian region,[172] but also extended to the Hijaz region,[173] hastening the speed of information transfer and communication across the empire. In Izmir, telegraph lines were instrumental in Istanbul's orchestration of the public health response to cholera, through direction from the central administrative bodies and collaboration with local authorities. Increased transfers of goods and people across railway lines further connected rural and urban communities across the empire, while providing new opportunities for disease transmission. Furthermore, the technology of the printing press and the rise of newspaper publications in the 19th-century contributed to the re-configuring of Ottoman state-society relationships and the emergence of 'public opinion,'[174] which actively contributed to public health discourse, particularly in respect of Izmir waterworks. Additionally, revolutions in global steamship travel (and the opening of the Suez Canal) further connected the Ottoman empire with global flows of goods and peoples, most notably increasing significantly the number of Hajj pilgrims potentially contributing to the international spread of cholera.[175] Therefore, while some modern technology, like telegraph lines and newspapers, played a key role in the Ottoman response to cholera, other modern technology,

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[172] Nevin Coşar and Sevtap Demirci, "Incorporation into the world economy: from railways to highways (1850–1950)." *Middle Eastern Studies* 45, no. 1 (2009): 19-31. On telegraph lines, see: Yakup Bektas, "The sultan's messenger: Cultural constructions of ottoman telegraphy, 1847-1880." *Technology and Culture* 41, no. 4 (2000): 669-696.

[173] Low, *Imperial Mecca: Ottoman Arabia and the Indian Ocean Hajj,* 249-288.

[174] Şiviloğlu, 174-222.

[175] On Hajj steamship travel, see Low, *Imperial Mecca: Ottoman Arabia and the Indian Ocean Hajj*, 117–66. For an international perspective see William R. Roff, "Sanitation and Security: Imperial Powers and the Nineteenth Century Hajj," in *The Rise and Fall of Modern Empires vol. 1 Social Organization* ed. Owen White (London: Routledge, 2013): 365-380. For a perspective more focused on the pilgrims' own accounts and experiences see Green, 214, 219-23.

like steamship travel and railroad lines, was the impetus for the response, responsible as it was for the increased transmission of people and, likely, the spread of cholera, across long-established global paths of trade and religious pilgrimage. Therefore, the imposition of quarantine measures, particularly in border regions (Ottoman-Qajar), around railway stations (Izmir) and along trade routes (Red Sea and Çanakkale) can be seen as emergency measures aimed at slowing the spread of cholera within the 'modern' context of increased global connections. The more-localized, but longer-term, aspect of Ottoman public health responses, focusing on waterworks in each of the regions of Baghdad, Izmir, and the Hijaz, evidences the cooperative interaction of professional medical officials and central governing bodies with local healers and members of the public in collectively caring for the public health of their communities and combating cholera contagion across interconnected environmental and spiritual dimensions.

Chapter IV: Microbes, Talismans, and Vaccination: Community Responses to Cholera

4.1.1 Ottoman-Muslim Community Responses

In order to understand how inhabitants of the Ottoman empire reacted to the spread of cholera and the corresponding public health responses, we must first think about the structure and makeup of Ottoman communities, to better define their scope. In the Ottoman context, local communities are most often delineated by confessional boundaries or geographic area, as these parallel the ways the Ottoman imperial bureaucracy in the 19th-century exercised authority over its inhabitants.[176] From the perspective of Ottoman bureaucracy, communities were defined by geography, as demonstrated by the case studies of cholera responses in Baghdad and Izmir, which were shaped in concert by local and central government authorities. To add to this perspective, we might also consider a community as people sharing an identity, locality, religion, or language.

My focus is the Ottoman-Muslim community, due to my reading ability and the available resources located in the Başbakanlık Osmanlı Arşivi Daire Başkanliği (The Ottoman Archives of the Prime Minister's Office, BOA, hereinafter, Ottoman archives) holding handwritten imperial correspondence, and ISAM.org (Center for Islamic Studies) collections of printed-publicaitions. Though the Ottoman-Muslim community itself is diverse, with the ethnic and geographic backgrounds of the authors cited below spanning Anatolia, Russia, and Palestine, for the purposes of exploring the cholera response I will view the community without drawing distinctions. However, I will draw particular attention to women as a subgroup, because articles in women's gazettes on the topics of health, hygiene, and medicine, highlight women's 'responsibilities' or roles within the family and the community with regard to promoting and preserving health. My focus on the Ottoman-Muslim community is not meant to diminish other

[176] Şiviloğlu, "An Ottoman Public," 17-19.

communities of the empire or their experience with cholera and their corresponding public health meausres. Although Ottoman-Turkish was only one of many languages used within the empire, the available sources provide valuable insights into the experience of cholera in Ottoman-Muslim communities and contexts (4.1.1-4.1.3) that can be connected with the multi-conessional communities of the Levant through the shared significance of spiritual health (4.1.4), and with the Baghdadi Jewish community through the common experience of quarantine and its corresponding contraction of community life through restrictions on movement (4.3).

Though the professionalized medical practitioners and local and central governmental authorities orchestrated the official Ottoman public health response to cholera, as discussed in previous chapters, it is important to also acknowledge the role of other actors living in Ottoman spaces and their agency in voicing responses to public health measures, engaging with modern scientific developments, and sharing the responsibility of preserving individual and collective health. The proliferation of printed Ottoman-Turkish sources on cholera across scientific and religious journals and women's gazettes during the late-Ottoman period provide a rich and understudied base of primary source evidence expressing the diverse discourse on public health measures, and reflecting varied engagement with both 'modern' medical concepts, such as microbes, contagion, quarantine, and vaccines, as well as 'traditional' Islamic frameworks for understanding health and healing.

4.1.2 The Prophet Muhammad and the Existence of the Microbe

In contrast to fatalist narratives that assert ignorance of communicable diseases and absence of prevention measures,[177] printed-publications from the Ottoman-Muslim communities

[177] For further discussion of this narrative in historiography and its prevalence in British and American sources beyond the early modern-era into the 19th and 20th centuries see Miri Shefer Mossensohn, "Communicable Disease in Ottoman Palestine: Local Thoughts and Actions." *Korot* 21 (2011-2012): 20.
For further discussion of this paradigm and how it has influenced the history of Ottoman disease scholarship on plague, see Sam White, "Rethinking Disease in Ottoman History." *International Journal of Middle East Studies* 42, no. 4 (2010): 549–67. doi:10.1017/S0020743810000814.

during the cholera pandemics stand together with older publications of previous *Hekimbaşı* (Chief Physicians), to represent an evolving cannon integrating contagion theory with existing knowledge traditions of public health and medicine in Ottoman. The integration of knowledge from the modern science of germ theory and microbial contagion is of particular significance in the context of cholera spread, following Koch's 1884 discovery of the cholera bacillus. Mustafa Saffet (d. 1964), a poet and known religious leader who taught at the Beyazid Mosque, published an article entitled "Din-i Mübin-i İslam ve Kolera" (*"A treatise on Islam and cholera"*), placing an emphasis on establishing points of similarity between the teachings of the Islamic faith and the 'modern' science of microbal contagion, arguing that the teachings of doctors regarding cholera contagion and preventative public health measures aligned with such teachings.[178] His evidence is principally Hadith (reports) of the Prophet Muhammad. Interestingly, though Saffet credits European scientists for the undeniable proof of the existence of microbes through microscope technology[179] he also locates within the Hadith evidence of the existence of microbes, "one thousand three hundred years before" their European discovery.[180] The Hadith Saffet quotes as evidence describes the importance of covering water containers and other vessels overnight in order to prevent 'descent' of plague (*taun*). [181] In this way, though the discovery of microbes is attributed to Europeans, Saffet finds in Islamic tradition the roots of public health prevention of the spread of contagious diseases, and the protection of the most vital

[178] Emrenekli M. Saffet, "Din-i Mübin-i İslam ve Kolera" Istanbul: *Cem'iyet-i Ilmiye-i Islamiye*, (1326): 1610-1617. http://isamveri.org/pdfosm/D00524/1326_85/1326_85_SAFFETM.pdf

[179] Saffet, 1613. Modern Turkish transcription: "Bugün mikrobun vücudu gün gibi âşikâr olduğu ve bir mikroskopla herkes bu haşeratı görebileceği inkâr edilemez."
English translation: "Today the [undeniable] existence of microbes is as clear as day and cannot be denied, [because] with a microscope everyone is able to see this organism."

[180] Saffet, 1613. Modern Turkish Transcription: "Ancak mikrobun vücudu, mazarratı inkâr edenleri ve hem de mikrobun son asırda keşf olunduğunu iddiâ edenlere karş derim ki: mikrob bundan binüçyüz bu kadar sene mukaddem bize hazret-i peygamber tarafından haber verilmiştir."
English translation: "However, to those who deny the existence of the microbe and its harm, and those who insist that the revelation of the microbe belongs to the last thousand years, I say: one thousand three hundred years ago our Blessed Prophet gave word of the existence of microbes."

[181] Saffet, 1614.

resource, water. Furthermore, in referring to the spread of cholera, Saffet and other authors, including Abdürreşid İbrahim (1857-1944), a Tatar-Muslim member of the Ulema,[182] employ the term *emraz*-ı *sariye* (contagious illness) with the word 'sariyet' communicating movement and conveyance across space. This same term has a history of more than 200 years in Ottoman scholarship of disease, as evidenced by its use in the encyclopedia of Ibn Sallum (d. 1670), an Arab-Muslim physican and Hekimbaşi (Chief Physican)[183] under Sultan Mehmet IV, to refer to the "expandability" of certain diseases.[184] Though Ibn Sallum was focused on the plague, explaining disagreement among physicians as to its etiology,[185] the continued use of the term *'sariyet'* in late Ottoman-Muslim publications to communicate 'transmissibility' and 'contagion' in the context of cholera demonstrates the evolution of ideology of disease transmission and the movement towards a consensus on 'contagionist' theory in Ottoman-Muslim community publications. Taken together, Saffet's focus on germ theory, Ibrahim's discussion of cholera contagion, and Ibn Sallum's writings on plague contagion, with their shared vocabulary, represent pieces of an evolving tradition of Ottoman-Muslim writers on contagion theories. Integrating contagion theories with existing traditions of knowledge in Ottoman-Muslim contexts, as Saffet does with microbal contagion of cholera and the teachings of Islam, can thus be understood as an evolving understanding that builds upon and uses vocabulary similar to long-standing debates and existing scholarship about the transmission of other diseases, particularly plague,[186] in the Ottoman Empire. Thus, Ottoman-Muslim community reactions to

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[182] Abduressid İbrahim, "Kolera Neden Tevsi Ediyor?" İstanbul: *Tearüf-i Müslim,* Yakub Kemal, 11 Teşrin-i Sani (1326): 364-365. http://isamveri.org/pdfosm/D00553/1326_1/1326_1_23/1326_1_23_ABDURRESID2.pdf
[183] Sinem Serin, *Hekimbaşılık Kurumu* (Istanbul: Kitabevi, 2021): 256-257; See also Miri Sefer Mossensohn, "An Ottoman Physician and His Social and Intellectual Milieu: The Case of Salih bin Nasrallah Ibn Sallum," *Studia Islamica* 106, 1 (2011): 102-123, doi: https://doi.org/10.1163/19585705-12341254
[184] Miri Shefer Mossensohn, "Communicable Disease in Ottoman Palestine: Local Thoughts and Actions." *Korot* 21 (2011-2012): 31.
[185] Mossensohn, "Communicable Disease in Ottoman Palestine," 31.
[186] Varlık, *Plague and Empire,* 276.

cholera engage with contagion theories and modern microbial science, while also drawing on vocabulary and evidence from existing traditions such as Islamic teachings, and past experience with transmissible diseases including plague.

4.1.3 Shared Vocabulary of Public Health and Islam: "tahâret ve nezâfet"

Similarly, printed-publications in the 19th-century emphasize the shared vocabulary and shared importance of public health hygiene in both Islamic teachings and physician advice with regard to cholera, and in this way incorporate a spiritual dimension to health within the language and concepts employed in Ottoman-Muslim community responses to preventative measures in the context of cholera. Islamic prayer obligations involve ablutions and ritual cleansing, and an ideal of purity is central to many of the religion's practices. The terminology used for cleansing after breaking *wudu*, *'tahâret'* (trans. to be cleaned, to be purified, to remove material dirt or spiritual filth)[187] is used in a variety of public health publications and texts in the context of cholera, particularly those within the Ottoman-Muslim community. In such publications, including the aforementioned Saffet's "Din-i Mübin-i İslam ve Kolera" ("*A treatise on Islam and cholera*"), the abovementioned Abdürreşid Ibrahim's "Kolera Neden Tevsi Ediyor," ("*Why does cholera spread*?") and "Kolera Münasebetiyle Makale-i Mahsusa" ("*An article on cholera*") by Ahmed Şirani (a religious scholar from Şiran, trained as a judge and a known teacher at medreses), *tahâret* is found alongside the related term *'nezâfet'*. Similar to *tahâret*, *nezâfet* communicates cleanliness, with additional Islamic significance referring to 'cleanliness of the body, mind, and and heart.'[188] The two terms communicate a spiritual dimension of cleanliness in

[187] Salim Öğüt, "Taharet," *TDV İslam Ansiklopedisi*, 2020 https://islamansiklopedisi.org.tr/taharet
[188] Mustafa Çağrıcı, "Temizlik" *TDV İslam Ansiklopedisi*, 2020. https://islamansiklopedisi.org.tr/temizlik; See also "Nezafet," *Yuksek Islam Akhlaki*, accessed February 25, 2022.

connection with health,[189] with corresponding sections of *fiqh* (Islamic law) identifying 'clean' substances and methods of cleansing.[190] The phrase *'nezâfet ve tahâret*' is particularly popular in the context of cholera, found alongside discussions of the importance of the cleanliness of streets and public spaces, and statements encouraging trust in doctors' advice, this being in alignment with the teachings of the Islamic faith.[191] The phrase '*tahâret ve nezâfet*' is also found in official Ottoman correspondence between the provinces and the center, such as the 1845 handwritten document from the Health Council of Baghdad about taking the necessary precautions regarding the spread of cholera in the surrounding area.[192] The use of these terms does have a spiritual connotation as explored above, but their presence in official Ottoman documents about public health measures in the context of cholera, and printed-publications on the same topic, points more importantly to their place in the Ottoman vocabulary of public health. Thus, these primary sources on cholera highlight a shared Ottoman vocabulary on disease prevention and public health that is, in fact, inclusive of, compatible with, and even shared with the Islamic teachings. Perhaps one dimension of this compatibility is the spiritual connotation attached to the vocabulary of public health in Ottoman-Muslim communities that can communicate an understanding of contagion and prevention with a more multi-dimensional meaning, encompassing both spiritual and physical aspects of health. Thus, the teachings of the Islamic faith and its vocabulary surrounding hygiene, purity and cleanliness intersect with the integration of the modern science of contagion and public health with existing frameworks of knowledge

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[189] Varlık, *Plague and Empire*, 272: "In particular, these regulations focused on three critical components of health, as understood by early modern Ottoman society: air, water, and morals. Health was something that could be attained by living in a place that had clean air, clean water, and inhabited by people with clean souls."
[190] Salim Öğüt, "Taharet," *TDV İslam Ansiklopedis*i, 2020.
[191] Saffet, 1610-1617; Ibrahim, 364-365; Ahmed Şirani, "Kolera Münasebetiyle Makale-i Mahsusa," Istanbul: *Cem'iyet-i İlmiye-i İslamiye*, 5 Eylül (1327): 2317-2319.
[192] BOA. A. AMD. 25 / 21. Modern Turkish transcription: " [...] bilcümle mevaddı mahsusa esvak ve mahallat aralarında teraküm etmiş şehir(?)rinin defiyle nezâfet ve tahâret hususlarına kemal-i itinâ [...]"
English translation: "... in all the markets and neighborhoods the destruction [cholera] growing among the districts [draws] attention to the [importance of the] issues of purity and cleanliness (*nezâfet ve tahâret*)..."

and belief in Ottoman-Muslim communities. This stands in opposition to (false) fatalist claims that the Islamic faith inspires persons to accept their fate rather than take preventative measures with regard to disease,[193] as, rather, it is the teachings of the Islamic faith and their intersections with the modern science of public health and contagion that inspire the Ottoman-Muslim community to discuss and advise adherence to such preventative measures with regard to cholera. Similarly, an understanding of the interconnection between physical health and spiritual and moral health framed early modern Ottoman public health responses to plague.[194]

4.1.4 Spiritual Health: Protection with Talismans and Amulets

Though the focus of scholarship on responses to disease during the 19th-century, as explored above in respect of the Ottoman-Muslim community, centers on germ theory and sanitation measures, these were not the sole practices employed in the protection of health. The intersection between spiritual and physical health is reflected not only in the multiple-meanings of the terminology related to public health and cholera contagion as discussed above, but also more broadly in the Ottoman-Muslim conceptions of 'sickness/illness' and the relationship between the body and the soul that have evolved over time and place to encompass an 'integrative' understanding of health.[195] As such, the broad term *hıfzıssıhha*[196] (translated as public health, protection of health, preventative medicine, and public hygiene) encompasses both spiritual and physical health and is associated with the use of traditional methods of spiritual protection (including prayers, talismans, magic squares, etc.) that have spanned centuries and were especially common in the context of disease and disaster requiring spiritual or physical

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[193] White, 550-1.
[194] Varlık, 252.
[195] Miri Shefer-Mossensohn, *Ottoman Medicine: Healing and Medical Institutions, 1500-1700*. (SUNY press, 2010); See especially Chapter 2: "In Health and Sickness: The Integrative Body," 63-10; See also Varlık, 252.
[196] Nebi Bozkurt and Gülden Sarıyıldız, "Hıfzıssıhha" *TDV İslâm Ansiklopedisi,* 1998. https://islamansiklopedisi.org.tr/hifzissihha#2-osmanlilarda-hifzissihha.

protection of health.[197] A 16th-century treatise on talismans for protection from plague, attributed to Ibn Kemal and created under royal Ottoman patronage, defines the science of talismans (*'ilm-i tılsım*) as "aim[ing] to link celestial forces with terrestrial ones in order to produce protective efficacy."[198] The use of this science and related practices during the early modern period, in response to plague and other disasters,[199] as well as in the fashioning of imperial identities in Islamic Empires (Ottoman-Safavid-Mughal) has been a source of rich scholarship and analysis.[200] However, the 'modern' emphasis on disease transmission often overshadows discussion of the use of such practices during the 19th and 20th centuries. Nevertheless, within the works and collections of Dr. Tawfiq Canaan (1882-1964), a Christian born in Ottoman Palestine who served as an Ottoman military medical officer during WWI and continued to live in Palestine during the British Mandate, there is ample material and primary source evidence for the continued importance of spiritual methods for the protection of health that directly reflect the diverse and multi-confessional practices of the peoples of the Levant, which Dr. Canaan calls 'folk medicine.'[201] Dr. Canaan was particularly interested in, and published many works on, the intersection between spirituality and medicine, collecting 1,400 amulets, talismans, medicine

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[197] Nükhet Varlık, "Disease and Empire: A History of Plague Epidemics in the Early Modern Ottoman Empire (1453–1600)." (PhD. Diss., The University of Chicago, 2008): 178-81, 200. http://ezproxy.cul.columbia.edu/login?url=https://www.proquest.com/dissertations-theses/disease-empire-history-plague-epidemics-early/docview/304406303/se-2?accountid=10226.

[198] Tunç A. Şen, "Practicing astral magic in sixteenth-century Ottoman Istanbul: A treatise on talismans attributed to Ibn Kemāl (d. 1534)." *Magic, ritual, and witchcraft* 12, no. 1 (2017): 75.

[199] Varlık, "Disease and Empire," 178-81; Varlık, *Plague and Empire in the Early Modern Mediterranean World*, 185-228.

[200] Azfar A. Moin, *The Millennial Sovereign: Sacred Kingship and Sainthood in Islam*. (New York Chichester, West Sussex: Columbia University Press, 2012) https://doi.org/10.7312/moin16036; Nükhet Varlık, *Plague and Empire in the Early Modern Mediterranean World*. (Cambridge University Press, 2015); Matthew Melvin-Koushki, "Taşköprīzāde on the (Occult) Science of Plague Prevention and Cure." *Nazariyat 6* 2: 133-168; John J. Curry, "Scholars, sufis, and disease: can Muslim religious works offer us novel insights on plagues and epidemics among the medieval and early modern Ottomans?" *Plague and Contagion in the Islamic Mediterranean* (2017): 27-55.

[201] Khaled Nashef, "Tawfiq Canaan: His Life and Works." *Jerusalem Quarterly* 16 (2002): 12-26; Vera Tamari, "Tawfik Canaan–Collectionneur par excellence: The Story Behind the Palestinian Amulet Collection at Birzeit University." in *Archives, Museums, and Collecting Practices in the Modern Arab World* (eds.) Sonja Mejcher-Atassi, and John Pedro Schwartz (Farnham: Routledge, 2012), 71-90.

bowls, and items of similar significance, likely in lieu of payment,[202] as he treated people throughout the region over the course of his lifetime. One such amulet, collected by Dr. Canaan in 1917, depicted in **Figures 4 and 5** (below), uses the Islamic science of letters, or lettrism (*ilm-i huruf*)[203] to formulate auspicious phrases invoking the names of Allah, "*Allah Latif*" (God, the Kind) and "*Hafidh*" (Guardian) in the protection of a woman named Mitria.[204] While this talisman cannot be directly connected with cholera in the late Ottoman empire, talismans have long been associated with spiritual protection in the context of other diseases, like plague, in the empire. Accordingly, the collection date of this particular talisman, in 1917, places it within the period of the late Ottoman Empire, challenging the idea of complete rupture between 'modern' practices of public health and earlier methods of spiritual protection evidently still practiced by individuals and communities. Furthermore, scholars including Miri Mossensohn and Dr. Canaan both connect the practice of talisman-making with the rich multi-confessional traditions in the Levant dedicated to preserving spiritual health, many of which also incorporate appreciation of spiritually significant environmental features like streams and trees.[205] As primary source artifacts, the items collected by Dr. Canaan provide a rich material basis for this history and tangible evidence of their continued use during the 'modern' era of Ottoman history, surviving both the turn of the century and the dissolution of the empire.

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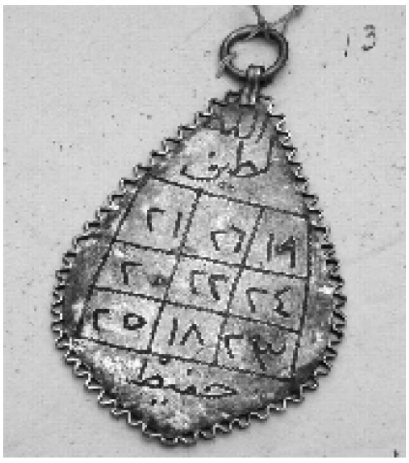
[202] Salim Tamari, "Lepers, Lunatics and Saints The Nativist Ethnography of Tawfiq Canaan and his Jerusalem Circle." *Jerusalem Quarterly* 20 (2004): 34.
[203] Noah Gardiner, "Stars and Saints: The Esotericist Astrology of the Sufi Occultist Ahmad al-Buni." *Journal of Magic, Ritual, and Witchcraft* (Spring 2017): 39-65; T. Fahd,"Ḥurūf", in *Encyclopaedia of Islam*, Second Edition, (eds.) Bearman, Th. Bianquis, C.E. Bosworth, E. van Donzel, W.P. Heinrichs. Consulted online on 10 February 2022. http://dx.doi.org.ezproxy.cul.columbia.edu/10.1163/1573-3912_islam_SIM_2971
[204] Baha' al-Ju'beh, "Magic and Talismans/The Tawfiq Canaan Collection of Palestinian Amulets." *Jerusalem Quarterly* 22-23 (2005): 106-8.
[205] Mossensohn, "Communicable Disease in Ottoman Palestine," 37-38; Nasef, 18-19.

Figures 5 and 6: *ilim-i tılsım* (science of talismans) and the protection of Mirita[206]

Side One

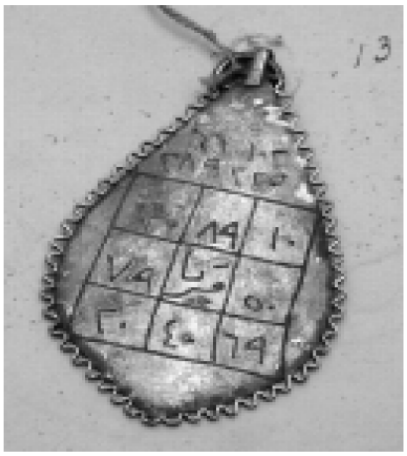


Allah
Latif

21	26	19
20	22	24
25	18	23

Hafidh

Side Two



66 102
289 225

30	89	10
79	Mirita	50
20	40	69

4.1.5 Women's Gazettes: Healthy Homes, Healthy Communities

Publications intended for female and family audiences, established during the late-Ottoman period, provide essential primary source insight into community perspectives in the context of cholera contagion, and the role of women as public health actors promoting health at the family level. Often overlooked in Ottoman scholarship, these differ from journal articles, in both style and readership, yet are equally valid and useful in providing a comprehensive understanding of Ottoman-Muslim community response to cholera. These women's publications generally featured articles focused on the inter-related topics of education, family, nation, and

[206] al-Ju'beh, 106-8.

modernity, and serve to highlight the key role of women as community actors.[207] Of these, the Ottoman-Turkish *Hanımlara Mahsus Gazete* (Women's Gazette, herein referred to as 'Gazette'), established in 1895, had the longest-running period of publication and enjoyed readership and circulation "throughout the empire and into Europe and Russia."[208] Though it may be assumed that literacy and, therefore, readership of such publications, would be limited to the elite, the Gazette's stated aim was to "broaden the knowledge of women who attended recently opened schools, or did not attend schools but learned though their own effort"[209] and many of the articles therein praise *Tanzimat-era* changes to state-sponsored women's education that favorably impacted literacy, indicating a potentially broader reach. Gazette topics encompassed a broad range, including "theories of education and childrearing, the roles of family members, nutrition, disease prevention and treatment, public appearance and actvities of Ottoman Muslim women, and lessons in geography, ethnography, and the civilizational status of the world beyond the Ottoman Empire."[210] Within this diverse content, the inclusion of topics related to public health and disease prevention and their emphasis on "scientific" approaches to housekeeping and home-management are particularly important within the context of cholera. As **Figure 7** (below) demonstrates, the phrase "*tahâret ve nezâfet,*" common in contemporary texts on cholera and public health, was also closely related to the 'duties of women' or motherhood, which were being defined by emerging educational programs for women of the late-Ottoman period that placed an emphasis on the role of women in family and community life and the upbringing of children.[211] Similarly, the 'scientific methods' of home management, ranging from cooking to

[207] Tuğba Karaman, "Recasting Late Ottoman Women: Nation, Press and Islam (1876-1914)," (PhD diss., University of Manchester United Kingdom, 2016): 45-50; Elizabeth B. Frierson, "Women in Late Ottoman Intellectual History," In *Late Ottoman Society: The Intellectual Legacy*, ed. Elisabeth Özdalga (Routledge: New York, 2005), 145-151.
[208] Frierson, 147.
[209] Karaman, 207.
[210] Frierson, 152.
[211] Karaman, 216.

hygiene practices, emphasized in these publications demonstrate the incorporation of 'modern scientific' approaches to public health into daily life at the home and family level, and underscore the important role of women in preserving, protecting and promoting public health. As described by the introductory inscription in the Gazette, the family is of central importance for society as a whole and, especially, for its health, growth, and 'progress': "A nation originates from the combinations of families. If a family partially improves, in other words a man is equipped with acquisition of knowledge and woman is deprived of it, the family and the nation, which comprises families, does not progress."[212] Thus, important public health initiatives were largely spread by women whose Muslim imperatives to be "good mothers" and comply with physical and spiritual religious obligations influenced their family life and health, and by extension, that of society.

Figure 7: "*Vazife-i Nisviyeyeden: tahâret ve nezâfet*" (Women's Duties: Hygiene and Cleanliness)[213]

[212] Karaman, 112.
[213] *Hanımlara Mahsus Gazete*, No. 82, 5 (3 Teşrin-i Evvel 1312/ 15 October 1896); image also published in Tuğba Karaman,"Recasting Late Ottoman Women: Nation, Press and Islam (1876-1914)," (PhD diss., University of Manchester, United Kingdom, 2016), 216.

Another important Ottoman-Turkish publication, *Kadınlar Dünyası* (Women's World), was entirely owned and run by women,[214] and featured articles authored primarily by women on topics ranging from education to labor, economics, health, and fashion.[215] It, like the Gazette, enjoyed a wide readership during its principal years of publication from 1913-1921, though these were interspersed with periods of inactivity.[216] Alongside other Ottoman women's gazettes, these two sources have been primarily analyzed through the lens of women's rights, exploring conceptions of motherhood, womanhood, gender relations, and nationalism/patriotism that evolved during the Hamidian period. As the official publication of the women's organization *Mudafaa-i Hükük-i Nisvan Cemiyeti* (the Association of the Advocacy of Women's Rights)[217] articles in *Kadınlar Dünyası,* regularly centered upon the role of women in society at large, and upon their responsibility to preserve the health of their families, especially with regard to childcare and the education of future generations of Ottoman society. Alongside such articles on motherhood and education, *Kadınlar Dünyası* also included articles on health, hygiene, and medicine for their women readers.[218] One pair of articles, titled "*Bedianin İmtihani*" (Bedia's Challenge)[219] and "*Bedianin Dersi*" (Bedia's Lesson),[220] provides medical advice on health matters for women in the form of question-and-answer dialogue, demonstrating that women were actively involved in protecting their health and that of their children and families.

Interestingly, women's publications are not the only Ottoman sources that highlight the vital role of women in protecting public health. Dr. Besim Ömer Akalın, (1862-1940), the creator of the cholera transmission map (**Figure 3**) referenced in Chapter 1.2, was an influential

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[214] Serpil Çakir, *Osmanlı Kadın Hareketi* (İstanbul: Metis Yayıncılık, 1994), 82-88; Karaman, 121.
[215] Karaman, 120-4, 146-50, 197-202.
[216] Karaman, 120.
[217] Karaman, 120-4, 197-202.
[218] Erdinç Gülcü and Tunç Samiye, "Osmanlı basın hayatında kadınlar dünyası dergisi." *Çankırı Karatekin Üniversitesi Sosyal Bilimler Enstitüsü Dergisi* 3, no. 2 (2012): 155-176.
[219] "Bedia'nın İmtihanı," *Kadınlar Dünyası*, 4 Nisan 1329/17 Nisan 1913.
[220] "Bedia'nın Dersi," *Kadınlar Dünyası*, 21 Nisan 1329/4 Mayıs 1913.

physician who later served as a politician and the director of the Turkish Red Crescent during the early Republican period.[221] In 1906, Dr. Akalın published a paper titled "*Vereme karşı: kadınların vezaifi*" (Against tuberculosis: women's duties) which included numerous recommendations surrounding the management of households, staff, and children, intended to help with the prevention of tuberculosis cases.[222] Though focused on tuberculosis, much of his advice, including the emphasis on careful attention to young children and hygiene within households, with the material recommendation (pictured in **Figure 7**) of using spittoons,[223] were also applicable to other communicable diseases, such as cholera. Through Dr. Akalın's advice, and publications in the Gazette and *Kadınlar Dünyası*, we understand how women were vital actors in preserving family and community health, tasked with the responsibility for care of the most vulnerable (the young and the sick), and the regular maintenance of a healthy household, utilizing scientific approaches for both. This helps us to understand how, as much as public health advice pertaining to disease transmission was promulgated by medical experts and scientific sources, the implementation of such advice was dependent upon individual, family, and community actions, and often associated with the responsibilities of women in the Ottoman context.

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[221] Emine Ö. Evered and Kyle T. Evered, "Dispensary, home, and 'a women's army': framing tubercular geographies and gender in late Ottoman Turkey." *Journal of Historical Geography* 68 (2020): 33-43; Ayşegül Demirhan Erdemir, "Interpretations on Weather Changes in the Turkish Medical History (According to Prof. Dr. Besim Ömer Akalın)." *Journal of the International Society for the History of Islamic Medicine (JISHIM)*: 72; Hülya Öztürk, "Besim Ömer Akalın ve Üzüm İle Tedavi Bahsi." *Mersin Üniversitesi Tıp Fakültesi Lokman Hekim Tıp Tarihi ve Folklorik Tıp Dergisi*: 44-45; Yeşim Işıl Ülman, "Osmanlı'dan Cumhuriyet'e Geçiş Sürecinde bir Aydının Portresi (1861-1940) Dr. Besim Ömer Akalın." *Yeni Tıp Tarihi Araştırmaları*, 10-11, (2004-2005): 435-464.

[222] Dr. Besim Ömer [Akalın], *Vereme karşı: kadınların vezaifi*, in *Nevsal-ı Afiyet*, (ed.) Akalın, 292-310; Evered and Evered, "Dispensary, home, and 'a women's army,'" 40-2.

[223] Akalın, 305-307.

Figure 8: Dr. Besim Ömer's Household Hygiene Advice: spittoons[224]

٣٢٦ بكى حفظ الصحه

چوجقده برضعف ولادى ، خصوصى بر بنيهٔ ضعيفه ومستعده واردركه بونى وسائط صحيه ايله كيدرمك قابلدر .

٣ — سن . خسته‌لق ٥ : ١٠ ياش آره‌سنده سيرك، اختيارلرده دها ضيق وسن كالده ايسه چوقدر .

[شكل-١٦٥]. — بال ايله آغيله بيلور توكورك جيب‌حقه‌سى [**]

[شكل-١٦٦]. — سهالى، يردن يوكسك توكورك حقه‌سى [*]

٤ — هواء محصور وفاسد. ازدحام نه قدر زياده ايسه، يشانان

[*] ورمك اوكنى آلتى آنجق يره ، طوپراغه ، سوقاغه توكورمه‌مك ايله اولور .

[**] نه متورم، نه ده هيچ كيسه يره، منديله توكورمه‌ملدر .

[224] Dr. Besim Ömer [Akalın], *Hıfzısıhha*, third edition, revised, Istanbul, 1330/1914, 226; image also published in Evered and Evered, "Dispensary, home, and 'a women's army,'" 41.

4.2 Dr. Mağmumi & the Cholera Vaccine: Promoting Prevention

As the 19th-century came to a close, discourse in printed-publications of the Ottoman-Muslim community shifted towards the newly-discovered cholera vaccine, developed by the team of Waldemar Mordechai Wolff Haffkine (1860-1930),[225] referred to in Ottoman-Turkish as "*komşumuz Rusya*" (our Russian neighbors).[226] Haffkine was a bacteriologist born in Russia who worked at the Pasteur Institute in Paris and developed the first cholera vaccine, which he later tested and distributed in India, establishing the bacteriology research center in Mumbai now named Haffkine Institute.[227] Dr. Şerefeddin Mağmumi (1860-1931), an Ottoman physician and intellectual known for his role as one of the founding members of the *İttihad ve Terakki Cemiyeti* (Committee of Union and Progress),[228] published a short article in the journal *İstişare* titled "*Kolera Aşısı*" (Cholera Vaccine).[229] Dr. Mağmumi provides details of the medical treatment, explaining: "[a]fter the first vaccination, the person's temperature rises a little. This is a side effect [of the treatment]. After the second vaccination, the person's temperature does not increase." [230] Similarly, he cautions: "[i]t is impossible to predict with certainty how long the protection against the disease provided by this vaccine will last." Despite

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[225] Barbara J. Hawgood, "Waldemar Mordecai Haffkine, CIE (1860–1930): prophylactic vaccination against cholera and bubonic plague in British India." *Journal of medical biography* 15, no. 1 (2007): 9-19.

[226] Şerefeddin Mağmumi, "Kolera Aşısı," *İstişare*, (İstanbul: Suat Muhtar, 04 Teşrinievvel 1324): 226. http://isamveri.org/pdfosm/D00865/1324_05/1324_05_MAGMUMIS.pdf
Modern Turkish transcription: "Bu husu dair en son ve en taze müjdeye komşumuz Rusya'dan alıyoruz."
English translation: "We get the freshest and latest good news on this issue from our neighbor Russia."

[227] Hawgood, 9-19.

[228] İsmail Türkoğlu, "Şerefeddin Mağmumi" *TDV İslâm Ansiklopedisi,* 2019. https://islamansiklopedisi.org.tr/magmumi-serefeddin

[229] Mağmumi, 225-7.

[230] Mağmumi, 226. Modern Turkish transcription: "Aşıdan ibtidâ bir centimeter mükâab şiringah ediyorum. Sekiz gün sonra iki centimeter mükâabi ve bir hafta geçince kezalık bir o kadar daha şiringah eyliyorum. İlk şiringadan sonra eşhasın hareketi biraz yükseliyor. Buda aksî ameldir. İkinci defadan sonra hararet asla artmiyor. Bu aşı sayesinde illete karşı husuli zan olunan muâfiyetin ne kadar devam ettiğini tamamen kestirmek mümkünsüz gibidir."
English translation: "The vaccine requires a syringe with one centimeter cubic volume. Eight days later vaccination requires a syringe with a two centimeter cubic volume, and after one week a syringe with just as much. After the first vaccination, the person's temperature rises a little. This is a side effect [of the treatment]. After the second vaccination, the person's temperature does not increase. It is impossible to predict with certainty how long the protection against the disease provided by this vaccine will last."

noting the opposition to the cholera vaccine expressed by the deputy director of the Pasteur Institutes (Paris), Dr. Mağmumi concludes[231] by advising that sufficient quantities of the vaccine be stored, to be used in households and neighborhoods in the event of an outbreak. Another article with the same title, "*Kolera Aşısı*" (Cholera Vaccine), by an unknown author, published in the journal *Mütalaa*, provides similar details about the Russian development of the vaccine, including mentions of the terms "microbe" "virus" and "bacteria coccus."[232] The scientific nature of these publications provides insights into the ways evolving modern medical technology was understood and appreciated by Ottoman-Muslim authors.

Although smallpox vaccination had been made mandatory in Ottoman schools in 1887,[233] the cholera vaccine was not regularly administered to the general public until the 1900s.[234] The first Ottoman use of the cholera vaccine was in 1913 when an outbreak of the disease broke out among soldiers stationed in Edirne during the Balkan Wars.[235] Following its success in the military context, it was administered free of charge to the general public, and, in June 1916, legally required by the *Sıhhiye Nezaret*i (Ministry of Health) where needed in order to prevent the spread.[236] However, by 1919 when the "disease had disappeared from Istanbul" the

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[231] Mağmumi, 227. Modern Turkish transcription: "Paris (Pastor ameliyâthanesi)nin müdür-i sânisi meşhur (Minkof) bu aşıya karşu emniyet ve itimat göstermediği gibi gâyet müellim ve mûci' olduğunu iyileri sürerek icrasi aleyhinde bulunuyorsada her halde miktar-i kifayede hazır bulundurarak şâyed bir vukuat zuhur edecek olursa o hane veya mahallede sâkin kimseleri aşılamak ve tecrübe eylemek muvafıktır sanırım."
English translation: "In Paris at the Pasteur Institute, the famous deputy director, Minkof, does not trust the vaccine because it could cause distress or pain, so he is found on the opponent's side[;] even though he is an opponent, I think we need to store a sufficient quantity and if an outbreak happens we should vaccinate the neighborhoods affected."

[232] "Kolera Aşısı" *Mütalaa* (Selanik: Osman Tevfik, 17 Kanunuevvel 1312). http://isamveri.org/pdfosm/D03043/1312_22/1312_22_4.pdf

[233] Adem Ölmez, "İkinci Abdülhamid Döneminde Koruyucu Hekimlik ve Bazı Vesikalar." *Belgeler* 34 (2013): 89-91; Theodoros Kyrkoudis, Gregory Tsoucalas, Vasileios Thomaidis, Ioannis Bakirtzis, Eleni Nalbandi, Alexandros Polychronidis, and Aliki Fiska, "Vaccination of the Ethnic Greeks (Rums) Against Smallpox in the Ottoman Empire: Emmanuel Timonis and Jacobus Pylarinos as Precursors of Edward Jenner." *Erciyes Medical Journal/Erciyes Tip Dergisi* 43, no. 1 (2021): 100-6; Gulten Dinc and Yesim Isil Ulman. "The introduction of variolation 'A La Turca' to the West by Lady Mary Montagu and Turkey's contribution to this." *Vaccine* 25, no. 21 (2007): 4261-4265.

[234] Yıldırım, *A History of Healthcare in Istanbul,* 97-98.

[235] Yıldırım, *A History of Healthcare in Istanbul,* 98.

[236] Yıldırım, *A History of Healthcare in Istanbul,* 98.

compulsory cholera vaccination was ultimately abolished.[237] Interestingly, Dr. Mağmumi's advice was heeded, as the vaccine was again found "necessary" and distributed in combating the 1970 cholera epidemic of el-Tor.[238] Although a more thorough history of vaccine use in Ottoman contexts lies beyond the scope of this investigation, the short history of the cholera vaccine and Dr. Mağmumi's advocacy for it in the Ottoman press provides an interesting perspective on the ways in which cutting-edge scientific developments were viewed by Ottoman medical experts of the time. Additionally, the pattern of vaccine distribution, beginning in the military sector before branching out to the general public, parallels institutional evolution in professionalization of the Ottoman medical field (as explored in 2.2).

4. 3 Quarantine Qualms: ramifications for life and death

Not every publication, though, presents a monolithic picture of community adherence to and support of public health regulations, in particular those enacting strict quarantines limiting movement, economic activities, and communal life. As the abovementioned Abdürreşid İbrahim (1857-1944) posits in "Kolera Neden Tevsi Ediyor?" ("*Why does cholera continue?*"), strict regulations placing whole households and areas under quarantine limit the economic activity of families and induce them to hide their sick community members.[239] İbrahim notes the economic impact of quarantines upon daily business: "[p]eople lead busy lives (*işi var gücü var*) and to place households under a sanitary cordon would cause numerous men to be left without work[.] If one is a businessman he could have responsibilities to do business with banks or whatever

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[237] Ibid; Nuran Yıldırım, "Osmanlı Devleti'nde Kolera Aşısı" *Mostar*, 58, (2009): 48-51.

[238] Yıldırım, *A History of Healthcare in Istanbul, 98.*

[239] İbrahim, 364. Modern Turkish transcription: "Tereddüt etmemekde edilen gelmez, işi var gücü var hanesi kordon altına alındığı gibi kaç adam işsiz kalacak [,] esnaf ise vaktili isleri var, muamelesi var, bankasi var bilmem nesi var, on on beş adam hane dahilinde kapanacak, bunlari nazar-i itibare alarak mülahaza ettiği gibi tereddüd etmek değil doğrudan doğruya gizlemeye mecbûr olur."
English translation: "People lead busy lives (*işi var gücü var*) and to place households under a sanitary cordon would cause numerous men to be left without work[.] If one is a businessman he could have responsibilities to do business with banks or whatever other duties, [and so upon] considering the requirement that would shut one up in the household for 10-15 days, without hesitation, one is then certainly compelled to conceal [their sickness].

other duties, [and so upon] considering the requirement that would shut one up in the household for 10-15 days, without hesitation, one is then certainly compelled to conceal [their sickness]." Here, İbrahim identifies a common point of tension with quarantines, the disruption of everyday life and finances, fear of which motivates people to conceal their illness; for this reason it is important that quarantine restrictions, while preserving the health of the community at large, not overreach. For instance, İbrahim references the European practice of caring for the sick in one room of the house, and in this way seems to suggest self-isolation as a less-burdensome alternative to strict quarantine.[240] Interestingly, in the Baghdad Ottoman archival document (referred to in 3.3), the author notes a similar relationship between the negative economic impact of quarantines and the reputation of this regulation in the eyes of the public.[241] As evidenced by Ibrahim's argument about the concealment of the sick, strict quarantines, particularly those limiting economic activity or deleteriously impacting people's livelihoods could decrease trust in and respect for the institution.

Certainly, Ottoman-Muslim communites were not the only ones impacted by strict quarantine regulations impeding movement within cities and between regions. An incident in Baghdad in 1889 highlights the impact of quarantine regulations, which required the burial of all dead outside city-limits, upon the Jewish community in particular.[242] The Baghdadi Jewish community had petitioned to bury an important rabbi and community leader, 'Abdullah Somekh (1813-1889), at the 'Cohen' shrine, a consecrated ground outside city-limits with religious

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[240] İbrahim, 364.

[241] BOA. A. MKT. MHM. 354 / 14.
Modern Turkish transcription: "[...]olmadıktan başka bir takım cahil ve akçe almak arzusunda bulunan kimesneler vasıtasıyla îcrâ ettirilmekte bulunmuş olduğundan bu hal beyn-el ahâli karantinalarin itibarina sekte vermekte idüğü [...]"
English translation: "... because it was carried out by people for the purpose of making a profit, this situation compromised the reputation of quarantines among the public…."

[242] Annie Greene, "Burying a Rabbi in Baghdad: The Limits of Ottomanism for Ottoman-Iraqi Jews in the Late Nineteenth Century." *Journal of Jewish Identities* 12, no. 2 (2019): 97-123.

significance for both Jews and Muslims, because quarantine regulations prevented his burial in the Jewish cemetery located inside the city. However, permission from the *vali* (governor) Mustafa ‘Asim Paşa was contested after the (Muslim) guardians of the shrines tried to impede the burial.[243]

The ensuing unrest, characterized by violence, and arrests of Jewish community leaders following the incident, became an issue of international importance as the Baghdadi Jewish community leveraged its international network through publication and lamentation of the incident in a variety of languages and countries, appealing to the broader international community as attempts to clarify the permission of the *vali* through Ottoman bureaucratic channels proved complex (due to the *vali's* unfaithful submission and alleged omission of telegram correspondence regarding the matter).[244] Ultimately, *vali* Mustafa ‘Asim Paşa was removed from his position, and the Jewish community leaders and members who had been arrested were released. Though initiated by quarantine regulations, the incident became widely known for the ensuing appeal to the Jewish diaspora.[245] This incident demonstrates how public health responses and quarantine regulations impact other confessional communities within the empire in complex ways. Although the international attention on the Baghdadi case might seem exceptional, one could find similar examples, such as in official archival documents from Izmir in 1845 recording the transfer of a deed for a cemetery, demonstrating a similar impact on the city's Jewish community and their burial practices in the context of cholera.[246] These sources shed light on the complex impacts that public health regulations had upon the activities of

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[243] Greene, 106.
[244] Greene, 101-102.
[245] Greene, 114-117.
[246] BOA, MLV 712 - 13. Modern Turkish transcription: “[...] kolera münasebetiyle vukubulan ve refiyatın defi-içun mahalle mezkur eşedd-i lüzumû görünmüş olmala [...]”
English translation: “... in relation to cholera existing at this moment in the aforementioned neighborhoods, a great need was seen … [so permission from the Sultan was requested, granting the deed to a cemetery to the Jewish community in Izmir].”

community life, ranging from economics to burials, and underline the agency of community actors in expressing their concerns, both through Ottoman bureaucratic channels and via international, multilingual print media.

4. 4 Conclusion: Diverse Discourse on Public Health and Everyday Actors with Agency

In contrast to fatalist tropes that abound in the historiography of Ottoman-Muslim community response to disease, primary source publications and artifacts communicate a wide range of thinking about disease transmission, public health and hygeine, and the spiritual dimensions of the protection of health. As challenged by Sam White, fatalist narratives are connected with long-standing paradigms in Ottoman historiography of disease, specifically that "traditional Islamic precepts taught Ottoman Muslims to accept plague as the will of God, encouraging a fatalistic indifference to the disease."[247] In contrast, the primary source publications of the Ottoman-Muslim community, including Saffet, Ibrahim, and Şirani explore germ theory and public health, employing vocabulary and evidence associated with Islamic teachings to advise adherence to preventative measures for cholera. In this way, the Ottoman-Muslim community in the context of cholera can be understood as participating in broad global debates of disease transmission that characterized the 'modern' period, while also retaining aspects of the spiritual dimensions of health rooted in the Islamic tradition and reflected in the vocabulary of public health.

Representing community responses on a family level and highlighting women as key actors in the protection of health and the progress of the nation, the *Hanımlara Masus Gazete*'s promotion of 'scientific' approaches to home-management and hygiene connects public health with daily Ottoman-Muslim community life. Similarly, publications in *Kadınlar Dünyası* engaged women readers with advice on matters of medicine, health and hygiene in an accessible

[247] White, 551.

dialogue-style discussion. Together with the works of Dr. Mağmumi, these publications underline the vital role that women played in preserving the health of their families and communities (and by extension the nation and society as a whole) through the daily implementation measures that promoted household hygiene.

Reaching beyond the boundaries of the Ottoman-Muslim comunity, Dr. Canaan's collections and works in the 19th and 20th century draw attention to multi-confessional practices of the peoples of the Levant centered around the protection of health, and challenge the narrative of a clear rupture between 'modern' disease prevention practices and those previously practiced in connection with the early-modern histories of plague prevention and traditions of spiritual protection of health. While publications of the Ottoman-Muslim community draw attention to the spiritual meanings in the language surrounding public health, Dr. Canaan's work similarly explores the spiritual dimension of the protection of health in the context of the multi-confessional communities of the Levant.

Although representing diverse examples from different Ottoman communities, İbrahim's discussion of the economic impacts of strict quarantine, and the international discussion of the Baghdad incident, similarly highlight community responses to the complex ways in which the realities of communal life could be impacted by public health regulations, namely quarantines. Central to all of the diverse aspects of community responses to cholera in this chapter, were the print-publication structures which allowed for the expression of concerns or advice, and the changes in state-sponsored education which expanded readership. Thus, the sources provide insight not only regarding their topical focus around public health, but also into evolving state-society relationships and the importance of publication as a pathway for voicing community concerns in the 'modern' era. Together, these primary source publications and material artifacts

provide insight into diverse community responses to cholera and public health regulations, spotlighting the agency of actors at the community, family, and individual level in the engagement with public health discourse and the implementation of various methods and approaches to protection of both spiritual and physical health.

Conclusion: Holistic Health

Investigating the cholera outbreak of the 19th-century Ottoman Empire during a year of mask-mandates, vaccine-cards, and travel-advisories in respect of the COVID-19-pandemic, it is easy to see parallels between the realities of communicable disease contagion across centuries.[248] Though the cholera pandemic predates modern institutions, such as the World Health Organization, that define disease responses today on a global scale, the International Sanitary Conferences and corresponding international cholera regulations are a precursor, demonstrating the importance of international efforts in disease response in the modern era of increased global connection and contagion. Though it may be easy to see historical parallels that remind us we are not the first communities to live through quarantines, it is equally as important to recognize the dynamics that distinguish particular moments in history, and to represent the sources with their individual contexts. In fact, viewing the Ottoman history of cholera adds several dimensions, unique to contexts and cultures of the 19th-century, to the global history of disease, enriching our historical understanding of public health and modernization, and illuminating the importance of local and environmental factors in disease response.

The case studies of Baghdad and Izmir represent urban centers of the Empire in transformation, undergoing a range of *Tanzimat-era* changes to their lived environments while cholera contagion spread. Both cities undertook a corresponding range of (transformative) public health precautions, including a (renewed) focus on water-centric infrastructure and quarantine implementation. In Baghdad, these water-centric changes built upon existing Ottoman hydrologic infrastructure constructed during the 16th-century to establish Ottoman sovereignty and Sunni patronage of the many holy cities along the region's Euphrates and Tigris Rivers,

[248] Nükhet Varlık, "The Plague That Never Left: Restoring the Second Pandemic to Ottoman and Turkish History in the Time of COVID-19." *New Perspectives on Turkey* 63 (2020): 176–89. doi:10.1017/npt.2020.27.

overhauling the hydraulic infrastructure previously built there by Shah Tasmap. In fact, this historical focus on water is not exceptional to Baghdad, and in the cases of both Izmir and the Hijaz there was a similar renewed focus on hydrology in the context of cholera that built upon structures from earlier centuries under sultanic rule to supplement existing infrastructure from past empires. This sheds light on an emerging current in Ottoman history, of environmental health, engaged with exploring the interactions between Ottoman society and the natural environment and their symbiotic well-being.[249] Furthermore, the focus on water infrastructure and other environmental factors in the face of cholera disease adds an interesting dimension to the global history of science discourse that often presents a dichotomy between environmental and contagious causation; the Ottoman public health responses to cholera recognize both.

For an Ottoman conception of health, the term *hıfzıssıhha* is broad enough to encompass an understanding that includes interaction between spiritual and physical health.[250] For this reason, community responses in the context of cholera that highlight health protection measures ranging from vaccines to talismans can be understood as dimensions of the integrative Ottoman approach to public health, which itself includes interaction between evolving traditions of knowledge, both modern and ancient. Furthermore, it challenges the Western binary emerging from the Enlightenment context, positioning religion as antithetical to science, because the Ottoman experience with cholera demonstrates the integrative capacity of traditional Islamic understandings of the protection of health, and the mutual resonances between this tradition and modern medical advice based on microbiology. This mutual resonance can be located in the

[249] Sam White, "The Little Ice Age Crisis of the Ottoman Empire: A Conjuncture in Middle East Environmental History." *Water on sand: Environmental histories of the Middle East and North Africa* (2013): 71-90.
[250] More recent scholarship on psychology in Islamic contexts exploring the intersection between spiritual and mental health, and highlighting frameworks that place emphasis on the influence of environment and social determinants, evidences the continued relevance of this model for understanding health and illness. Omnia El Shakry, *The Arabic Freud: Psychoanalysis and Islam in Modern Egypt*. (Princeton University Press, 2017), See especially Chapter 2: “The Self and the Soul,” 42-63.

Hadith sayings of the Prophet,[251] and is demonstrated in the use of *tahâret* and *nefâzet* in publications in the context of cholera, both terms simultaneously carrying both a spiritual connotation and occupying a primary place in the Ottoman vocabulary of public health, expressed in Ottoman state correspondence and printed-publications. In this way, modern public health initiatives, with their emphasis on hygiene, resonate with a traditional Islamic emphasis on cleanliness and purity, destabilizing the idea of clear rupture between 'modern' public health approaches and traditional wisdom. The continued use of talismans in the context of disease and disaster by the multi-confessional communities of the Levant into the 20th-century further challenges the idea that the 'modern period' represents rupture with variously labeled 'pre-modern,' 'mystical,' or spiritual practices that people have turned to for the protection of their health for centuries.

Looking into Ottoman-Muslim community responses in the context of cholera through printed-publications illuminates the central role of women as actors in preserving family health, and by extension, the health of the nation, composed as it is of these families. Recognizing the role of Ottoman-Muslim women in maintaining the health of their families and communities is important because it challenges Orientalist notions about the role of women in Islamic societies and in the Middle East broadly, highlighting their agency and recognized responsibility to lead in matters of health. Further exploration of women's gazettes and other printed Ottoman sources adds to the historical understanding of community responses to other diseases, giving voice to individual community members enacting their agency in the protection of public health. Much like today, institutional and governmental discourse on disease prevention is merely one level of

[251] As Saffet and many others since him have identified, often quoting the same hadith which advises: "When you hear of a plague occurring in a land, do not enter it; and if a plague occurs in a land that you already find yourself in, then do not leave that land." Emrenekli M. Saffet, "Din-i Mübin-i İslam ve Kolera." (Istanbul:Cem'iyet-i Ilmiye-i Islamiye, 1326): 1614. http://isamveri.org/pdfosm/D00524/1326_85/1326_85_SAFFETM.pdf; Murat Sofuoğlu, "What Islam tells us about responding to deadly pandemics," *TRT World*, April 15, 2020.

public health education, and studies have emphasized the key role of community-engagement in building trust and in compliance with medical advice.[252] It is essential to recognize the roles of historical actors other than state officials and medical professionals in the spread of public health discourse, because they encourage the diffusion of and trust in such knowledge within the community. In the history of healthcare much focus is often afforded to the providers and their programs, though the role of family and community members in transmitting public health knowledge demonstrates the vital role of a range of actors in preserving community health.

Although much has been written about plague in the Ottoman Empire, and in the early-modern Mediterranean more broadly, the history of disease in modern Islamic or Middle Eastern contexts remains an under-examined field; this short exploration of cholera in the 19th-century Ottoman Empire aims to make a modest contribution to such scholarship. The case studies of Baghdad and Izmir illuminate key factors in the Ottoman disease response, but cannot entirely represent the vast geography and diverse communities impacted by cholera in the 19th-century empire. Further studies, including of Istanbul and its recently published *vefat defterleri* (death registers), and others focused on more-rural areas, would fill out the complex picture of public health responses to cholera. Additional studies in respect of other diseases, such as measles, diphtheria, and smallpox, would further illuminate Ottoman medical and public health initiatives and provide a richer understanding of the evolving intersection of state and society in the context of medicine. Such studies would enrich the global history of science, and the history of both the Ottoman Empire and the Modern Turkish Republic,[253] providing insight into the transition between programs established during the Empire, and those emerging in the

[252] Gilmore B., Ndejjo R., Tchetchia A.*, et al. "*Community engagement for COVID-19 prevention and control: a rapid evidence synthesis." *BMJ Global Health* 2020; 5:e003188.
[253] Kyle T. Evered and Emine Ö. Evered, "Governing Population, Public Health and Malaria in the Early Turkish Republic, " *Journal of Historical Geography* 37, no. 4 (2011): 470-82; Evered and Evered, "State Peasant, Mosquito: The Biopolitics of Public Health Education and Malaria in Early Republican Turkey," *Political Geography* 31 no. 5 (2012): 311-21.

20th-century.[254] The interconnection of physical, environmental, and spiritual aspects survives in current frameworks of health and healing utilized in Modern Turkey, the Modern Middle East, and beyond. Further study of this multi-dimensional conception and its interface with both standard and 'traditional' or 'alternative' treatments in other localities would contribute meaningfully to ever-evolving understandings of the experience of disease and illness.

The Ottoman public health response to cholera explored here corresponds with a configuration of public health at the intersection between central and local governmental authority, medical professionals and scientific experts, and the territory's populace. Within such a configuration, one that remains relevant even in current public health responses to disease, there exist tensions surrounding the role and scope of medical expertise and the extent of popular trust in authorities to implement processes that will protect communities from contagion while being mindful of the impact of such measures on the daily life of the communities they seek to protect, underscoring the importance of a careful balancing of these concerns. For this reason, the authority of medical expertise is well-complemented by the roles of individuals and community members as public health actors, implementing and promoting measures on a local, quotidian level to achieve an appropriately-balanced response. Upon the dissolution of the empire, the 'Sultan as physician' disappears from the realm of public health, leaving a carefully-balanced framework of government, medicine, and society to support the health of individuals, families, and communities, and, ultimately, the health of the state. The current experience with COVID-19 and the corresponding mask-mandates and self-quarantines similarly underlines the importance of measures implemented by individuals in concert with other governmental and institutional

[254]Christopher Dole, "In the shadows of medicine and modernity: medical integration and secular histories of religious healing in Turkey." *Culture, Medicine and Psychiatry* 28, no. 3 (2004): 255-280; Oya Dağlar, *War, Epidemics and Medicine in the Late Ottoman Empire (1912-1918)* (Harlem: SOTA, 2008); Osman Şadi Yenen, "History and eradication of smallpox in Turkey." *Microbiology Australia* 35, no. 3 (2014): 156-164.

regulations which together work towards achieving national and global public health goals and preventing contagion. Additionally, the early focus in World Health Organization guidelines on COVID-19 contagion upon frequent hand-washing, highlights the continued importance of both water and personal hygiene and cleanliness (tahâret ve nezâfet) within the home and in broader global public health programs. Therefore, the vital role of community actors in implementing and promoting public health measures, sharing in the responsibility with medical professionals, scientific experts, and international and local governments, remains an important dimension of societal experience with disease outside of the temporal and geographical bounds explored in this paper.

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