HEALTH SERVICES IN THE LATE OTTOMAN EMPIRE (1827-1914)

by

Kathryn Linnea Kranzler

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HEALTH SERVICES IN THE LATE OTTOMAN EMPIRE (1827-1914)

APPROVED BY

Prof. Dr. Zafer Toprak

Doç. Dr. Selçuk Esenbel

Doç. Dr. Ethem Eldem
OSMANLI İMPARATORLUĞUNUN SON DÖNEMİNDE SAĞLIK HİZMETLERİ (1827-1914)

Bu çalışma Osmanlı İmparatorluğu'nun son yüzyılındaki sağlık hizmetleri konusunda mevcut İngilizce, Fransızca ve yeni Türkçe yayınların geniş bir araştırmasını sunmaktadır. Bu yüzyıl boyunca, Osmanlı tip camiası gelenekçi ve İslam kökenli uygulamalardan, biçim ve işlev olarak neredeyse bütünüyle Avrupa'lı uygulamalarla doğru katkılı bir değişim geçirmiştir. Genelde, bu alandaki uygulamaların gelişimine bağlı olarak, merkezi yönetim, kendi toplumunun sağlığını korumak konusundaki yaklaşımında da değişiklikler meydana gelmiştir. Bu araştırma, bir seri monografi, önemli kişiler ve gelişen kurumlar bağlamında, imparatorluktaki tip uygulamalarının batılaşması yönündeki genel eğilimi kavramaya çalışmaktadır.

Birinci bölümde, 19. yüzyıl Osmanlı İmparatorluğu' nun kısa bir demografik görünümü verilmekte ve salgın hastalıklara karşı 19. yüzyıl oncesi tavrların genel bir tartışıması yapılmaktadır.

İkinci bölüm, doktor, kadın doğum uzmanı, eczacı, bakteriyoloj ve tıp asistanlarının içerilen çeşitli tıp uzmanlarının eğitimlerini ortaya koymaktadır.

Buradan hareketle, üçüncü bölüm, İstanbul ve tasradaki sağlık kurumlarını Osmanlı Kızılay kurumunun kurulmasını, eczacılar ve orgutlarını, karantina ve yalıtımlı istasyonlarını, tedavi ve aşılama merkezlerini ve son olarak, cephe tip uygulamalarını tartışmaktadır.

Dördüncü bölümde, kolera, dizanteri, çuzzam, sitma, veba, kuduz, raci humma, su çıçeği, frenği, verem, tifo, tifüs gibi salgın hastalıklar ve bunlara karşı savaşmalar anlatılmaktadır.

Çalışmanın bunu izleyen bölümünde, imparatorluğun son yüzyılında Osmanlı toplum sağlığıyla ilgili mevcut Yayınlara kapsamlı bir bakış oluşturmakta çalışmaktadır. Bu zaman dilimi 1827'deki ilköğretimin sona ermesinden, 1914 yılında 1 Dünya Savaşı'nın başlamasına kadar olan süreçleri kapsar. Bu yıldan sonra merkezi sağlık planlamasındaki gelişmeler, yönetimine devleti koruma çabaları ve daha sonra da yeni Türkiye Cumhuriyeti'nin kuruluşu çalışmaları dolayısıyla yaş唁mıştır.
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Preface

"Public health is the science and the art of preventing disease, prolonging life, and promoting physical health and efficiency through organized community efforts for the sanitation of the environment, the control of community infections, the education of the individual in principles of personal hygiene, the organization of medical and nursing services for the early diagnosis and preventative treatment of disease, and the development of the social mechanisms which will ensure to every individual in the community a standard of living adequate for the maintenance of health."1

This study presents a comprehensive survey of literature available in English, French, and modern Turkish on the subject of general health services in the Ottoman Empire from the early nineteenth to early twentieth centuries. During these one hundred years, the imperial Ottoman medical establishment underwent a radical transformation from its traditional, Islamic based practice to one that was almost entirely western in outlook and function. Along with these practical developments came a change in the philosophy of the central government concerning its role in protecting the health of its population.

Traditionally, the State was passive in response to the contagious diseases of various kinds that periodically swept the populace. Following the dictates of religious doctrine, disease was viewed as a natural occurrence, as an act of God which should not be resisted. As late as 1820, no official precautions or remedies were taken during an outbreak of plague in the capital city of Istanbul. Civil officials were merely posted at the gates to count outgoing coffins, and a special prayer for the dead, the Sure-i Ankar, said from the minarets of the city after prayers at sunset. In market places throughout the Empire, state officials controlled the quality of foods sold there, but with more an eye towards consumer satisfaction than hygienic level.2

Butchers, tanneries, and dye houses were allowed to function within crowded city boundaries and nothing was done to provide adequate disposal of raw sewage, all of which will be discussed within these pages.

With the coming of the Tanzimat period in the first half of the nineteenth century, and its subsequent opening of government and culture to the west, the Ottoman government became involved in improving public health. The first Imperial Medical Academy opened its doors to students in 1827, the first quarantine measures were put into effect in 1832, and the first Ottoman association concerned with public health, Medrese Tahafus, was established in 1839. Throughout the rest of the century, the scope of government involvement in health matters increased steadily. The European concept, which had been developing since the Enlightenment period, that held that the State was responsible for its citizens regardless of their social standing, was finally accepted and made official policy during the Constitutional Era.

The effects of European philosophy on the Ottoman elite in general, and its role in the eventual overthrow of the traditional imperial system, has been written about elsewhere and so will not concern us here except where it influenced attitudes about public health. The liberalist tendencies of Ottoman reformers in the nineteenth century admittedly originated in France, which had been swept by its own far reaching reforms in the previous century.

Public health care became part of the platform of French liberals, who demanded widespread, systematic social reform which would include justice and humanitarianism for all. They were encouraged by scientific developments in the last century which had decreased the incidence of disease considerably among those who could afford treatment. They argued that the whole of society should benefit from these medical advances, and thereby, be allowed to join in the new dawning civilization of science and rationality. Medical scientists were able to show

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2Yıldızım, Dr. Murat, Tansim'ten Cumhuriyet'e Koruyucu Sağlık Uygulamaları, Bilim, Eğitim, Siyasal ve Toplumsal Olaylar, İletişim Yayınları, İstanbul 1985, p. 1320


4Coleman, William, Death is a Social Disease: Public Health and Political Economy in Early Industrialisation, University of Wisconsin Press, 1982, p. 279.
statistics which proved that "civilization reduced the incidence of disease and death and contributed directly to improve (the) physical well being" of the populace.

Through the application of advanced medical theory, man could escape from his physical environment, which was more often than not at that time, agrarian in nature, and enter the new industrial society. Through science, which guaranteed eventual freedom from all disease, man could escape his barbarian past. The state began to understand that medicine offered a means to "guarantee and maintain a healthy and efficient work force" for its industrial centers.

Despite the proclamations of the medical and scientific communities that a new world was at hand, prevention and treatment of disease at the turn of the nineteenth century were quite limited. These officials were rudely shaken out of their complacency by the sudden appearance of the deadly cholera bacilli in their port cities in the spring of 1832. Not since the plague had such a disease been encountered. They were then forced to face the truth of attempting to protect and treat large populations. Public health and sanitation became a priority concern, not only in Europe, but in commercial centers around the world.

As might be imagined, the motives behind European medical forays into other regions of the world were not solely humanitarian in nature. Controlling disease in far-flung colonies was essential to controlling their interests, both territorial and commercial, in these regions. European troops and subsequent colonists in non-European suffered high rates of mortality from a variety of diseases like cholera, dysentery, malaria, typhus and typhoid fever. High death rates in India caused the British government to establish a Royal Commission in 1859 solely to assess the state of army units in that country. The health of the armies was of primary importance to all imperial centers.

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5Ibid, pp. 286-290.
7Ibid, p. 104.
Outbreaks of disease often reached epidemic proportions among troops, who were forced by circumstances to live close together in trenches and tents, unable to maintain sufficient levels of hygiene. Disease among troops was a serious matter, healthy men being essential for successful military campaigns. During the "military intervention" of the Allies in Macedonia in 1916/17, for example, the French army lost a total of 100,000 out of their original force of 150,000 to an epidemic of malaria.

The large armies needed to conduct the nineteenth century warfare of absolutist states no doubt encouraged the governments to lend their support to scientists working to develop vaccines against a number of contagious diseases.\textsuperscript{9} Systematic sanitary and medical services were crucial to the maintenance of control in any newly conquered region. In fact, many medical concepts and practices came as a direct result of military changes.\textsuperscript{10} In the Ottoman Empire, quarantine measures, the use of vaccines, and the military were closely related. Successful preventative health on a wide scale required patience, organization, and discipline from both the government and its people.

After the military establishments came the health of commercial and political centers. The health of indigenous populations was considered important only in so far as those populations contributed to the benefit of international trade. Large population centers received the bulk of attention in sanitation and health services, while the hinterlands were allowed to languish.\textsuperscript{11}

Health services in the colonies were under the control of the central bureaucracies. Doctors usually were employed as civil servants of a given state and were obliged to follow officially dictated objectives in their work. The medical centers which they established all looked back to Europe as the center of authority on all matters of new information, training, confirmation, and recognition the field. By the end of the nineteenth century, "a common culture of medicine-- sustained by the image of science as the universal agent of progress, and scientific medicine as its servant--became the hallmark of European Empires throughout the world."\textsuperscript{12}

\textsuperscript{9}Yıldırım, passim.

\textsuperscript{10} Macleod, Lewis, editors of Disease, Medicine, and Empire: Perspectives on Western Medicine and the Experience of European Expansion, introductory passage, p.3

\textsuperscript{11} Ramasubban, p. 39.
The medical breakthrough of the century was the establishment of "germ theory" by a scientist named Louis Pasteur in 1875, which radically transformed both medical and sanitation theory and practice worldwide. Initially, medical scientists travelled to Paris to learn the latest techniques in the Pasteur Institute of Paris. Then, auxiliary centers were established in Saigon (1891), Constantinople (1892), Tunis (1893), Algiers (1894), Nha Trang (1895), and Tangiers (1914). These institutions, equipped with microbiology laboratories and teaching facilities, functioned as centers for the international struggle against contagious diseases and the development of local public health programs.13

The Ottoman Empire, while not a colony of Europe, was greatly influenced by European medical advancements and policies. This paper attempts to trace the general trend towards the westernization of medical practices in the Empire by presenting the major individuals and institutions who were involved in the process of trying to eradicate contagious diseases and thereby improve the health of the populace. The following pages offer a series of monographs, this form chosen in order to establish a chronological understanding of advances in a variety of fields and institutions.

To date, almost all literature available on the topic of nineteenth century Ottoman Health has been compiled by medical researchers at the various Medical History Institutes at medical schools in Istanbul and Ankara, and published in the Turkish language. Their works are confined to a descriptive style which focuses on the great march of science and the conquest of disease. Political and economic motives in the development of treatments and vaccines in the last century are generally ignored in favor of a dramatic recounting of the struggle against, and eventual triumph over, barbarianism through the application of scientific medicine.

This disregard for the deeper social mechanisms of western medicine, however, is not a style limited to Turkish medical researchers. It is typical of the field in general. Medical histories of most countries are presented in the tone of a never-ending heroic tale, complete with metaphors of military origin, the "fight" against contagious disease, the "struggle", "campaigns", and so forth. The usage of

12 Ed. Macleod, Lewis, p. 3.
13 Marcovich, p. 104.
such language supports the belief, or at least the strong hope, that this all encompassing crusade against the unseen agents of disease will end in the eventual, final, triumph of ordered, rational, human civilization. The bacilli are the dragons, the doctors errant knights, and we their captive, grateful audience. This has been the state of medical history for most of the last century.

Not until the last fifteen or twenty years have historians begun to study the connections between medical advances and their political and economic environments. There have been a number of interesting publications on the subject of medicine and the empires of Europe, but little has been directly attempted in the field of Ottoman studies. This paper seeks to present a comprehensive survey of existing literature on the subject of health in the nineteenth and early twentieth century Ottoman Empire in order to construct a framework for further research in the field.

The starting point for this research was Dr. Nuran Yıldırım’s work Tanzimat’ım Cumhuriyet’e Koruyucu Sağlık Uygulamaları, which, published in 1985, provides the most thorough research of the subject to date. She presents the history of public health organizations and advances made against specific diseases, including the specific documents which made them official acts of state. Necmettin Akyay’s Osmanlı İmparatorluğu’ndan Sağlık örgütleri ve Sosyal Kuruluşlar (1982) provided further information on health organizations, the medical education, and physicians as civil servants. These two works from the 1980’s represent the “new school” of Ottoman health historiography, if a delineation is to be made, providing information as they do about official decrees, salaries, and means of appointment without slipping into the medical jingoism of earlier writers, whose enthusiasm for their subject matter must be carefully sifted through in order to gain hard data.

Tip Tarihi Araştırmaları, Studies of Medical History, edited by Doctors Nihat Sari and Hüseyin Hatemi, and published annually, is a valuable forum for less voluminous works on a wide variety of topics regarding medicine in Turkey since early times. These articles, too, however, tend towards descriptive monograph rather than comparative, analytical proof, adding to the general understanding of events as they happened, but not tying them into a world perspective of cause and event.

Of the “old school” of writers, certainly not less valuable for their enthusiasm,
Kemal Özbay's *Turk Asker Hekimliği Tarihi* (1976), a monumental work in three volumes, provides the basis for studies on the imperial medical academies, the evolution of the different fields of medicine, military medical institutions, and medicine during war. Ekrem Kadri Ünal and Mustafa Samastu's *Mekteb-i Tibbîye-i Mülkiye (Sivil Tip Mektebi) 1867-1909* (1990) traces the movement among the Ottoman medical elite towards the foundation of the civil medical academy and the beginning of the exclusive use of Turkish as the medium of instruction in both civil and military institutions. Nâşül Baylû's *Eczacılık Tarihi* (1968) gives information about the education of pharmacists in the medical academies and the municipal organization of their profession.

Mezher Osman's *Sıhhat Almanakı* (1933), a compilation of celebratory articles written by early Republican health professionals, mixes historical recollections by famous medical personages with admonitions to consume enough of the right foods and be properly dressed for the elements. The medical schools, bacteriology, obstetrics, and the eighteenth century application of smallpox vaccines form the core of historical information, along with a number of biographies of instrumental medical personnel.

Louis Mongeri wrote *Études sur l'épidémie de cholera qui a régné à Constantinople en 1865 suivies d'un appendice sur la nature contagieuse du cholera et des devoirs des médecins sanitaires* in 1865. As part of a visiting team of French health specialists, he took part in the frantic efforts to organize a comprehensive sanitation effort by city officials in Istanbul, and wrote this descriptive volume of his experiences. Between this and Daniel Panzac's work, *La Peste dans l'Empire Ottoman 1700-1850* (1985), we are given an understanding of how individuals lived, how religious beliefs and sanitary habits influenced susceptibility to disease among the different ethnic groups which made up the population in the Ottoman Empire.

Stanford Shaw's *History of the Ottoman Empire and Modern Turkey* were also used as reference.

A variety of books in English, while not specifically about health in the Ottoman Empire, were valuable in the formation of an understanding of how disease moves through populations. William McNeill's *Plagues and Peoples* gives an interesting account of disease worldwide since modern times, which, together with Andre Siegfried's *Routes of Contagion*, presents a cohesive illustration of how European forays into other parts of the world by ship, and the consequent establishment of regular commercial lanes, not only made new commercial items available to the general population, but new and deadly diseases as well. Most importantly for the understanding of the Ottoman Empire in health matters, these two volumes point out the strategic importance of the Islamic Holy Lands in the spread of disease, and how sanitation efforts in this region of the world were of great importance to governments worldwide.

Schreiber Werner and Karl Mathy Friedrich's book *Infection* and Braunwald, Petersdorf, Wilson, Martin and Fauci's *Harrison's Principles of Internal Medicine* were used to describe specific diseases in the last section of this work, so that the exact nature of these diseases, and the urgency scientist felt at finding solutions to conquer them, can be better appreciated.

What follows, then, is a comprehensive look at the literature available for the study of Ottoman health in the final century of the Empire. The time frame, dates from the establishment of the first imperial medical school in 1827, to the outbreak of World War I in 1914, after which point developments in the field of centrally planned health stagnated for the most part, as all government energy was directed towards preservation of the nation. Some data from the period leading up to the Republican era have been included, when changes did occur, and were noted in the sources, many of which ended their accounts with the founding of the Medical Faculty at Istanbul University in 1906.
1. Human Resources of the Ottoman Empire

1.1 Population (1831–1914)

Studies of Ottoman population from the nineteenth century are of questionable value to the twentieth century researcher trying to determine the size of the Empire at the end of that century. Most of the documents of European origin were compiled for either ethnographic or political purposes. These ethnographic works, based on questionable sources, fail to give an accurate account of the Empire as they dealt chiefly with the European regions of the Empire in the west and ignored almost entirely the Anatolian and Arabic ones in the east. The documents compiled for political reasons rose from the Balkan struggle for independence as those nations strove to gain European support through impressive counts of their people.

The manipulation of demographic data for political purposes was begun by the Russian government at the Istanbul Conference of 1878. Delegates from that country presented documents referring to Bulgarian population figures which they claimed had been prepared by a well known authority. The study clearly exaggerated the number of Bulgarians, disregarded other ethnic groups almost entirely and minimized the total number of Moslems in the region. In response to this survey, Christian groups compiled their own data for presentation, with their own political goals in mind. Then British followed suit, making their own count of the population.

This misrepresentation of data for international conferences continued past the turn of the century. Some of the methods were particularly clever. The Armenians at the Berlin Conference of 1878 submitted a claim on the total number of their group in the Empire, which included more provinces than were in consideration at that time. The Greek Patriarch, using Ottoman statistics to prove the number of Greek Orthodox individuals in Anatolia, noted the total number of inhabitants in the region as being Orthodox, not just the Greeks. This information, however grossly incorrect, was used at Versailles in 1919 and then later by the League of Nations.
Nikola V. Mikhov compiled a multi-volumed bibliographical work on Ottoman population in which he cited only European sources, omitting altogether information from Ottoman sources in his attempt to justify Bulgarian independence and (indirectly) advance Bulgarian claims in Macedonia. Mikhov did, however, mention in his work that census taking at that time was rare in Europe as well as the Ottoman Empire and that his source authors had used subjective means to arrive at their calculations. Other methods included claiming all Christians to be Greeks or Bulgarians, dividing the Moslems into tribal groups, or dividing them into religious sects such as Sunni or Shiite in order to reduce their total number. These population counts compiled and submitted by nationalist groups for various reasons, however contrived they may have have been, were nevertheless accepted by the European powers and used in making international policy decisions. These documents cannot be accepted today as honest appraisals of Ottoman population.

The historian working at the end of the twentieth century must look elsewhere for a more accurate account, to the works of individuals not motivated by international politics, and, more significantly to the Ottoman archives themselves. Nineteenth century educators, business representatives, and diplomatic representatives of foreign countries needed accurate population statistics for their work and sought out the most reliable sources available.¹ They turned not to the Russians, or to the British, or the Greek Orthodox church, but to the official Ottoman archives. “No one but the Ottomans,” writes Justin McCarthy, “…had any accurate knowledge of the size of the population. This was due to a common sense principle of demography that is often forgotten: the only way to know a population’s size is to count the people. Only the Ottoman were in a position to have counted their people.”²

²McCarthy, Justin, Muslims and Minorities, the Population of Ottoman Anatolia and the End of the Empire, New York University Press, New York, 1983, p. 3.
Ottoman Demographic Sources

Foreign professionals trusted the Ottoman statistics found in the official censuses and yearbooks (*salnames*), which Kemal Karpat describes as "basically trustworthy, although they often made adjustments to compensate for certain technical shortcomings."³

Population registers (*nüfus kayd defterleri*) began to be kept more or less regularly after 1840. The government agencies recorded birth rates, death rates, and changes of residence. The registers included the entire population, Moslem and non-Moslems, serving as a basis for both taxation and military conscription. The methods and organization of these registers improved in the following years.

Official Ottoman yearbooks (*salnames*), data are the most valuable printed source for on the population of the late Ottoman Empire. The yearbooks were based on information from the Population Directorate which drew its information from field offices which did the actual counting.⁴ Statistics include both the male and female population, dates of migration, numbers of households, urban births and death, population by millet and even the sizes of cities and villages.⁵

Other sources are the *Bâr Vekalet* Archives in Istanbul, which potentially are the most valuable source on population, providing information on all population problems, but have yet to be fully catalogued. The Turkish Foreign ministry has data related to population agreements with foreign powers, and the migration of individuals from abroad. Finally, the British Public Records Office carries a large amount of information in its records of diplomatic correspondences with the Porte, including the reports of various British consuls in different regions, who discussed population changes and their reasons, and the relations between ethnic and religious groups of the Ottoman Empire.

Karpat adds that studies on the demographics of the 19th century Ottoman Empire need to approached in a different manner from that of traditional European

³Karpat, p. 6.


⁵McCarthey, p. 163.
historical demography, as the latter of these usually dealt with stable population
groups that were more or less ethnically homogenous. Demographic studies of the
nineteenth century also needs to be approached differently from those of the
Ottoman Classical Age, that is, the sixteenth century, as the population of that time
enjoyed a strong central government and a relatively stable society. The Ottoman
Empire of the nineteenth century presents anything but a stable picture. In order
to form a comprehensive picture of the population of the years 1830 to 1913, it is
necessary to study methods of census taking, fertility rates, death rates,
immigration, emigration, and the settlement of indigenous nomadic groups.6

There are errors, in the data, as might be expected, but they are of a similar
type as occurred in the census taking of any but the most developed nations of the
nineteenth century. The first problem with census taking, in general, was that the
overall population was often underestimated. Women and children were under
counted and sometimes individuals themselves were unsure of their exact ages. In
correcting these types of errors, twentieth century demographers usually resort to
simply doubling the number of males in the population, which McCarthy explains,
makes for "the best available approximation of the total population".7

As Ottoman censuses were carried out for military conscriptions or tax
purposes for the most part of the nineteenth century, they often counted only those
individuals necessary to their task. Census gatherers sometimes encountered
resistance by the population who suspected that being counted might have negative
effects for them. Isolated areas and poor means of transportation and
communications further increased the difficulties of obtaining reliable data. Finally,
nomadic groups were generally not counted, as well as immigrants arriving between
1831-1878, who paid no taxes and were not obliged to serve in the military.
Altogether, these practices lead to the Muslim population being under represented
more often than that of the Christians, who paid taxes, tended to be more settled, and
so were easier to count.8

7McCarthy, p. 4.
8Karpat, Movements, pp. 389-390.
Fertility and Death Rates

During the first thirty years of the nineteenth century the Ottoman population experienced a decline in numbers. After 1830, the Moslem numbers continued to decline, while the non-Moslem groups increased by 2% a year. The numbers of all groups increased after 1850.9

Fertility

The Ottoman average woman gave birth to an average six children, three of whom died before the age of five. Issawi estimates that couples require six to nine children in order to reproduce themselves. The number of births was generally higher among non-Moslems as abortion was reportedly widely practiced among the Moslems.10 This may have had a considerable amount to do with the decline of the numbers of Moslems in that century and obviously troubled the government. A special post was created in 1888, in Bursa, apparently to reduce the number abortions and to formulate a program to reduce them in other regions.11

At birth, life expectancy was 25-35 years, a number greatly influenced by rates of infant mortality. If a person was able to survive until the age of five, his life expectancy rate automatically increased to between 45 and 50 years.12

Mortality

Death rates in the mid-nineteenth century were high due to constant war, poor crops caused by bad weather or locusts, which lead to famine and left the population more vulnerable to disease. Drought in 1845 and in the early 1870's.

Moslem groups experienced higher rates of mortality than non-Moslems, due to the fact that only Moslem males were drafted into the military, where each might

9Karpat, Population, pp. 4-6.
11Ibid., p. 23.
12McCarty, p. 3.
expect to do as much as 24 years in military service in his lifetime. Shaw writes that:

"All Muslim subjects except those living in the exempted cities of Istanbul, Mecca and Medina, were required to serve at least five years (ages 20-24) as active soldiers in the new Nizamiye army, two years (ages 24-26) in the active reserve (Ih Tyar), then 7 years in the inactive reserves (radir) (ages 26-32), and an additional eight years (ages 32-40) in the local defense forces (mustahfir), subject to regular training and calls to service in emergencies." 

Endemic diseases such as plague, cholera, and malaria played a large part in reducing the population in the nineteenth century. The 1812 outbreak of plague proved fatal to 321,000 people in Istanbul in six months alone. Of this group Issawi lists some 220,000 Turks, 41,000 Armenians, 32,000 Jews, 28,000 Greeks, and 25 Franks. There were severe cholera epidemics in 1847, 1865, and 1892. Here again, the Moslem population suffered more than others, as military units were ideal places for diseases to spread, and the lands that these men had left behind remained under cultivated. It was also widely believed that doing anything against disease was contrary to the writings of the Koran, and so they preferred not to take some of the newer precautions against infection that were developed in the century and used by other groups.

The numbers of Moslems increased after the 1850's, however, with improved, state sponsored medical services, (approved by the Caliph), fewer wars, and the immigration of non-Ottoman Moslems to the Empire, which boosted their numbers significantly and which will be discussed presently.

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15 Issawi, p. 12.
The 1831 Census:

The Ottoman state developed census taking in the Empire in order to satisfy administrative and military needs, and increased with the centralization of the government throughout the nineteenth century. Following the destruction of the Janissary forces, Sultan Mahmud II needed funds to finance his major reforms, both social and military. He needed accurate information in order to gather taxes more efficiently and to find new conscripts for his new army and so it was decided that the population of the Empire should be counted.

The 1831 Census covered the entire Empire except Egypt and Arabia. Males, both Moslem and non-Moslem, were counted. All other ethnic groups were marked separately in the records with a footnote indicating their group. Non muslims were sometimes lumped together under the label “raya”. As the government wanted to establish a quantitative basis for taxing non-Moslems, and to find new army conscripts among the moslems, the survey included moveable and fixed property, and the values of shops and factories so that taxes could be set and adjusted fairly in both town and country. Women were not included in the survey as they were neither taxed nor served in the military.

1831 Census Results:

<table>
<thead>
<tr>
<th>Region</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rumelia</td>
<td>1,503,000</td>
</tr>
<tr>
<td>European provinces</td>
<td>3,600,000</td>
</tr>
<tr>
<td>Istanbul</td>
<td>600,000</td>
</tr>
<tr>
<td>Anatolian Provinces</td>
<td>6,700,000</td>
</tr>
<tr>
<td>Anatolia</td>
<td>2,378,000</td>
</tr>
</tbody>
</table>

17 Issawi, p. 21
19 ibid, p. 40.
20 ibid, p. 9.
<table>
<thead>
<tr>
<th>Location</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sivas</td>
<td>641,000</td>
</tr>
<tr>
<td>Karaman</td>
<td>527,000</td>
</tr>
<tr>
<td>Adana</td>
<td>191,000</td>
</tr>
<tr>
<td>Trabzon</td>
<td>273,000</td>
</tr>
<tr>
<td>Kars</td>
<td>40,000</td>
</tr>
<tr>
<td>Cilden</td>
<td>158,000</td>
</tr>
<tr>
<td>Maras, Diyarbekir</td>
<td>-</td>
</tr>
<tr>
<td>Erzurum, Van</td>
<td>2,500,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mediterranean Islands</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iraq</td>
<td>1,000,000</td>
</tr>
<tr>
<td>Syria</td>
<td>1,300,000</td>
</tr>
<tr>
<td>Arabia</td>
<td>1,000,000</td>
</tr>
<tr>
<td>Libya</td>
<td>500,000</td>
</tr>
<tr>
<td>Total</td>
<td>660,000</td>
</tr>
</tbody>
</table>

**Census Administration**

Administrative division of the Empire, which had remained basically the same from the fifteenth century, was changed during the nineteenth. The Ministry of the Interior was established to be responsible for all matters within the Empire. Official population counts were completed by various departments within this ministry over the years.\(^{22}\) To increase efficiency, the number of *eyalets* was increased from 29 in 1839 to 50 in 1850. Throughout the century, the military took a special interest in the census and took an active role in the compilation of data. The military kept its own registers and cooperated with the civilian census takers.\(^{23}\) As a result, methods of census gathering improved throughout the 1800's.

Males remained the unit of measure in the censuses of 1831–39, 1861/62, and

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\(^{21}\) Issawi, p. 17.  
\(^{22}\) Shaw, p. 72.  
1893. In 1855, these males were divided into four groups according to age.\textsuperscript{24} Women were not included until the 1891 census. After 1856, the philosophy of census taking changed in the Ottoman government as it became more European in its overall goals. Now they needed accurate information not only for military recruitment and tax collection, but for economic and social reforms, the laying of telegraph and rail lines and the settlement of refugees from lost territories or outside the Empire altogether. The state was to provide services to the people, and for this needed to reassess its natural and human resources.\textsuperscript{25}

In 1858, with the publication of The Provincial Regulation, a Cadastral Department was established in the Ministry of Finance for the completion of surveys concerning the Empire’s people and property. This department “also registered each male inhabitant, Muslim or non-Muslim, Ottoman or foreigner, and issued to each a population tax certificate (\textit{vergi nüfus tezkeresi}) which stated his tax obligation and also served as an identify card.”\textsuperscript{26} This system was successfully used in the \textit{sancaks} of Bursa and Janina, and later expanded to include other provinces, excluding Erzurum and the Arab regions “whose surveys were not fully completed until 1908.”\textsuperscript{27}

General results for the censuses of 1884, 1897, 1910 and 1913 are listed here. Breakdown along ethnic or religious lines will be discussed below.

<table>
<thead>
<tr>
<th></th>
<th>1884</th>
<th>1897</th>
<th>1910</th>
<th>1913</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rumelia &amp; Islands</td>
<td>5,014,000</td>
<td>5,594,000</td>
<td>5,949,000</td>
<td>642,000</td>
</tr>
<tr>
<td>Istanbul</td>
<td>895,000</td>
<td>1,052,000</td>
<td>1,056,000</td>
<td>1,160,000</td>
</tr>
<tr>
<td>Anatolia</td>
<td>10,388</td>
<td>11,430,000</td>
<td>13,210,000</td>
<td>13,522,000</td>
</tr>
</tbody>
</table>

\textbf{Subtotals}  
16,297,000  18,076,000  20,215,000  15,324,000

Syria  
2,700,000  3,001,000  2,967,000  3,075,000

\textsuperscript{24}Ibid, p. 390.
\textsuperscript{25}Karpat, \textit{Population}, p. 9.
\textsuperscript{26}Shaw, p. 88.
\textsuperscript{27}Ibid, p. 98.
Iraq 1,400,000 1,550,000 2,278,000 3,075,000
Arabic lands - 5,570,000 5,570,000
Libya - 1,300,000 1,000,000 -

Totals 32,030,000 26,340,000

According to Shaw, in 1897, the Population of the Empire was 74% Moslem and 26% non-Moslem. The death rate was 2.12%, and the birth rate 3.75%, which made for an increase of .63%.

According to the same source, between 1878 and 1884, 812,193 Moslem refugees entered the Empire and were resettled. Between 1878 and 1914, the Empire experienced 0.6% growth overall, a number which also takes into account immigration, emigration, and resettlement.²⁹

**Tanzimat Population Mix**

The coastal lands of the west and north were traditionally the most developed regions of Anatolia, both economically and demographically. Agriculture in these areas benefitted greatly from the moisture of the seas, and the people from better transportation and communication systems. Croplands were the best in these regions, and the largest cities were found there as well. Their inhabitants were first in tax revenues to the central government and received better medical attention and educational opportunities. The standard of living was higher than that of other regions of Anatolia, which experienced extremes of heat and cold throughout the year and were considerably more isolated.

The three largest population groups living in Ottoman Anatolia were the Moslems, Greeks and Armenians.

²⁸Issawi, p. 16.
²⁹Shaw, p. 240.
Moslems

Moslems made up the majority of the population living in Anatolia in the nineteenth century. This group consisted mainly of Turks and Kurds, but there were several minority groups who were not identified in the censuses by the Ottoman government which was interested in promoting an united Islam.

McCarthey writes that:

"The Ottoman government refused officially to recognize ethnic differences among the Muslims of the Empire...one can theorize, based on evidence from the censuses of the Turkish Republic that the Arab Muslims who live in Anatolia were in the southeast, Laz in the north, and the Caucasian minorities such as the Circassians and Muslim Georgians in all parts of Anatolia. Except in the southeast Kurdish areas such as Siirt, Mardin, Van or Hakkari, the Turks were the majority of the Muslim community."\(^{30}\)

There were, in addition, other differences in the population of Moslems throughout Anatolia:

Shii:
No distinction was made between them and Sunni Moslems, which made up the majority of the population.

Yezidis:
The Yezidis followed a religion which combined Islam, Zoroastrianism, Christianity, and other ancient indigenous elements. This group spoke mainly Kurdish, and as a result, were usually counted as Muslim by the Ottoman government, which had no desire to acknowledge the existence of this group commonly thought to be devil worshippers.

\(^{30}\) McCarthey, p. 6-8.
**Gypsies**

Gypsies were also counted as Muslim, although, as McCarthy reports, the depth of their faith was questionable. Most lived in Anatolia, and practiced a nomadic lifestyle, which made them difficult to count and typically left them under represented in the censuses.\(^{31}\)

**Non-Muslim Groups**

**Greeks:**

There was no one center of Greek population as they lived throughout Asia minor, but they were particularly concentrated in the coastal regions of the country. The majority of them were Greek Orthodox, and so, were counted in that millet. They tended to be more urban than their fellow Ottomans, the Moslems and Armenians, and so, were more easily counted. Yet still "an unknown number of Greek residents of Anatolia were also registered as foreign citizens" and so their exact number will possibly never be known.\(^{32}\)

**Armenians**

The population of the Armenians living in the Ottoman Empire in the nineteenth and early twentieth centuries is a controversial topic in the study of Ottoman population. The Armenians accuse the Ottoman officials of having minimized the number of non-Muslims in their census taking for political reasons, and argue that Ottoman statistics are therefore unreliable. McCarthy opposes this idea. Statistics on all minority groups, he writes, were "kept as part of an ongoing government intelligence program, not made for polemic use." The Ottoman needed accurate,

\(^{31}\) Ibid., p. 105,

\(^{32}\) Ibid., p. 30.
updated statistics for tax and political reasons, and were therefore free from political intrigue. He concludes that "it is highly unlikely that the Ottomans would have deliberately fooled themselves."\textsuperscript{33} and says that the Ottoman statistics can be trusted.

The Armenians lived throughout Asia Minor, but were concentrated in their traditional homeland in eastern Turkey. One of the reason the number of their population has been hard to gauge is that often the Armenians lived in remote areas and were difficult to count. Some of their number moved west over the years in search of economic opportunities and personal security until they, like the Muslims and the Greeks, could be found throughout Anatolia.\textsuperscript{34}

Additional, smaller groups belonging different religious groups, tended to live together in communities. McCrathely writes: "Depending on where they were settled, the smaller groups had either the best records of population or the worst."\textsuperscript{35}

**Jews**

The Jews of the Ottoman Empire were generally urban and lived "almost exclusively in western Anatolian cities." In Aydin Vilayet, for example, less than 1% of their total number lived outside cities or towns.

**Bulgarians**

The Bulgarians were found in small numbers, in the regions near Balye, Bandirma, and Lapseki, on both sides of the Marmara straits. There was also and a small community of merchants at Aleppo.

**Eastern Christians**

The Eastern Christians were originally of two types: Monophysites and Nestorians.

\textsuperscript{33}bid, p. 61.
\textsuperscript{34}bid, p. 2.
\textsuperscript{35}bid, p. 89.
both of which had split into smaller sects over the centuries. Because these groups traditionally lived in remote areas which were difficult for the government to control, 'The precise population numbers of the Nestorians, Syrians, Chaldeans, and Jacobites in the Ottoman Empire will probably never be known...they were extremely difficult to count'.

**Foreigners**
The last group were foreigners living and working in the Empire. Although there was no large scale settlement of foreigners in the Ottoman Empire, they tended to concentrate in the larger cities as they were in the Empire generally for state or commercial reasons. This group was small, generally not exceeding 30,000-40,000, but had a disproportionate amount influence in all areas of commercial activity in the Empire, except in agriculture, handicrafts, and internal trading, which were controlled by indigenous groups. Their numbers rose rapidly in the nineteenth century, but declined abruptly with the onset of World War I early in the twentieth century.

**Population Movements**
As we have seen, the number of indigenous Turks was decreasing in the nineteenth century, due to several factors, most significantly, military recruitment policies and disease. Yet official statistics point to an increase in the total number of Moslems in the Empire throughout the time period discussed. Political events were the main reason for this considerable flow of Moslems into Anatolia and the Arab provinces of Syria and the trans-Jordan in the second half of the nineteenth century. The Ottoman loss of the Balkan provinces, and the Russian conquests of the Crimea and the Caucasus region led to the flight of Moslems, voluntary or involuntary, from those areas into the remaining Ottoman lands.36


At the beginning of the nineteenth century, the Ottoman government welcomed all immigrants to its lands. As discussed above, during the first thirty years of the century, Ottoman population declined steadily. Stanford Shaw tells us that “the Ottoman countryside had been largely depopulated since the seventeenth century as the result of misrule and the ravages of war, famine and plague.” There were large areas of uncultivated land in Anatolia and few people to do the work. Wishing to benefit from the growing demand from abroad for agricultural commodities which could be produced in the Empire, the government decided a larger population would boost economic development and, at the same time, increase the state’s abilities to protect itself from its enemies.

In 1856, the Ottoman government, with the sanction of the Sultan and the High Council of Tanzimat, adopted a policy on population on 9 March 1857 that would eventually change the ethnic composition of the Empire dramatically. The decree declared that migration into the Ottoman state was open to anybody who was willing to give his allegiance to the Sultan, become his subject and respect the country’s laws. According to article thirteen, prospective immigrants were to submit a list of all family members and professions, and be in possession of the equivalent of 1500 francs. Shaw writes that “they had to agree to cultivate the land and not to sell or leave it for 20 years.” In exchange for this allegiance to the Sultan and his laws, immigrants would receive free lands and were promised religious tolerance to the degree enjoyed already by Ottoman subjects of all millets.

According to article three in the policy: “Settlers will be protected against any infringement of the religion they profess and will enjoy religious freedom like all other classes of Empire’s subjects.” They would also be allowed to build churches if none already existed in the region in which they settled. In articles 4, 5, and 6, the settlers of Rumelia and Anatolia would be exempted from military service and all taxes for six years and could could obtain the best arable land for free. Settlers in

37 Shaw, p. 115.
38 Karpat, Population, p. 397.
Asia would have their military exemption extended to twelve years.

This proclamation, translated and published in the major journals of Europe of the time, aroused a tremendous amount of interest. "Inquiries and applications came from every corner of Europe", from groups as well as individuals. "Thus a group of 2,000 families of German origin established in Bessarabia informed the Ottoman consulate in Odessa that they too desired to settle in Turkey...they wrote that if their demands were met favorably more than 18,000 families would settle in the Ottoman state."

Other governments tried to take advantage of this, to establish colonies in Syria and Palestine, but were thwarted by the Ottoman state. There was quite a bit of internal movement as well, as Ottomans subjects were given permission to leave their lands for more profitable ones throughout the Empire.\textsuperscript{40}

The Ottoman Empire also accepted refugees fleeing from oppression in other states. Once again, all that was required for acceptance was allegiance to the sultan and to the laws of the land. Slavs and Christians escaping from Russia were welcome and protected in the Empire. After a revolt in 1848, Islamic political leaders arrived in the capital seeking refuge. Many of these individuals converted to Islam, joined the state organs, and fought on their side in the Crimean War. After the war, the Empire benefitted greatly from "the arrival of thousands of refugees from all parts of Europe, particularly from Hungary, and Poland, and their settlement in the major cities offered the sultan and his ministers a new reserve of expert foreign advisers. Moreover, the presence of large numbers of foreign officers and soldiers and their families in the streets of Istanbul in particular familiarized the local population with European manners and made the work of Ali and Fuat and their associates much easier in the years that followed."\textsuperscript{41}

Bulgarians made up the largest group of migrants into the Empire after the war. Many of them had been among groups of Ottoman Bulgarians to migrate to the Russian territory earlier in the century when similar land offers were made by that government in its effort to replace the Tartars and Circassians who had been forced

\textsuperscript{40}Ibid., p. 393-395.
\textsuperscript{41}Shaw, p. 141.
to leave. Dissatisfied with life in the Crimea and Kuban, the expatriate returned to Ottoman lands. Cossacks reluctant to return to Russian territory at the close of the war migrated as well, settling in the Balkans and in Bursa. Most of them were farmers and took up the cultivation of lands in those areas.  

Balkan Migrations

There has been much debate about the actual number of Muslim inhabitants in the Balkans in the nineteenth century, the majority of which were ethnic Turks. In 1831, the population in Rumeli was listed as 549,228, 37% being Muslims and 59%, Christian and "other" groups. This figure for the number of Muslims is no doubt too low, excluding as it did women, children, men serving in the military and migrants to the region who were exempt for a time from taxation and conscription. A substantial number of Circassian Muslims were sent into the region to settle during this time, increasing the overall population there.

Friction between the Christians and the Muslims was encouraged by the Europeans and the Russians, who helped convince the Balkans Christians that they needed to gain independence from the Ottoman state. The Christians, exempt from military service, and so able to put their energies into farming, commerce and community development, made up the bulk of rural leaders, craftsmen, prosperous merchants, and intelligentsia.

They blamed the Muslims, who made up the bulk of the bureaucracy, landowners, clergy, and villagers, on the "backwardness" of the region as they saw it, compared to Europe.

During the Balkan struggle for independence, religion was given great emphasis, the Christian revolutionaries fighting against the Islamic Ottoman State. A true nation, they argued, should be made of homogenous elements, that is, made up of a people who shared the same religious, ethnic, and linguistic characteristics.

Their plans to create homogenous nation states included "the eradication of every cultural, educational or economic institution associated with Ottoman Muslim

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42 Karpat, Population, p. 397.
rule." This meant "eradicating" the "Turks" altogether so that they would be left with a "pure" population as they imagined they had been in days long past. To the leaders of the Balkan movements, the term "Moslem" came to be seen as synonymous to "Turk", which lead to attacks on and forced migrations of the entire Moslem population, regardless of whether they were actually Turks, in the ethnic sense, or merely islamicized Slavs.

Russian armies entering Bulgaria in 1877-78 attacked the civilian Moslems, and the Serbs followed suit. 150,000-300,000 Moslems were slaughtered and many were forced to flee. 1.5 million sought refuge in the remaining Ottoman territory and were resettled in Anatolia. After 1978, wholesale population exchanges between the Christian powers and the Moslem Ottoman state became a common means for the settling of ethnographic conflicts. The nations would have their homogenous communities at all cost.43

Moslem Migrations from The Crimea and Circassia

The majority of the refugees came from lands conquered by the Russians: Turks, Tatars, Circassians quitting their traditional homelands for Ottoman territory. Migration by Tatars began shortly after 1783 when Russian forces captured the Crimea and 80,000 Tatars were resettled in Ottoman lands. At first, they were not obliged to leave, but as the conquering Russians set about establishing Christian governments that were hostile to them, these predominantly Moslem groups decided to leave on their own volition. After the Crimean War, when the Russians changed their policy and began to persecute and resettle the Tatars who remained "the flow (into Ottoman lands) became a torrent" 44. Formally evicted from their lands in 1856 approximately 1,600,000 of them entered the Ottoman Empire and settled as refugees in the Anatolian countryside.

In 1860, the Ottoman government established the General Migration Administrative Commission to direct migrations and resettle people. Expecting only

43bid, p. 387
44Shaw, p. 116.
40-50,000 people, they were unprepared for the half a million that soon came.

The Circassian migrations began in 1862/63 when they were forced from their lands by the Russians. In the 1877 War, the Circassians, took the side of the Ottomans and were punished severely after the defeat. Between 700,000 and 1,200,000 individuals migrated to the Ottoman Empire. The Russian government insisted that they be settled far away from the Russian frontier, so the Circassian groups were scattered throughout the Empire, and settled as far away as Syria. The migration agreements of the 1860's with Russia became wholesale population exchanges of Christians and Moslems just as they had in the agreements with the new Balkan nations. The peak of these migrations was reached in 1862/63, but the flow of refugees into the Ottoman Empire from Russia continued until 1920.\textsuperscript{45}

1854-1860 176,700 Tartars from Norgay and Kuban settled in central and south Anatolia.
1860-1870 1,000,000 more Tartars came and settled in Rumelia.
1854-1876 1.4 million Tartars from the Crimea.
The Cossacks went to Macedonia, Thrace and western Anatolia.
1876-1895 more than 1,200,000 Moslem refugees entered the Empire. The number of male Moslems in the Ottoman Empire doubled between 1831-1882.\textsuperscript{46}

Many wealthy Russian Moslems voluntarily migrated to the Ottoman Empire where they felt they would have better opportunities and a safer environment in the larger cities there. A number of wealthy Balkan refugees had managed to sell their lands and come with a substantial amount of capita to the Empire where they quickly joined the Ottoman elite, which welcomed their education, training, "and sense of nobility and class". The Crimean Tartars, many of whom had been tradesmen, brought quantities of gold with them and became part of the growing Ottoman middle class.

\textsuperscript{45}Ibid, p. 402-404.
\textsuperscript{46}Ibid, p. 117.
Emigration

At the same time as Moslems from different regions were spilling into Anatolia as refugees, non Moslems were leaving. Many of the Christian groups, who had previously made up a sizeable proportion of the Empire's population, were resettled in other countries during the mass population exchanges. Still others, including Jews, Armenians, Greeks, and Christian Arabs, left for better prospects in the New World.\(^\text{47}\)

These migrations changed the character of the Ottoman state dramatically as the Empire became predominantly Moslem. Abdulhamid's Islamic reforms found a broader support among the people. Having lost large amounts of territory to nationalist movement in the Balkans, certain elements in the Ottoman state began to press for a Ottoman nationalism which included the "turkification" of the population. Resettlement programs for the refugees which were designed to break down their existing power structures and increase their dependence on the central state. Leaders of such groups as the Cerkes were removed from their people, who then slowly assimilated into the existing community.\(^\text{48}\)

1897 Census, by Ethnic Group:

<table>
<thead>
<tr>
<th>Ethnic Group</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turks</td>
<td>9.6 million</td>
</tr>
<tr>
<td>Arabs</td>
<td>3.6 (+Arabia and Libya= 9 million)</td>
</tr>
<tr>
<td>Greeks</td>
<td>2.1</td>
</tr>
<tr>
<td>Kurds</td>
<td>1.5</td>
</tr>
<tr>
<td>Armenians</td>
<td>1.4</td>
</tr>
<tr>
<td>Albanians</td>
<td>1.1</td>
</tr>
<tr>
<td>Serbs</td>
<td>0.8</td>
</tr>
<tr>
<td>Jews</td>
<td>0.4</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td>21.1 million (+9 million from Arabia and Libya)(^\text{49})</td>
</tr>
</tbody>
</table>

\(^\text{47}\)Issawi, p. 13.
\(^\text{48}\)Karpat, Population, p. 423.
\(^\text{49}\)Issawi, p. 18.
### Change in Population Ethnic Groups 1897–1914

<table>
<thead>
<tr>
<th>Millet</th>
<th>1897</th>
<th>1906</th>
<th>1914</th>
</tr>
</thead>
<tbody>
<tr>
<td>Muslim</td>
<td>14,11,945</td>
<td>15,518,478</td>
<td>15,044,846</td>
</tr>
<tr>
<td>Greek</td>
<td>2,569,912</td>
<td>2,893,370</td>
<td>1,792,206</td>
</tr>
<tr>
<td>Armenian</td>
<td>1,042,374</td>
<td>1,140,563</td>
<td>1,294,206</td>
</tr>
<tr>
<td>Bulgarians</td>
<td>830,189</td>
<td>762,754</td>
<td>14,908</td>
</tr>
<tr>
<td>Catholics</td>
<td>120,479</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Jewish</td>
<td>215,425</td>
<td>256,003</td>
<td>187,073</td>
</tr>
<tr>
<td>Protestant</td>
<td>44,360</td>
<td>53,880</td>
<td>-</td>
</tr>
<tr>
<td>Latin</td>
<td>22,395</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Maronite</td>
<td>32,416</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Keldani</td>
<td>5,768</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Syriac</td>
<td>35,554</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Gypsy</td>
<td>19,550</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Others:</td>
<td>332,569</td>
<td>186,152</td>
<td></td>
</tr>
<tr>
<td>Totals:</td>
<td>19,050,307</td>
<td>20,897,617</td>
<td>18,520,016</td>
</tr>
</tbody>
</table>

### Urbanization

Population growth, migration, and resettlement affected the social, ideological, and political structure of the Empire and deeply influenced the cultural transformation of the later years. Urban centers of the Empire grew at approximately the same rate as that of the total population. Birth rates in the city were no higher than in other parts of the Empire, but as many new people came to these areas as a result of population exchanges, business opportunities, their numbers swelled.

Louis Mongeri, a French physician visiting Istanbul as part of a health commission during the cholera epidemic of 1865, presented a description of the living conditions of the inhabitants of the city at that time. In the introduction to
his report, which was later published in book form, he noted that the capital city offered rich subject for the study of disease among human populations, due to the diversity of the countryside in and around the city and the different standards of living of the various social classes and ethnic groups. He went into particular detail in his discussion of waste systems, as these played such a fundamental role in the spread of disease.

Nearly all of the Moslem inhabitants of greater Istanbul, Mongeri tells us, lived in the plateau of Stamboul, close to the administrative center, in the best areas. Their homes were generally more spacious than those of other ethnic groups, and made of wood, as stone buildings were commonly believed to be bad for the health. Living quarters were built to accommodate the separation of males and females, with the overall unit well ventilated, and facing inward to a central garden.

The homes of the wealthy featured running water, steam baths, and various kinds of toilets, depending on the status of individuals to use them. The wealthiest had clean, odorless bathrooms, with self closing water taps. Their servants, used facilities on the street level, which were of varying degrees of cleanliness, depending on the number of individuals in the household and the availability of running water. The very poor often did not have running water, and used instead basins of water for their daily ablutions.

Rayas lived in the surrounding areas, often on slopes running down to the Sea of Marmara and the Golden horn. Their homes, in contrast to those of the Moslem community, were smaller, and usually made of stone. Toilets were not common, and, when in existence, quite dirty. The toilets of resident Europeans, with the openings covered when not in use, were little better and posed a considerable health threat.

All of the toilets, whether Moslem or Rayas, emptied into open sewage canals a half a meter wide, which ran through each quarter to the sea. As there were no municipal regulations regarding their upkeep, maintenance of these conduits rested with individual home owners, who, more often than not, ignored the situation as best they could. Those at the upper reaches of slopes and ravines fared well, but those at the bottom, or on plateaus, suffered the stench and disease accordingly. These open sewage canals played a large part in the spread of contagious disease throughout the city.
In addition to single or double housing units were facilities for lodging
travellers, day workers, and most of the city's very poor, called hans. In 1865 there
were some 460 of these buildings, 32 of which were in Scutari alone. Made of stone,
they boarded from 1,500 to more than 2,000 individuals each, in squalid conditions.
Exhausted from the day's work, and finding little to eat, the men slept in their
clothing in cramped quarters. Mongeri calculated that 80,000 people were living
this way at the time of his study. It was in these places that epidemics took their
heaviest toll.

Other causes of bad health within the city parameters were the numerous
cemeteries, tanneries, and dye houses which rarely, if ever, practiced correct
sanitary measures, although instructed to do so. The entire city ignored rules of
hygiene, and for this, was routinely hit by epidemic after epidemic over the years.
With the help of Mongeri's commission, some of these negligent practices were
corrected, as will be discussed in a later section.\(^{50}\)

It was during the reign of Abdulhamid II that urban life in the Empire
changed dramatically, especially in cities like Istanbul, Izmir, Edirne and Salonika.
Social reforms, supported by foreign investments, changed the way people lived.
Inhabitants now walked on paved sidewalks and streets illuminated at night by gas
lighting. Public streetcars, transported people from their homes to their jobs, and
luxury goods were to be had from all over the world. Communication systems
improved with the advent of the telegraph, steamship, and the subsequent
organization of the post office. Education became more available to those who wanted
it.

Medical improvements, part of the military and civilian reforms of the 19th
century led to a decrease in the mortality rates. In 1827 a medical school was opened
in the capital. By 1850 Istanbul had 50 government hospitals, 4 foreign ones, one
Greek and one Armenian hospitals. These hospitals increased in number until the
coming of the first world war. With the introduction of quarantine systems,
vaccination, and fumigation, and the establishment of a number of public hospitals.

\(^{50}\)Mongeri, Louis, *Etudes sur l'épidémie de cholera qui a régné à Constantinople en
1855 suivies d'un appendice sur la nature du choléra et des devises médicinales
sanitaires,* Constantinople Imprimerie, M. de Castro, pp.2-7.
plague, cholera, smallpox, and a host of other contagious diseases were removed from the theater of daily threat, "giving the average subject a far more pleasant and secure existence than had seemed possible only a century before."\(^{51}\)

Yet, with all these advances, the cities still had trouble absorbing the torrent of migrants and refugees who came seeking residence and refuge, which is not surprising, considering the numbers who arrived. In 1878 alone, the population of Istanbul was doubled by Moslem refugees fleeing from Bulgaria,\(^{52}\) and even after that, as Shaw writes, "at any one time there were as many as 200,000 refugees milling in the streets of the capital."\(^{53}\)

### Population of Istanbul 1830–1927.

<table>
<thead>
<tr>
<th></th>
<th>1830s/40s</th>
<th>1890</th>
<th>1912</th>
<th>1927</th>
</tr>
</thead>
<tbody>
<tr>
<td>Istanbul</td>
<td>375,000</td>
<td>900,000</td>
<td>1,125,000</td>
<td>691,000(^{54})</td>
</tr>
</tbody>
</table>

The city of Istanbul experienced nearly a 100% growth rate in 40 years in the mid-century, a figure which includes the approximately 100,000 foreigners living and working in the city at that time. This number increased steadily throughout the century, only declining with the outbreak and aftermath of the first World War.

A new class of laborer emerged in the cities of the nineteenth century, the industrial worker. Small factories, owned by the state or by private or foreign investment, grew up near urban center. By 1913, in Istanbul and Anatolia, Issawi writes, there was a total of 198,000 industrial workers. 10,000 of these worked in government enterprises, 20,000 as miners, 10,000 as railways men, 20,000 as larger factory workers, and an undisclosed numbers of men employed in the tobacco industry. These numbers however, should be taken as approximations as it was

\(^{51}\)Shaw, p. 241-242.

\(^{52}\)Ibid, p. 189.

\(^{53}\)Ibid, p. 242.

\(^{54}\)Issawi, p. 34.
sometimes difficult to distinguish between industrial and guild workers. Some were employed in traditional handicrafts, mines and factories, but also worked as seasonal agricultural workers.

**Anatolia 1878-1913**

With the loss of the Balkan regions, the population of the Empire became concentrated in the Anatolian province, with the majority of the population located near the fertile coastal regions. The 1878 to 1912 overall increase in growth rate of this population can be attributed to two things: peace and improved health conditions. War in the interior was much less frequent between 1856 and 1912 than it had been previously and petty bandits had been brought under control.

Food production techniques had improved, leading to an increase in production, which broke the chain of famine and disease which had so afflicted the lands before, enabling the people to fight off infections more effectively. The implementation of quarantine and fumigating stations eliminated many diseases which had traditionally terrorized the land. The last great plague outbreak occurred in 1835, and the last great cholera epidemic, in 1865. Treatment techniques had also improved, so that once infected, people had a better chance of surviving.

As a result of these changes, plus the migration of groups from abroad, and forced settlement of nomadic groups, the population of Anatolia grew by approximately fifty percent between the years 1878 and 1911. By 1913 the total population of the Ottoman Empire was 26,000,000, about the same as it had been at the turn of the nineteenth century. People were healthier than they had ever been.

But in 1914, growth stopped. McCarthy writes ominously that “Anatolia was plunged into one of the worst demographic disasters in history”. War, pestilence, famine returned with first the world war, and then Greek Occupation. Anatolian soldiers fought in 5 wars between September 1911 and September 1927 and

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56 McCarthy, p. 162.
57 Ibid, p. 2.
experienced only 22 months of peace during that entire period.

In Eastern Anatolia there was the Russian invasion (1914-1919), coupled with a fierce civil war as the Armenians sided with the Russians and the civilians, Armenian and Moslem, took up arms against each other. In the West (1919-1923), the Greek army spread out across western Anatolia and then was pushed back into the sea. Massacre followed massacre, followed by counter massacre. Anatolia lost 20% of its total population. But in some places, the destruction was much worse. In some parts of eastern Anatolia, a full one half of the population perished, with one half of the remaining number turned into refugee.  

There was an intimate relationship between demography and socio-political change in the nineteenth century Ottoman Empire. The weakening of the Ottoman state, the rise of independent nations, the Islamization of Anatolia were all a result of, or caused by, population movements. Christian areas became more Christian, Moslem areas, more Moslem as each region pushed to create its own homogenous people from which to form a national identity. Moslem refugees flowed into the Empire from the Crimean and Caucasian region conquered by the Russians, who were intolerant of their way of life and capabilities of revolt, and insisted that they be settled far from the Russian border. The Balkan nations forced the majority its Moslems/Turkish population into Anatolia, and absorbed thousands of Christians in return. What began as a response to the terrors of war, refugees fleeing to a safer haven, turned into international policy by 1878, where population exchanges became an accepted method of settling disputes.

The Empire, once a land of mixed creeds, became overwhelmingly Moslem by the turn of the twentieth century, paving the way for the formation of the new Turkish Republic. With the Islamicization, or “turkification” of Anatolia, Ottoman nationalism, which called for the individual to identify with the cosmopolitan nature of a widespread, heterogeneous Empire, became Turkish nationalism at the turn of the century as they envisioned their own homogenous population in the twentieth century.

59 McCarthy, p. 162.
1.2 Traditional response to disease in the Ottoman Empire

A. Moslems

Technical explanations of contagious disease by Islamic medical community up until the late nineteenth century were based on the classic teachings of Ibn Sina, who expanding the earlier theories of Hippocrates and Galen, subscribed to the Aristotelian concept that the universe was made up of four elements: air, water, fire and earth. An illness, according to this theory, was caused by an imbalance between the elements. Plague, for example, was blamed on foul winds that had been disrupted by evil forces. This led to a general acceptance of the concept that weather and illness were closely related. Proof of this theory was found in events like the expansive yellow clouds which appeared on the eve of new outbreaks of pestilence in Damascus in 1348, and Cairo in 1368, and 1403/04. Astrology was not considered relevant to the prediction of such outbreaks by physicians as astrology was not an acceptable practice within Islam and was rejected by the orthodox. This theory held some currency, however, among the rank and file of the population, who looked for any explanation of destructive forces.

Epidemic diseases could also be caused by the evil activities of invisible beings known as *jins*, which commonly explained why some districts of cities were hit hard and other mysteriously spared. Belief in jins predates Islam, finding its origins perhaps in Zoroastrianism, a religion which holds that the world is basically divided into two forces, good and evil, the latter of which was represented by *jins*. This belief was subsequently incorporated in the teachings of Mohammed, who is reported to have said: "The bites of your enemies come from genies and in each you will find a martyr."

Above all, Allah was the origin of contagion, as illustrated in this parable from Ibn Hagar:

"A Bedouin asked the Prophet: 'Oh envoy of God, I had a flock of beautiful sheep like gazelles, but a sheep with scabies has infected them all with disease.' The Prophet refused the idea of contagion
and replied: "Who infected the first sheep?" 1

Mohammed said that believers who died from epidemic disease would become martyrs, having been struck a sign of divine grace. "It is a punishment that God inflicts upon whom he will," the Koran states, "but He has granted a modicum of clemency with respect to Believers." 2 "What is the plague," a later believer wrote," but one of the 360 doors to Paradise opening?" 3 Victims would be accorded the status of warriors who had died in jihad once they reached paradise. This applied only to believers, however; for infidels, death by contagion was punishment, further proof of their ignorance. 4

As the destiny of every individual, according to Islam, is written in advance, it was considered fruitless to try to alter it in anyway. Moslems, in general, responded to disease with a sense of fatalism that enabled them to remain calm in times of contagion. In fact, as William McNeill writes:

"Moslems regarded Christian health measures with disdain, and thereby exposed themselves to heavier losses than prevailed among their Christian neighbors...This is well illustrated by the Ottoman sultans response to a request from the imperial ambassador to Constantinople for permission to change his residence because the plague had broken out in the house assigned to him. The Sultan replied: Is not the plague in my own palace, yet I do not think of moving?" 5

Yet at the same time, it appears paradoxical that Mohammed would advocate a loose system of quarantine with his words; "When you learn that epidemic disease exists in a country, do not go there; but if it breaks out in the country where you are,

3 Penzac, p. 245.
5 McNeill, p. 167.
do not leave." 6 This alternative concept formed the center of considerable controversy among intellectuals and the religious bureaucracy for some time. Ibn Hegar, offered the parable of Caliph Omar and general Abu Ubaydah as an example of the orthodox viewpoint on the matter.

The Caliph ordered the General to take the city of Anwas. When it was learned that the city had been stricken with a plague, the Caliph then ordered that the General not attack, but bring the army back to Medina to avoid contamination. Abu protested that such an act would be against the will of God. Caliph Omar responded in this way: "Suppose you arrive in a valley where one slope is green with grass and the other is bare and sterile. Which will be the choice for their release if the choice is Gods will? But you choose the side that is green."

These ideas formed the basis of Islamic medical response to contagious diseases until well into the nineteenth century. Treatments were made accordingly. Poisonous humors, caused by the imbalance of the four elements, were treated by bleeding the patient. Plague boils, which generally were pierced in the West and drained of their noxious liquids to promote recovery, were actually encouraged to develop. Topical treatments, which included sponges soaked in vinegar, rose water and poultices of red Armenian clay, were simply meant to relieve painful symptoms.

The most common precaution against evil winds by the individual was the wearing of copious quantities of perfume, in hopes of entirely overcoming the problem. Violets were worn, and even ingested in liquid form, for further protection. Leading a sensible life was also deemed important in retaining immunity. This meant eating a balanced mixtures of the right foods, in moderation, in order to compensate for imbalances in the four humors. The list of foods included onions, vinegar, citrus fruits, grenadine and raisins.

A man named Taşköprüzade, writing in the sixteenth century, suggested that individuals gain immunity from disease through personal cleanliness and good works. They should first purify their bodies and their homes, and then give alms to charities, and pay off any outstanding debts.

As the forces of jins were generally accepted by Islam, they could then be actively opposed in a variety of ways without going against the will of Allah.

6Ibid, p. 113.
Methods included charms, cryptograms, and the repetition of certain prayers and incantations.

One could prevent illness by repeating 136 times "the Eternal one, there is no destruction or end to his reign", or simply by saying, 312 times, "the Saviour".

Amulets had the words "The Vigilant", "the Guardian", or "Mighty" inscribed on them. It also helped to invoke, with great discretion, the Seven Sleepers of Ephesus, who were actually borrowed from a non-Islamic source.

The Koran itself could also be helpful in warding off contagion. Certain passages were supposed to give righteousness to the reader, listener or reciter. Further strength could be gained by writing the numbers and letters of these verses in the form of cryptograms and wearing them as talismans.

These attitudes formed the basis of Moslem response to disease in the Ottoman Empire until well into the nineteenth century.

B. Rayas

The term "raya", as noted previously in the chapter on population, was applied to all citizens of the Empire not of the Islamic faith. This group included the different sects of both Judaism and Christianity. The majority of rayas were Greek Orthodox Christians, and it is about them that data about response to disease has been collected.

Like other minority groups, the Orthodox prayed and performed acts of charity within their communities to obtain the mercy of God. They believed that contagions was sent to earth to punish man for his sinfulness. Statues representing these saints were carried through the streets by large groups of people in procession, who prayed to them to ward off disease. The favorite objects of supplication were St. Charalambos, St. Venerande, the Virgin Mary, and St. Vissarion.

Concerted efforts of the group depended on whether the population under study was rural or urban. Individuals living in rural areas generally had similar political and economic interests, so it was relatively easy for them to come together and formulate plans for dealing with problems with which they were faced. The island of Chios presents a case of inhabitants acting together to take the necessary
precautions to save themselves from epidemic disease. In the nineteenth century they elected two men to act as health officials, whose main task was to obtain certificates of guarantee from ship captains wishing to enter the harbor that their vessels were free from disease. Chios, of course, was, as an island, an isolated place which made self quarantine relatively simple. It also had not been conquered by the Ottomans until rather late, 1566, which increased the likelihood of their civic institutions having retained some of their previous cultural organization.

Densely populated urban centers were another matter. Although inhabitants frequently sought the same objectives, the imbalances of resources among different classes made solutions available only to those who could afford them. There were no official Ottoman municipal organizations to look after the health needs of the community until well into the nineteenth century, as will be seen below. The raya population within the Empire was divided by religious sect, in the millet system, each of which was governed by its own set of religious leaders. The various millets made their decisions independently, and rarely, if ever, worked as a united whole, even towards objectives as critical as quarantine and sanitation, which only succeed if methods are thoroughly applied.

A few groups, in large population centers like Istanbul and Izmir, did establish hospitals for their people who had been stricken with disease. Supported mainly by donations from the families of the victims, the hospitals offered them comfortable places to either recover or perish, while keeping them isolated from healthy members of the community.

The majority individuals, however, were not fortunate enough to have access to such facilities, and were basically left to fend for themselves against contagious disease. Unlike their Muslim neighbors, they generally refused to accept Divine Will, the idea that their fates had been decided beforehand and that action was useless. The most usual form of response to disease among those who could afford it, was to flee the area contaminated, usually to cooler climes. Many people would leave their homes in May and not return to the city until August or September when the heat had subsided and the danger of contagion past.

Some groups fled the Empire altogether, with the opening of opportunities
abroad in the New World. This effected the overall population mix of the Empire over time, leaving the region with a higher percentage of Moslems, who declined the option of flight from disease in general.

C. Resident Foreigners
The last group of inhabitants in the Ottoman Empire were foreigners present for diplomatic or commercial reason. They generally had entirely different attitudes about response to disease from the rest of the population. Not only did they not accept death from disease as their predestined fate, they actively fought against infection with regular methods.

Their first choice, upon learning of the onset of an epidemic in the city, was to flee to a nearby safe haven. Many foreign residents in Istanbul escaped up the Bosphorus towards the Black Sea, spending the hottest months of the year, May through August, in such waterside villages as Büyükdere and Tarabya.

If they were unable to escape, a good number of the foreigners shut themselves up in their homes for as many a five or six months at a time, refusing to emerge until there was conclusive evidence that the outbreak had subsided. They generally cut off all contact with the outside world, and kept impeccable standards of hygiene, washing themselves and all food with a mixture of vinegar and water every day.

If disease still managed to infiltrate their ranks despite these most effective measures, the infected individuals were swiftly removed from the household and transported to hospitals within the Christian community. These hospitals, until late in the nineteenth century, offered few services towards the sufferers of contagious diseases beyond basic comfort and isolation. The treatment practiced by this medical community proved practically as useless as those of the indigenous population until the revolutionary identification of the agents of disease (bacilli), and the subsequent development of vaccines and treatments that were more effective.

The Europeans, however, felt strongly that their way was superior and tried to convince the Ottoman population that they were right. The French were the most
active in this, spreading information as best they could, and trying to influence important individuals. Until the nineteenth century, they were not, on the whole, successful with their medical proselytizing, although a number of rayas, and even a few Moslems, began to imitate their ways.

Ottoman Moslems who believed European theories to be beneficial had to be very clever about their actions, as going against what was obviously the will of Allah was highly unacceptable. Claiming to have important business in remote areas, they were able to remove themselves from the infected city. A plea of temporary illness could make shutting themselves up in their homes somewhat tenable. It wasn't until the practice of sending medical students to European institutions had become almost automatic in the latter half of the century, and the results of their bacteriological studies had proved indisputable, that the superiority of European methods was officially acknowledged and steps taken to protect the populace.

7Fenno, pp. 292-318.
II. The Education of Medical Specialists

2.1. The Imperial Ottoman Medical Academy

Western style medical practices first began to be taken seriously during the reign of Sultan Madımak II with the urging of Mustafa Paşa and Abdulhak Molla. Abdulhak Molla explained to the sultan that the health of the army could be greatly improved with reforms in the education of doctors. Doctors being trained in the Ottoman Empire at that time, at institutions in places like Fatih and Suleymaniye in Istanbul were unable to stay abreast of the latest medical achievements. An entirely new institution was needed.

The new, state sponsored Tıphane was opened 14 March 1827, in a wooden building in Galatasaray, to train doctors for the military.¹ Instructors in Academy were European doctors. Lessons were presented in French. Bayatav contends that the Tıphane cannot be considered a school for doctors on an international quality level when it first opened, given the fact that none of the books in the library were modern.² A program for surgeons, the cerrahane, was added in 1832 to provide the army with professionals capable of working in battlefields.³

The teachers and students were temporarily relocated to Darülulumulhikemiyeti osmaniye Mektebi in 1838 while the Galatasaray buildings underwent repairs. When they returned in 1839, it was to the newly reorganized Imperial Medical Faculty, (Tibbiye-i Sahane Fakültesi) under the direction of Abdüllak Molla, the Head Physician (baspabeb).⁴

Beginning in 1840, the various branches of the military began accepting the appointment of doctors, surgeons, and pharmacists trained at the Imperial Medical Academy to strategic posts throughout the Empire. A group of recent graduates in 1844 were sent to serve in Rumeli.⁵

³İçbay, p. 29
Instructors continued to be recruited from Europe. In 1846 Dr. Spiçer arrived in Istanbul from Vienna, soon followed by Dr. Rigler. In 1847 the students began to be sent to Europe for additional training. Three students, a Turk, an Armenian, and a Greek, were sent that year from Istanbul by the Minister of Medicine. Cerrah Ismail Paşa to study in Vienna. What exactly their course of study was there is not stated, but when they returned they were appointed to different important scientific directorates within the Empire. Musa Arif Bey, one of the original three to be sent, later became the Minister of Quarantine. The practice of sending medical students to western countries for further education continued throughout the nineteenth century. The Galatasaray institution soon changed its name to Derülfünun Tibbiye-i Şahane.

Made entirely out of wood, the school building and adjoining research laboratories were in some danger of burning down. Fearing this, school administrators decided to build a new academy out of stone at a site in Taksim, near the Military Academy in Harbiye in 1847. İstefan Kalfa, the Imperial Architect (Aşir mimar) was summoned and ordered to begin preparing plans and estimations for a building complex that would cover approximately 10,000 square meters of land. Included in the property would be the school, with separate anatomy, and pharmaceutical laboratories, a 200 bed hospital, 2 pools, and a number of other requisite annexes. In the middle of the complex would be a clock tower and a mosque with two minarets. The academy's prep school would stay in Galatasaray.

Ismail Paşa, the Imperial Head Physician, was the marshall of ceremonies at the laying of the foundation ceremonies in Taksim for the new academy which was to be called Mecidiye Medical Academy (Mektebi Tibbiye Mecidiye). Classes continued in Galatasaray while the new building was under construction.

That same year, it was announced that medical professionals who had been educated in European medical establishments wishing to practice in the Ottoman Empire would have to pass a set of proficiency exams and be certified by the state. Candidates for entering the prep school of the medical academy itself increased to nearly 400 during the designated testing period of 1849.

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6 Osman, p. 63.
Fire at the Galatasaray School

As had been feared, almost all of the Galatasaray school buildings burned to the ground during a great wind-fed fire in 1848. Valuable documents were lost and the teachers and students were forced to transfer to another site, this time Mühendishane Berrii Numayun Technical Academy, in Humbarahanei Humayun, in Hasköy, where they stayed until 1865.7

1849 marked the debut of the publication of the first Ottoman medical monthly, Fakapii tibbiye, which included lithographic illustrations.8

Beginning 15 July 1853, Cemalettin Efendi, the superintendent of the Medical Academy, began to speak out on his conviction that medical studies in the Empire should be conducted in the Ottoman language rather than entirely in French.9 The non-Muslim contingent of teachers in the Academy sided with the Europeans in their opposition to this idea. Even still, a special course was opened in 1857 to strengthen the knowledge of the students' Arabic, Persian and Ottoman Turkish. Ömer Lütfi Efendi took over the instruction of these languages, assisted by Arif and Şevki. Selected students began translating European documents into Ottoman Turkish in addition to their regular course loads. The non-Muslim instructors continued to protest. Cemalettin was removed from the post of superintendent in 1859. He was replaced by the son of Abdulhak Molla, Hayrullah Efendi. The special languages classes were subsequently closed.10 Education remained in French.

The Medical Academy left Hasköy in 1865, during the the cholera epidemic when Humbarahane Barracks were transformed into treatment centers for people suffering from the disease. The students took shelter in the nearby Gergeroğlu mansion while lessons were suspended for the duration of the epidemic.11 The students of the prep division requested that they be transferred to Kırmızı Kışla in Kumbarahane.

When the cholera outbreak finally subsided, the higher classes of the Medical Academy were transferred to the barracks at the Demirkapi entrance of

7 Özbağ, p. 57-58.
8 Osman, p. 65.
10Ibid., p. 4.
11Özbağ, p. 60.
The students spent four years learning French in all. Besides theoretical discussions they also conducted experiments in the laboratories under the supervision of their instructors. They learned botany by studying dried plant specimens, and zoology through real animals, or illustrations of them. Although there was an extensive botanical garden accessible to the Academy, the students were not allowed to enter it.

The various clinics were set up in simple barracks near the Academy.

12 Osem, p. 63
13 Özay, p. 60
14 Osem, p. 70.
Students attended surgery two days a week, and another day at the polyclinic. The internal medicine ward housed approximately 35 male patients who had consented to be the subjects of by the students, who met with their instructors in the internal medicine clinic these three days a week to gain practical experience. All of the patients were male, as were the nurses. The students received very little gynecological training.\textsuperscript{15}

Instructors at the Academy, except those teaching foreign languages, were members of the official medical community, with military rank ranging from "perm" to "Fürat". As the official language of instruction at the Academy was French, not all of the staff could speak Ottoman Turkish, and as the students didn’t always understand everything after four years of language instruction, they frequently carried their language textbooks with them to classes to clarify to themselves the information being presented.\textsuperscript{16}

\textbf{Foundation of the Ottoman Medical Society}

Some of the medical students never relinquished the idea of a translation class even though it had been closed down by Hayrullah Efendi in 1859. They began to press for the translation of texts into Turkish, and for the use of Turkish in lessons and discussions. Among them, Bekir Sidki, Emin, Hüseyin Remzi, Hüseyin Sabri, Ibrahim Lütfü, Kırımızı Aziz, Mehmet Nazif, Servet, and Vahit, took it upon themselves to explain their reasons to the sympathetic Dahiliye Kliniği Muavini Binbaşı Ahmet Ali Bey.

Ahmet Ali Bey then discussed the matter in full with Arif Bey, who had replaced Hayrullah Efendi as Superintendent of the Academy in 1861. As a challenge to their seriousness, Arif Bey ordered them to translate a medical document into Turkish for him immediately. They gladly set to it, completing the task successfully and then went on to translate even more texts. The students worked on the translations in their spare time, even during holidays. They kept secret about their activities in general, careful not to let information of it reach the administration Academy, which was still essentially against the idea of Turkish education at the institution. They worked far away from the Academy at the medresse of Haci

\textsuperscript{15} "{O}zbay, p. 89.

\textsuperscript{16} Ibid, p. 85.
Beşiraga, in the district of Badaneyaar in Lyup Sultan, under the guidance of Bey Hacı Arif Efendi, Director of Mekteb-i Tibbiye Matbaa and Mümtaz Sinif Müzakereci, who made sure they had the necessary assistance and tools to complete translations.

In 1862, a secret society called Cemiyet-i İhmiye-i Tibbiye was formed in Istanbul by supporters of a change to Turkish education. They met covertly at Vahid Bey's home, and at Mercan, a room in Yeni Ada Han, during the next five years, to discuss their goals and tactics. Namık Kemal, noted Ottoman intellectual, wrote an article in favor of Turkish language education in the Academy, which was published in the November 1866 edition of Tarvîr-i Etkar. The movement began to gain momentum.

Hoca Salih Efendi replaced Arif Bey as superintendent of the Medical Academy in 1865. A supporter of Turkish education, he no longer saw the necessity of keeping the society a secret anymore. The Ottoman Medical Society, Cemiyet-i Tibbiye-i Osmaniye, was officially accepted in 1866, the very year the young medical students Kirimî Aziz, Hüseyin Remzi, Ibrahim Lütfü, and their colleagues graduated to become physicians.

Establishment of the Civil Medical Academy

That same year, 1866, the decision was made that lessons in natural sciences should be conducted in Turkish. This caused trouble immediately, as most of the instructors at the Academy at this time were foreign, or non-Muslim, and could not speak Turkish well enough to conduct lectures and discussions in that language. As a solution, then, it was decided that medical studies in Turkish would be conducted in a different structure altogether, and that this structure would be the Imperial Civil Medical Academy, Mekteb-i Tibbiye-i Müktiyye-i Şahane, or Mekteb-i Tibbiye-i Müktiyye, which was officially established and opened in 1867.

The Imperial Civil Medical Academy was established for another reason more compelling than the simple to settlement of the dispute about in which language medical studies should be conducted. There was a severe shortage of civilian doctors

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17Umat, p. 3-4.
18Ibid, p. 10.
19Ibid, p. 4.
throughout the Empire. At first, the government sought to remedy this shortage by appointing European doctors to posts in the provincial capitals, but not enough of them could be recruited to meet the health needs of the people in those areas despite generous offers of pay. Each provincial center needed at least two full-time, officially appointed physicians. The Sultan came to think that it would be very useful to establish a Civil Medical Academy in Istanbul to produce enough doctors domestically to alleviate this pressing problem.\textsuperscript{21}

By imperial order, a room in the Medical Academy was made available for the opening of the new Civil Medical Academy, which would remain under the direction of the Superintendent of the larger institution. Kırımı Aziz İdris Bey, now instructor of internal diseases, was appointed Director of the new institution.\textsuperscript{22} He was Director of the Civil Medical Academy until 1878, after which time, he was followed, in turn, from 1878 to 1992, by Hüseyin Sabri, Haçi Mehmet Ali Paşa, Fazıl Ziya Paşa, Military Prep Mathematics Professor İbrahim Paşa, and, finally, Edirne Jandarma Commander Arif Paşa.\textsuperscript{23}

Kırımı Aziz İdris Bey and his Ottoman Medical Society colleagues continued their work with translations, producing a text on medical terminology in Ottoman Turkish, in 1872, called \textit{Lugatı ıbadır}. This dictionary led to the eventual acceptance of the Turkish language as medium for instruction in the Military Academy at a later date.\textsuperscript{24} The Society sent two doctors to Europe each year to collect fresh documents for translation.\textsuperscript{25} Fifty medical books were published in Turkish by 1883, with 12 additional titles on the list to be published.\textsuperscript{26}

The first year, 200 students, both moslem and non-moslem ages 16 to twenty, were accepted into the Civil Academy. They had to have a high school diploma, or be able to exhibit an equivalent amount of knowledge, and be fluent in Ottoman Turkish, as courses would be conducted exclusively in that language. They were to receive a monthly stipend of 3950 kuruş the first year of studies, which would be increased to 9750 kuruş during the fourth and fifth. After completing five years of study, these students received a diploma in military science, and were made exempt

\textsuperscript{21}Ustat, p. 8.
\textsuperscript{22}Osen, p.66.
\textsuperscript{23}Ustat, p. 18.
\textsuperscript{24}Özbay, p. 64.
\textsuperscript{25}Osen, p. 66.
\textsuperscript{26}Ustat, p. 12.
from military service. Instead, they were to be in the service of the civil state for five years, appointed to cities and townships in critical areas. Doctors appointed to the provincial capitals received monthly salaries of 1,000 kurus, while those in townships received 600 kurus. Official appointments to these positions were posted in form of bills (nismames). At the beginning, instructors at the Civil Academy generally also taught in the Military Academy. Teaching levels in the Academies were muallim, muallim-i sani, and Muallim Muavin. 27

As the number of students quickly increased, the Civil Academy was transferred to a building in Ahirkapi 1874, although kept firmly under the control of the Directorate of the Military Academy. 28 The school and a hospital for practical application of learned procedures were established at the site. At the end of the second year at Ahirkapi, 25 students finished their educations and received their diplomas.

Attempting to increase the number of properly trained health professionals to be employed by the government in the civil sector, the Civil Medical Academy received permission to accept as students civil doctors and pharmacists who had been educated outside of the Military Medical Academy who wished to continue their educations and become officially certified at the end of an additional three years of study. 29

Turkification of education at the Military Medical Academy.

Once it was proven at the Civil Medical Academy that medical education could be indeed be successfully conducted in Turkish, the founders of Cemiyet-i Tibbiye-i Osmaniye began to push for Turkish education in the Military Medical Academy as well. Their most forceful opposition came from Ahmed Bey, an instructor at the Academy who conducted his own research among the students and managed to convince the authorities that education in French must continue.

Some of the Societies doctors began to publish articles in the newspapers of Beyoğlu stating to the effect that many of the instructors at the Academy would

27 Unat, p.17.
28 Özbay, p.61.
29 Osman, p. 69-70.
never learn adequate medical Turkish. Only 14 percent of them were moslem of Turkish descent. The Society met in the Sariyer home of Hüseyin Sabri on 16 September 1870 to draw up a proposal that would be presented to the Seraskerlik requesting reform.

In essence, they argued that conducting medical education in a foreign language was holding back the original purpose of the school, which had been to free the Ottoman military on its dependence on foreign doctors in the field through the education of Ottoman subjects in western medical techniques. Now that the Empire had enough formally trained doctors to fill all of the teaching positions at the Academy, the dependence on foreign instructors should be brought to an end and classes conducted in the native language. Instructors wishing to stay on at the Academy should be put through language proficiency examinations.

The proposal was signed by 30 members, three of whom were, Özbay tells us, incidentally, Christian. Binbaşı Kırmızı Aziz and Hüseyin Remzi submitted the document to Serasker Hüseyin Hilmi Paşa.

The proposal was accepted by Serasker Hilmi Paşa, who had discussed it with the sultan, and by the end of the year, the education language of all medical students in the Empire officially was changed to Turkish. French medical education in the Ottoman Empire had lasted exactly 31 years, 4 months and 15 days. Abdulhamid II supported this language change to such an extent that he issued an imperial ferman ordering more translations. Twenty two students were chosen to go to Europe for study languages; two in Latin, and twenty in French. When they returned to Istanbul from abroad, they were to begin working at scientific translations for which they received considerable compensation and the prestige of receiving the rank of reis or ulebat.

The language reforms dramatically changed the ethnic composition the teaching staff. In 1870, the number of moslem instructors of Turkish descent had only been 14% of the total staff. By 1883, increased to 60%, and by 1896 80%.36

30 Özbay, p.62-64.
31 Unat, p. 12.
32 Özbay, p.62-64.
33 Unat, p. 10.
34 Özbay, p. 64.
36 Unat, p. 12.
graduated doctors would now have to complete an additional two years of internship at Tatbikat ve Ameliyat Mektebi before being sent to their posts in the military. A new polyclinic was set up in Salihpazar to increase services to the people.

In 1871, Marko Paşa replaced Salih Efendi as Superintendent of the Academy. Under his direction, an effort began to increase the Ottoman staff at the two Academies by sending young doctors to the most famous medical institutions of Europe, mostly in Vienna and Paris, to be trained in the latest theories and techniques.

In an attempt to increase the number of students in order to bring an end to the Empire's chronic shortage of doctors, the Military Medical Academy began accepting day students. The increases in the expenses of the Academy were covered by the state.

Repairs to the original medical school building in Galatasaray were finished in 1873. The Military Medical Academy was transferred there that year, where it remained until 1875. The Civil section of the Academy stayed in Demirkapi. During this time, the gardens in Yıldız Palace were kept open for students of botany, who attended lessons, in French, by Head Physician Mevlinin Bey.

The prep division of the Military section was moved to Kuleli, to the present day site of the Military High School.

Upon graduation from the Imperial Academy in 1875, the young surgeons Naim, Hayreddin and Osman were sent to Paris to study. When they returned to the Empire two years later, at the outbreak of the Russian War, they were sent to the battle fronts to apply their knowledge. Many students enrolled during times of war worked as assistants to doctors in the field, postponing the continuation of their formal studies until after the war ended. In this way they helped ease the shortage of medical personnel and gained invaluable practical information as well.

The Imperial Medical Hospital in Istanbul, attached administratively to the Medical Academies, was the site of practical lessons at all times for students. It was the subject of an article in the Istanbul periodical, Journal de Debets during the Russo-Ottoman War. A modest establishment, there were some 600 patients lying in 12 rooms, among them French cholera victims and wounded soldiers from the front.

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37Ozbay, p.64.
38Umut, p.9-10.
Marko Paşa, superintendent of the Medical Academy, brought in military bands from time to time to entertain the wounded with marching music. During this war 150,000 refugees flowed into Istanbul. A hospital at the palace Çırağan tended wounded Russian soldier. 2,000 homeless women and children were given shelter in Aya Sofya. The need for medical services was so great that students were put into active service. Some of the first Ottoman surgeons began work at Kariyer.

In 1878, the Military Medical Academy moved once again, this time to more spacious barracks in Gülhane, near Sirkeci, where it stayed until the move to Haydarpaşa in 1904.

Five years later, in 1883, the two Academies were officially reunited. Although neither school was physically moved, and no real changes occurred in the educational systems in either academy, Özbay tells us that the official decree set off a flurry of publication. 39 It was also during the 1880’s that the medical translators began work on sources in ancient languages from non-western authors, such as the laws of Ibn-i Sina.40

The prep section of the Civil Medical Academy was closed in 1887. Students continuing their educations at that level were sent to other institutions within Istanbul, which continued to supply graduates for entrance into the system. The Military Medical Academy's prep section was also scaled down during this time, with only 298 students remaining in its registers in 1887. Day students were no longer accepted after 1889. 1888 saw the closing of the program in Haydarpaşa Military Hospital which had been training surgeons and pharmacists for military posts. Now they would be educated within the larger organized system of the Imperial Medical Academy.41

It was in 1889 that the Civil Academy administration sought to gain independence from Military control. The struggle came to pass over the issue of the presentation of diplomas. The Civil Academy thought it was time that it awarded its own diplomas, but the military medical establishment (Darülfunun-i Hikemiye-i Osmaniye) insisted that it was more suitable for students to receive their diplomas from an exclusive institution and refused permission. The two schools remained

39Özbay, p. 64-68.
40Unat, p. 5.
41Özbay, p. 64-68.
united in administration.

It was at this time that the administration began to have political troubles with its students. Educated thoroughly in French, nineteenth century Ottoman students assimilated ideas of western culture and politics as well as those of science. They began to form opinions about the government which were contrary to the regime of Abdulhamid II. Atpülâh Cevdet, Hikmet, İbrahim Temko, İşak Sukutî, and Mehmet Resit, established İttihat ve Terakki, a secret political organization in 1889. Within two years, the number swelled to 100. In 1891, medical students began joining, bringing the number quickly up to 400.

Sensing trouble, the administration brought in Halep Zeki Paşa to direct the medical academic system. Zeki Paşa apparently was a man who favored the ways of the west, yet remained loyal to Abdulhamid II. When the student movement began to progress from a simmer to a boil, he took disciplinary actions against the students, restricting their freedoms and intimidating their leaders. He was assisted by Albay İhsan Bey, Director of Derhiliyesi, and brother of Ferik Ali an influential paşa in Abdulhamid II's retinue. Albay İhsan Bey, used every opportunity he could, including the oppression of medical students, to gain favor at court.

They conducted searches in the private rooms of the students, as well as in their class rooms and eating places, expelling twenty students who dared to oppose them with a prolonged food strike. The students, secretly supported by some of the staff, tried to fight back. In one attempt, they produced fake journals as well as real ones, both written in French, to anger searching authorities who could not read the language. When the documents were presented to the class instructors or assistants for identification, those parties would say the papers were simply lesson books. When Dr. Nazim, Ali Zühtü Bey, and Ahmet Verdani, were forced to flee to Europe in 1894 and took up with Ahmet Riza Bey in Paris the students sent money to help support their work.

The Armenian uprising of 1896 caused a sharp increase in the amount of propaganda produced by both. The students, having access to printed materials, read all of it, and began to voice their displeasure at the turn of events. Of the 74 individuals punished in the Taşkıшла Harp divul of 1897, 29 were physicians from the Military Medical Academy. They were exiled for seven months, along with the others, to Libya, after which time they were released from custody and allowed to return to Istanbul. Not long after, some of these state offenders were even allowed to
receive military promotions.

Abdulhamid II, in fact, was rather lenient in the punishment of politically dissenting medical students in general during this period. Some of them were expelled, but none of them were imprisoned or executed. Perhaps this was because many of the students at the Academy were the offspring of men who served closely by him. 42

The following year, in July, a major contingent of personnel from among the administration of the Academy left their posts in protest of Haleb Zeki Paşa's despotic reign there. Among the defectors were Admiral Hüsnü Paşa, Riza Paşa, Zeki Pasha, Züluf Ismail Paşa, Avni Paşa and with their assistants. 43

İhsan Bey continued in his rough manner, offending many of the people around him. Apparently, among his abuses, he used the botany gardens of the Medical Academy like a farm, and let chickens run loose there. He met his end in 1897 when an Albanian gardener, tired of the situation and shot him. 44

The Civil Academy Moves to Kadırga

The number of students at the Civil Medical Academy in the buildings at Ahırkapı continued to increase with time. By 1894, the facilities there were overcrowded and the administration of the Academy sought permission to relocate to more suitable quarters. The Ministry of Public Instruction then purchased a large wooden residence in Kadırga, belonging to Menemenli Mustafa Paşa which at that time was quite old already, for a sum of 4,000 atınx. Laboratories were built in the structure for the study of bacteriology, botany, chemistry, ears, nose and throat, gynecology, physiology, skin disorders and general theory. 45 This was The Civil Academys' last independent building. It was moved to the institution at Haydarpasa in 1904. 46

Curriculum Reform in the Military Medical Academy

Meanwhile, at the Military Academy in Gülhane, preparations were being made for a

42 Ibid, p.75-79.
43 Osman, p.71.
44 İzhay, p.79
45 Osman, p.70.
46 Unat, p.9.
period of reform in the educational system. Professor Dr. Rieder Paşa was brought from Germany in 1895 to assess the overall program and make suggestions for improvements, which resulted, among other things, in the additional establishment of Gülhane Tabi İst. Tıbbiye Telif Mektebi ve Seriyyatı Hastanesi.\(^{47}\) After being involved in an accident during the building of this new structure, Dr. Rieder returned to Germany, and was replaced as Director by Dr. Deycke Paşa, another German on appointment to the Empire. He was followed later in this position by Dr. Weittung Paşa, before the entire program was transferred to Haydarpaşa.\(^{48}\)

While making reforms concerning the overall Academy, Dr. Rieder Paşa also made changes in the educational program of the Academy, in both the prep and finishing sections. In the prep school, the number of years of instruction was increased to five, and number of hours per week as follows: the first three years, students would receive 24 hours of lessons a week, each lesson hour actually consisting of 45 minutes. In the fourth and fifth years, the total number of hours each week was increased to 30. Sadenstucker, a German instructor was appointed to give lessons to the students in that language, to prepare them for the continuation of studies in this language at the higher Academy.\(^{49}\)

In the Academy itself, the years of study were decreased to five, consisting of 30 hours of lessons a week, including instruction in pharmacology, religion, languages, physical education, and military science. German, as well as French, was to be learned in the first three years.\(^{50}\) The first participants in this improved program graduated in 1898.

Gülhane Tabi İst. Telif Mektebi ve Seriyyatı Hastanesi began service the same year. Created out of the 1400 lira renovation of the old Gülhane Rüşdiye building, this hospital opened on Abdulhamid II's birthday with 150 beds which quickly found occupants. Doctors from both the Civil and the Military institutes gave lessons at the practical school.\(^{51}\)

\(^{47}\) Ozbay, p.97.
\(^{48}\) Akyay.
\(^{49}\) Ozbay, p.97.
\(^{50}\) Akyay, p.99.
\(^{51}\) Selim (Sağlam), Tevliik, Gülhane'nin Tarihsinde bir Kısım, from Tıp Tarihi Araştırmaları, ed. Hüsev, Sarı, 1989, p. 78.
**Haydarpasa**

In 1895 Abdulhamid II announced plans to build a magnificent new complex of buildings for the Medical Academy, in order to bring the two schools together once and for all, for the benefit of education. Op. Dr. Cemil Paşa, one of the Sultan's medical advisors, suggested strongly that the building be situated far away from the noise and press of the railway station in Sirkeci. Rumors began to circulate in the capital that the Sultan was going to choose a site outside of Istanbul, perhaps Sivas, in order to have more control over the institutions' students and curriculum. People near the Sultan were quick to show their disapproval of this idea and he was eventually persuaded to choose a location in Istanbul.

The site for the new medical was located in Haydarpasa, in a quiet place near the sea on the left bank of the Kavak estuary, between Selimiye barracks and the Military Hospital with a clear view of the Marmara. There was some problem with it being so close a cemetery where English soldiers lay buried, consequently considered British territory, but this was overcome through negotiation and construction soon began.

For the plan of the building, the Sultan consulted Dr. Rieder Paşa. The doctors who would be working there were not asked for their ideas or suggestions. Monsieur Valerie, employing a team of Ottoman engineers just graduated from the Imperial engineering school, was ordered to draft plans for structure that would cover 24,000 square meters and cost a controversial 450,000-600,000 gold liras at a time when the Empire was falling more into debt each passing day.⁵²

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**Education at Haydarpasa**

Lessons began with both the prep and higher levels in the new building as early as 1903, although the opening ceremonies were not held until 6 November 1905, and it was not entirely completed by 1908. Still, even unfinished, it was a great improvement over the old barracks in Demirkapi,⁵³ and even the recently renovated laboratories in Kadirga, which were transferred in 1909.⁵⁴

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⁵⁴Ibid, p. 13-14)
The students enjoyed music concerts in the salon, and flowers in the garden. They played backgammon in the open spaces and discussed political issues in the corners, forming new secret societies. Inspired by the building, they increasingly demanded lessons to be expanded to include poetry, philosophy, literature, and music increased.

Then Abdulhamid II began to clamp down on the political movement in Rumeli that threatened his sovereignty. Students at the Academy were warned that the government knew that some among them were supporters. They reacted by painting anti-government slogans on the walls and sending letters to the Sultan, who did not appreciate their fervor. Until this time, Abdulhamid II had given the medical establishment his full support, but he harshly withdrew it now. Students offending the regime were thrown in prison otherwise punished, and plans for new hospitals to be built in Şam and Baghdad were cancelled.

Changes were made in the administration of the Academy according to Superintendent Halepli Zeki Pasa designs. Suvari Miralay Esat was appointed to the position of director, with Miralay Haci Zühtü Bey as Director of Internal Affairs.

**Medical Education During the Constitutional Era.**

With the beginning of the Constitutional Period in July 1908, changes were shortly made in the administration of the Medical Academy. Esat Bey announced on 6 October that power at the Academy was left with Hüsnü Paşa. Six days later, the administration of the Medical Academy was separated from the Military Academy, and renamed *Mekuub-i İbbiye-i Sahane ve Umum İbbiye-i Mümkiye* as was just about to be transferred to the Ministry of War.

The doctors disliked Hüsnü Bey, who they found uncooperative and generally contrary, and requested that he be replaced by someone they could work with, suggesting Mezher Paşa as a candidate. The government agreed to remove Hüsnü Bey, but chose instead of Mezher Paşa, Hayreddin Paşa, who accepted his post as Minister 20 October.

At this time there were still two separate systems existing for the education of military and civilian medical personnel. The Military Academy was considered to
be the better of the two schools. Upon inspection it was discovered that the laboratories were grossly lacking in materials and equipment. The laboratory for pharmaceutical studies had only two microscopes, which were used by all of the students and their instructors as well. The Civil Academy was even worse, possibly because it had been under the administrative control of the Military Academy and had not been considered as important by those in charge. Both schools were desperately in need of deep reform. They were merged in 1909 to form a single Medical Faculty at Istanbul University.

At the time of this merger, there were a total of 185 doctors on the payroll at the Military Academy at this time. Many of them apparently did not bother with the new Academy beyond appearing each month to collect their salaries, which were 80,000 alun lira. Active medical instructors gave lessons at the University Medical Faculty, and also were called into actual service during times of emergency.56

55Ozbay, p.108-109
56Yıldırım
2.2 Obstetrics

In most parts of the world, assisting at the birth of a child was the domain of women who had been specially trained by older members of the community and were called "midwives". Men were usually not welcome in the birthing chamber and it was generally felt that doctors should step in to help only in serious emergencies. There was a high rate of infant and mother death.

The trend towards the birthing process being supervised entirely by certified medical practitioners began in England as early as the fifteenth century. In the 1590s, a family of doctors by the name of Chamberlen attempted to set up a corporation for the education of midwives, but were unsuccessful. In the sixteenth century, Percival Willoughby wrote that as male doctors were not welcome in delivery rooms, female midwives needed to be formally educated in the latest medical techniques in order to curb the depressingly high rate of infant and mother mortality.

With an increase in state interest in public services in the nineteenth century came the standardization and organization of most fields of medicine, including midwifery. In England in 1815 a set of regulations and rules regarding the practicing pharmaceutical profession were published in a bill called The Apothecaries Act. At this time many apothecaries also acted as surgeons during difficult births. They began to lobby for the licensing of individuals attending births. By 1828 the Edinburgh Royal College of Surgeons required that practitioners complete two full courses before obtaining such a license.

Most doctors felt that birthing was a natural process and need not be formalized by rigid medical codes. Indeed, many of them felt that assisting in births was really a woman's task and that they should not "demean" themselves working with it. Still, men began to seek training in the field and slowly male midwives began to be socially acceptable to, even preferred by, those who could afford them.1 Traditional midwives began to be seen among the elite as obsolete.

Women began to be trained in England as professional midwives in 1864. The only requirement was that a candidate be literate, which most were, as these early

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1 Towler, Midwives in History and Society, p. 146.
women were almost all the daughters of educated men, following the lead of Florence Nightingale.²

The English Medical Act of 1856 required all medical students to be qualified for the first time not only in general medicine, but also in surgery and midwifery. Women, and men, who had been trying to practice without legal qualifications were thus brought even more firmly under control. In 1902, the First Midwives Act put an end to the traditional apprenticeship of female midwives by older women in the community and solidified the dominance of the trained medical professional, who was usually male.

The European states also began to regulate the birthing process, beginning with France in 1803, Austria in 1810, and Norway, Sweden and Holland in 1865.³ The Ottoman Empire's medical elite was not far behind.

How soon Ottoman medical schools began giving courses in the birthing process is a matter of some debate, even within publications. Besim Ümer Paşa, writing in 1933, reported that midwifing lessons were not offered when the Tıphane and Cerrahane first opened in 1827 and 1831, respectively, and the subject was not taught formally, in French, until 1859.⁴ Mazhar Osman, compiling the Almanak in which Ümer Paşa's article appears, reported that birthing classes were offered when both the medical school and in Cerrahane were begun. When the Imperial Medical School at Galatasaray opened for the second time, in 1839, fifth year students took a course called ırni velade ve kibale. The two authors do, however, agree that in 1848, a course graduated 36 practitioners of the birthing process after completing a two year program, 10 of them Moslem and 26 of them non.⁵

By 1868, services to women without families began in a hospital in the capital city of Istanbul. At this time there were no other hospitals strictly for women operating in the city and even this one had no separate doctors in the first few years. Gendarme doctors are reported to have made occasional visits. With the discovery in 1865 that illness were caused by a thing called bacteria, and that antiseptics could be used effectively against them, hospitals began losing fewer birthing patients, among both

²Ibid, p. 158.
³Ibid, p.180
⁴Besim Ümer Paşa, "Gebelik ve Doğum", Sihhat Almankaki, Osman, p.291
⁵Osman, p.133.
mothers and infants.6

A new birthing clinic was established in 1892, in Demirkapi, and was given the name *Serişiyat-ı Feladiye*. The Military Medical Academy in Demirkapi, opened a school for the instruction of birthing techniques to military medical students in 1895. Both clinic and school for women were transferred to the hospital in Haydarpea in 1902.

The official training of women to become certified midwives began in the early 1990s when a doctor named Dr. Vucino began giving lessons in Istanbul to women wishing to learn. He was assisted by a Belgian women named Robert. There were no specific language requirements for the course in the beginning. As a result, few of the students could read or write Ottoman Turkish and lessons, which were held twice a week, were often conducted in a mixture of Turkish, Greek, Armenian and Spanish.

When Besim Ümer Paşa began instructing them 1895, prerequisites for entering the course were finally instituted. Candidates from then on had to have knowledge of spoken Turkish, and be under 30 years of age. During the first year of the program, they attended lectures on bacteria, contagious diseases, dissection, organ functions, and general nursing. Beginning in 1899 they also received lectures from Ismail Derviş, on dysentery, physiology, and public health preventative measures.

In 1900, Berlin-educated gynecologist Dr. Asaf Paşa began to attend to female patients at the Gülhane Medical Academy, and at the Military and Civil Medical Academies. Classes offered in 1902 in obstetrics were called *Gebelik ve Gebeliği icinde*, and in 1905, *doğurmak ve doğuruktan sonra*. When the Military and Civil Medical Academies were merged into one during Constitutional era at the new Istanbul University, Dr. Asaf Paşa accepted a position on the faculty of the University Medical Faculty of Gynecology. Dr. Refik Münir Paşa took Dr. Asaf Paşa's position at the Gülhane Academy.

Also at this time, in the Civil Medical Academy in Kadırga, obstetrics and *viladi seririşat* programs were established and practical lessons broadened. Medical student interns discussed birth with first year students using various types of models and newborn babies. Second year students were then present at births, helping women through

6Ibid, p.130.
the process under the close supervision of full doctors.

Use of professionally trained health officers in the birthing process yielded such obviously positive results that there was a sharp increase in requests for this service. Obstetricians, and even female midwives who had completed their official apprenticeship, were in great demand by families who could afford them. Ancient techniques and erroneous beliefs were, for the most part, put to rest, although the health professionals failed to completely eradicate the use of some folk practices such as breathing on a patient to ease her time, and the application of certain charms and magic spells. Although it was generally accepted that in particularly difficult birthing situations, midwives should call an official doctor, the people involved still insisted that the midwives use their talismans.

Officially, the Ottoman government generally kept current with European advances in the field of gynecology and obstetrics. The Medical schools and hospitals in Istanbul were quick to adopt theories, such as bacteriology, and techniques and apply them both in the lab and in the field. By the opening of the eighteenth century, the process of training birthing professionals became firmly institutionalized, much as it had in the West, and the use of these professionals by the provincial populace had begun to be expected.7

2.3 Pharmaceutics

Before the nineteenth century, the tasks of the pharmacist in the Ottoman Empire was generally performed by medical doctors. Distinction between the two professions, in terms of training and certification, was not made official until the 1840s when a specific course of study was established at the Imperial Military Medical Academy for individuals wishing to concentrate on pharmacology.

The first translations of western pharmaceutical tracts into Ottoman Turkish were made around the turn of the nineteenth century. Şanızade Ataullah translated a portion of a book by Austrian pharmacist Stork. Baron Anton, and Dr. Sussheims works were also translated.¹ Travelling to Paris in 1806, Vahid Efendi stopped in Vienna to and met with Stork, marking the beginning of Austrian interest in the development of western pharmaceutical practices in the Ottoman Empire.

Yet when the new Military Medical Academy opened in Istanbul in 1826, there were no special provisions made for a separate study of pharmacology, although general lessons in pharmacology and botany were offered as part of the larger whole course of medical and surgical studies. As late as 1831, there were no individuals carrying out specialized pharmaceutical tasks among doctors and surgeons serving in the military.

The Ottoman government received a delegation of health specialists from Europe in 1835, among which were a Dr. Noyner (Neuner) and pharmacist Hoffman. Hoffman has the distinction of having been the first European pharmacist officially brought to the Ottoman Empire. His salary was 1666 kuruş a month. (Neuner's was 4166 kuruş.) Accompanying these two men were Pharmacists Aleko, Istamat, Paryot, an assistant, Nikol, an apprentice and a Dispenser called Osep. Baylav points out that a Dispensers tasks were more like those of an herbalist, while a pharmacist's were more chemical in nature. Their length of stay and exact duties are not given in the data.

Education

When the Imperial Medical Academy opened in Galatasaray in 1837, provisions were made for the study of pharmacy as a separate discipline. Lessons in the Academy were held in French, as most of the instructors were foreign or had been educated abroad. A clause in the lesson program stipulated the acquisition of this foreign

¹ Baylav, p. 199-205.
language, but the school was unable to provide lessons for those found lacking." Students who could not understand enough French to acquire enough general knowledge of medicine necessary for becoming physicians were transferred to either the pharmacology or surgical divisions of the school. The need for pharmacists in the field to assist doctors in military and civil hospitals was so great that the Pharmacology school recruited students from other branches, such as legal law, to fill its ranks. Still other students transferred by choice.

Dr. Bernard supervised the three years of study followed by pharmacology students. Ahmed Mustafa Efendi was the first pharmacist to graduate from The Imperial Medical Academy in 1840. He was immediately appointed to a position at Çanakkale Military Hospital. Later graduates were posted at both civil and military medical institutions.

In 1844, a chemistry laboratory was opened at the Academy and was operated by Antoine Calleja, who was brought from France to teach the Empire’s first true chemistry lessons. As most of the pharmacology students could not speak French, we must assume that lessons were conducted through the help of a translator.

Two pharmacology instructors at the Academy received the following salaries as of March 1840: Pharmacist Usta Antuwan 1200 kuruş, Muavin Dimitri 250 kuruş. Again, no mention of their specific duties is mentioned.

When Civil Medical Academy was opened in 1867, courses in pharmacy were offered from the start. After having passed competitive entrance exams, students were allowed to choose whether they would become doctors, surgeons, or pharmacists. Graduates from the more traditionally based veterinary school in Eyup were also allowed enter the Academy in order to further their studies of pharmaceutical applications for animals.

The first civil pharmacist graduated was Yasef Mois, who received his diploma of pharmacology in 1872 after completing the requisite three years of study. During the three years, the students were taught, botany, chemistry, pharmacology, philosophy, zoology, and isolation techniques, along with practical education alongside the students studying to become physicians.

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2Ibid, p. 208.
3Aksey, p.25.
5Ibid, p. 209.
8Ibid, p. 213.
It soon became clear to administrators that three years was too short a time to properly learn both theoretical and practical pharmacology. The course length was officially changed to five years to extend lessons past the prep years and allow for proper specialization. Rather than decrease interest in field, as had been somewhat feared, this instead led to an immediately increase in the number of students seeking admittance into the program. Before long there were more than 200 students in attendance and the pharmacology school within the building of the Civil Academy became overcrowded. It was moved to a suitable building in Ahirkapi in 1874 when the Civil Academy itself sought larger space.

With the increasing popularity of the field, crowding was still a problem and the administrators sought ways to decrease the total number of years a student spent in the institution. With the establishment of civil prep schools in many cities in the rest of the Empire, it was no longer felt necessary to carry prep classes in the imperial academy in Istanbul. They were cancelled, reducing the total number of years to three once more. Students now had to be graduates of Ottoman prep schools, or be under obligation to prove that they had sufficient knowledge through testing.\(^{10}\)

Student numbers continued to increase for the next twenty years, until once again, the Academy outgrew its physical limits and was transferred to a large wooden building in Kadirga which had been bought for 4000 atun. Between the years 1876 and 1899, 461 pharmacists were graduated from the Civil Academy. Of the 1899 class, 52 were Moslem, 30 Jewish, and 124 Christian. Baylao points out that Christians clearly gave more emphasis to pharmacy than other groups.\(^{11}\)

Pharmacology students in the Military Medical Academy followed a similar three year program of lessons in pharmacy students learned botany, chemistry, pharmacological science, philosophy, and general medicine. They gained additional practical experience working with doctors in the military hospitals. The military had a great need to increase the number of pharmacists in its hospitals throughout the Empire, so in 1889, the administration of the Military Medical Academy decreed that private soldiers who failed to pass their second year exams in general medicine would be required to finish their training as surgeons or pharmacists. This helped the situation somewhat.

When the Military Medical Academy was first transferred Haydarpasa, there were no plans to establish a separate school for the education of pharmacists, although surgery and pharmacology students were put into separate classes. Once

\(^{10}\) Ibid, p. 216.

\(^{11}\) Baylao, Necip, Eczacilik Tarihi, p. 219.
again, it was felt that the Academy was not producing the requisite number of pharmacists to fulfill duties in the field. The medical establishment began the practice of certifying lay practitioners who wished to become legal pharmacists. Individuals who received their diplomas thus from Haydarpaşa were called Hayveri or Haydarlı. 12

During the time of Ziya Paşa as Director of the Imperial Medical Academies, the Civil Medical Academy, including pharmacology, was brought under the strict management and disciplinary system of the military. But when the Civil and Military Medical Academies were united during the Constitutional Period in 1908, pharmacology, along with dentistry, went independent, holding courses in Kadırğa until the first years Republican era. 13

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2.4 Ottoman Bacteriology

Bacteriology began in 1850 with Bayer's discovery of the agent of anthrax. There had already begun work with vaccines against smallpox, but knowledge of effective vaccine techniques and knowledge of the mechanisms at a bacteriological level are different things. When Jenner developed the world's first smallpox vaccine, he was merely taking traditional eastern smallpox vaccination techniques a step further. He could have no knowledge of the actual agent of smallpox, information dependent on the use of microscopes and petrie dishes. Once it was established further by Pasteur and Koch that diseases were indeed spread by active agents that could be identified, scientists went full bore examining all kinds of illness and developing vaccines against them. It is with the nineteenth century studies of bacteriology that modern man separated himself from the past.

As in other countries, bacteriology in the Ottoman Empire was first attached to zoology, primarily in the acknowledgement of the link between smallpox in humans and cowpox in cows. In 1811, Dr. Şanizade Ataullah requested from Sultan Mahmud permission to establish a smallpox vaccination center in Istanbul. As there is no evidence that this center was actually put into operation, it is most likely that Dr. Şanizade's request was met with indifference on the part of the State.

With the establishment of the Imperial Medical Academy in 1839, chemistry and zoology were made part of the curriculum and western style investigative work was begun under the direction of Viennese Dr. Bernard, who had arrived in Istanbul in December of the previous year to take up this post. At the Academy, Doctors Istefanaki (Stefanos Karateofori) and Parlaki Fenerli studied zoology and the virology of smallpox. Developments in smallpox vaccination are further discussed in chapter IV of this paper, with that being the only significant development in Ottoman bacteriology for the next forty years.

The 1880s brought the introduction of bacteriology and virology to the Ottoman Empire. With the of Sultan Abdulhamid II throughout his reign, Ottoman scientists were able to keep abreast of the latest European developments in the field and were soon able to reproduce and teach these methods themselves.¹ It really

¹Unat, Ekrem Kadri, Bacteriology and Virology, Cerrahpaşa Tip Fakültesi
began in the year 1886, when a commission of doctors was formed in Istanbul to be sent to the Pasteur Institute in France. İç Hastalıkları Kliniği Muallim Dr. Alexander Zoeros Paşa, Yüksek Okullar Zooloji Muallim Kaymakam Dr. Hüseyin Remzi Bey, and Teksir-i Hayvanat ve Ameliyat-i Cerrahiye-i Hayvanat Muallim Bayter Hüseyin Hüsnü Bey were chosen for this team. They were to study microbiology, parasitology and zoology, and in particular, the formulation of the recently developed rabies vaccine.

When the team of specialists arrived in Paris, they sought out Louis Pasteur. Zoeros Paşa and Pasteur had already met at the International Hygiene and Demographics Conference in Lahey in 1884, so they were not met as strangers. In addition, the Ottoman delegation carried with them 10,000 Francs which Abdulhamid II had sent with them to contribute to the ongoing construction of the Institute. Pasteur declined to accept the money himself, directing them instead to give it directly to the Institute committee in charge of such matters.2

After several months of study, in December of 1886, the team returned to Istanbul. Zoeros Paşa transported with him rabbits which he had successfully vaccinated with a strain of rabies virus, which he hoped would form the basis of his further works in Istanbul. Sultan Abdulhamid II, upon hearing what Zoeros Paşa reported about the rabies vaccine in the rabbits he had brought from France, ordered a lab to be opened immediately for the study and preparation of this vaccine.

Zoeros Paşa was appointed Director of the lab, which opened in Demirkapi in an inner laboratory in the Medical Academy, across from the chemistry laboratories of the military. It was calledвернevinAcadémie de la Faculté des Sciences de la Médecine de l'École Centrale. The first rabies vaccines were prepared and applied to human subjects on 3 June 1887, a short six months after the medical commission's return from abroad.

Dr. Hüseyin Remzi began parasitology education at the Imperial Medical Academy.3 He also translated from French a text which he and Zoeros had chosen while in Paris, which he called "Emis-i Sariye ve Sarpıvorenin Fessal-i Siyaseti ve Usul-i Tezkıhanesi." With Bayter Hüseyin Hüsnü, Dr. Hüseyin Remzi published works

on parasitology and zoology. They also applied pressure on the government to open an official vaccination station, which came to pass in 1892. Hüseyin Remzi Bey was made Director of the Telkîhane-i Şahane, a position which he held until his death in 1896.

The government continued to send doctors to France to be educated. In 1890 Hasan Bey was sent to Paris for two years to attend classes in the Civil Medical Academy. Finding the Academy lacking in equipment and the specialized theory he sought, Hasan Bey soon transferred to the Pasteur Institute to work with its state of the art microscopes. There he attended classes in histology and pathology. Some time later, he transferred yet again, this time to Val-de-Grâce Military Medical School, which was also in Paris. Here he fought for, and won the right, to wear his Ottoman uniform instead of that of the school. In 1892, he returned to Istanbul. In 1905 he joined the team of doctors working in Dr. Chantemesses lab, and, in 1896, was made Director of Telkîhane-i Şahane after Hüseyin Remzi Bey passed away. Hasan Bey died the following year.

In 1891, the two medical academies began to offer lessons in bacteriology to fifth year students. Even still, in 1892, Dr. Celal Muhtar, Dr. Hasan Zühtü and Dr. Rifat Hüsametin were sent to France to complete their educations in the subject. It took the cholera epidemic of August 1893 to finally bring the necessary teaching staff together for Ottoman bacteriology to flourish in its own environment.

When the epidemic began, the doctors in Istanbul took the opportunity to study the disease first hand. They conducted inspections, autopsies, and worked to distinguish it from other disease. An organization was founded to make a complete study of the city’s water supply. The laboratories of this organization, called The Imperial Medical Society (Cemîyet-iTBâney-i Şahane,) were set up in the Medical Academy under the direction of Doctors Hasan Zühtü Nazif, and Rifat Hüsametin who quickly verified that the epidemic was indeed caused by the cholera bacilli. An imperial order was sent to the Pasteur Institute in Paris requesting a doctor to come to Istanbul and teach bacteriology. The government felt that a thorough investigation of this cholera was necessary to understanding it and other

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4Unat. Türk Mikrobioloji, p. 36.
5Unat. Bacteriology, p.16.
7Ibid, p.16.
communicable diseases.

On 3 November 1893, Pasteur Institute Dr. Chantemesse conducted a conference on cholera in Istanbul attended by doctors and officials. He then drew up a report for the Sultan outlining the necessary precautions to be taken and providing plans for a set of separate bacteriology labs to be built. Abdülhamid II approved the plans and ordered that they be built in the Military Medical Academy in Demirkapi. Dr. Chantemesse returned to France before the end of the year.

Dr. Maurice Nicholle arrived in Istanbul 3 November 1893, also from the Pasteur Institute in Paris. He began work in the new laboratories in the Medical Academy. By 25 November 1893, Doctors Hasan Zühtü Nazif, and Rifat Hüsametin, working there with Dr. Nicholle, announced that they were proud to have witnessed the identification of cholera.

The work was not easy to accomplish. Nicholles wrote to Paris during his first few months to ask Pasteur to help him overcome some of the obstacles he was encountering in running a laboratory in the city. Pasteur then wrote to Pierre Cambon, at that time the French Ambassador in Istanbul, requesting that he use his influence with the Sultan to make things easier for Nicholle to do his job. Cambon was to intimate to the Sultan that, if Nicholle found himself forced to return to France, it would mean a loss of prestige for the French. The Ottoman government would then be compelled to hire Austrian doctors to help them in their struggle against contagious diseases. The strategy worked. Nicholle became the first French medical instructor to live officially in Istanbul since 1870.

Nicholle was a great success in the capital. 31 years old at his appointment to this position, he received a salary of 20,000 Francs a year which included forty days of 40 vacation, in comparison to the 2,400 Francs he had previously been making in France. He went to Rouen in 1895 to be married, and then returned to Istanbul with his wife. They had many friends in the Ottoman capital and were well liked. Mrs. Nicholle was accepted into the salamaiek and congratulated by the sultan himself. The Nichollies returned to France in 1901. He soon went to Algeria to take up a position at the Pasteur Institute there. In 1909 he made the crucial discovery that typhus was transported by lice, ticks, mites and fleas, thereby opening up the path to the development of preventative techniques, and eventually, a vaccine against this deadly disease.8 He died 20 August 1920.

8McNeill, p. 252.
At the end of 1894, the bacteriology laboratories were moved to a large, existing building in Nisantaşı. The place became a learning center. Dr. Nicholle supervised technical matters and gave lectures in the classrooms above the laboratories. Müdürriş Dr. Refik Bey was made head muavin in the first year. Doctors Süleyman Nuri and Ziya Şeyfullah were appointed specialists and immediately began work on the investigation of the cholera bacillus.

In 1894 both the bacteriology labs and the vaccination institute were moved into buildings in botany gardens at the Medical Academy. Here there were two small buildings for the animals on which they did their research, as well as laboratory space. Both Dr. Nicholle and his assistant, Dr. Zühtü had their own work rooms, in addition to a large salon. Another room was set aside to be occupied by another lab scientist from France who had yet to arrive.

As stipulated in his contract, Nicholle submitted a written report every three months to the Director of the Medical Academies, Zeki Paşa. He gave lessons to physicians and veterinarians 3 days a week, for 3 months at a time.

As in Nişantaşı, Doctors Refik (Guran), Ziya Şeyfullah, and Dr. Süleyman Nuri continued their work as teachers and assistants. Some time later, Dr. Aristidi came to work with Nicholle, as did M. Lourmier.

The vaccination institute at this time was working mostly to prepare smallpox vaccines. Dr. Hüseyin Remzi was the first Director of the center, followed by Doctors Hasan Zühtü Nazif, Rifat Hasemettin, and Kemal Muhtar.

During a meeting of the Imperial Medical Society on 12 September 1894, it was suggested that Dr. Nicholle begin work preparing diphtheria serum. It was expensive to import and the Ottoman government disliked being dependent on outside sources for necessary substances. By imperial order of Abdüllahamid II, Dr. Nicholle was sent to Paris to research techniques of diphtheria serum preparation. Through his efforts, diphtheria serum was prepared in laboratories in Istanbul soon after, making it the first truly Ottoman immune serum.

Students no longer needed to be sent to France and Germany to gain experience working with serums and vaccines. They were able to learn all they needed from Dr. Nicholle and his assistants, and began producing serums and vaccines for distribution throughout the Empire. The bacteriology center grew quickly, and soon it was necessary to seek quarters for it outside of the Medical
Academy’s well in Demirkapi. Another large building was rented in Nisantası and the bacteriology laboratory’s things transported there. Close by, another building was appropriated for the preparation of cow plague serum. Room was made inside the building for the boarding of 15 cows, and a laboratory for humans extracting blood from them for research. Outside in the garden 7 pens of different sizes held animals for further experiments.

A serum for bovine plague was finally produced and successfully applied in 1897. With success, the bacteriology center grew even more. By 1899, appointments for six more doctors to work in the buildings were made. In 1900, these bacteriologists requested another institute for the preparation of plague serum, but received no positive response.9

While working with vaccines and vaccination, Dr. Hasan Zühtü Nazif Bey had to confront the problem of Ottoman women refusing to be vaccinated by male vaccinators. To remedy this situation, in early 1897 he taught his wife, Refika Hanım, the daughter of Ahmed Necip Efendi, how to immunize subjects against small pox. This was just before he left for medical service on the front of the Turko-Greek War and died of typhus.10

By March 1899 doctors working in the bacteriology center had produced 13,390 bottles of diphtheria serum. Between January 1899 and November 1900, 3,750 of these bottles were sent to destinations throughout the Empire.11

In 1898, Dr. Rieder was brought to Istanbul from Germany by imperial order. With him came his assistant, Dr. Franz IG Deyck and a few nurses who were to help introduce German medical culture to the Ottomans. Deyck conducted bacteriology lessons and worked with a team preparing typhus and cholera vaccines.12

It was during the reign of Abdülhamid II that hospitals began establishing their own bacteriology laboratories. In 1900, Bahriye Central Hospital, Haydarpaşa Military Hospital, Guhane Practical Medical Academy and Hospital, Hamdiye-i Etfal Hastanesi, Alişı Hospital and Selenik Hospital all set up their own labs. The laboratories in Hamdiye Etfal had the very latest in equipment. Their staff included some famous doctors, among whom were Doctors Ibrahim, Ömer Fuat and Süleyman

9Unat. Bacteriology, pp. 38-49.
10Ibid. p.170.
11Ibid. p.43.
12Ibid. p.89.
Nuri, who lectured on bacteriology. Scientists from European institutes were also brought to conduct research and give lectures.

In 1901, Dr. Maurice Nicholle made preparations to return to France. He resigned from his post as Director of the Institute, requesting that Dr. Remlinger take his place. Dr. Remlinger was, at the time he accepted Nicholle’s position, also Director of rabies research at the hospital, a position he kept as late as 1910. Dr. Remlinger, having received his training in the Pasteur Institute in Paris, was in great demand as a medical administrator in Istanbul. When plague and cholera researchers discovered that these diseases, and others like them, were being brought in from other regions, he was also made director of a hospital and laboratories in Sivriburnu to supervise further investigations.

In 1901, a new school for the research of animal illnesses and the development of vaccines and serums for them was established by the Ministry of Forestry, Mining, and Agriculture in Sultanahmet. Veterinarian Professor Adil Mustafa was appointed Director of the new Civil Veterinary Academy, with Dr. Nikolaki and Veteriner Refik as his assistants. Adil Bey’s work with Dr. Nicholle in the bacteriology center was written up and published in Les Annales de l’Institut Pasteur, a classic book for bacteriologists in the world even today, in 1899, 1901, and 1902. Director Adil Bey died in 1904, at a rather young age. He was replaced by Dr. Refik, and then Dr. Nikolaki.

The Veterinary Bacteriology Center was as an educational center for veterinarian medicine research and the development of vaccines for various animal illnesses. They produced, respectively, vaccines for cow pox, sheep smallpox (1910), and anthrax (1911).

At the end of 1903, the rabies vaccine laboratory originally established by Zoeros Paşa on his return from Paris in 1886, was transferred to a building in Selimiye, near the Civil Veterinarians Academy.

Once the laboratories for the study of animal illness were firmly established, the scientists of imperial bacteriology laboratories were able to focus solely on their

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13Ibid., p.97.
14Ibid., p.106.
15Ibid., p. 44.
16Yıldırım, p.1337.
17Umat, Bacteriology p. 44.
work with diseases of humans. By 1910, volume of studies had increased to such a point that a stone building in Nisantaşı was enlarged for their use.\textsuperscript{18}

In 1903 the medical academies in the Empire underwent educational reforms to make them more German in their approach. Changes occurred in the curriculum of the bacteriology students. Now, students in the military academy would receive lessons in this subject in their third year. Civil Academy students learned it in the sixth.\textsuperscript{19} An Imperial Medical Academy opened in Damascus the same year. The first general hygiene bacteriology lessons were given in 1906 to fourth year students. By 1907, the subject was delayed to the fifth year.

In 1909, the Sultanahmet based Veterinary Bacteriology Institute began preparations to move to the Anatolian side of the Bosphorus. Construction began in Pendik in 1910, and, after a delay in construction during the Balkan Wars, was completed in 1914.

During the 1910 budgetary talks for the bacteriology institute in Istanbul, members projected costs of a new bovine plague serum preparation center at a site in Anatolia. The Veterinary Hygiene Commission, chaired by Minister of Agriculture Pavlovo-Kordato Bey, chose Erzincan for the site. The buildings were completed in 1911 and directors were appointed from Istanbul. Not long after this, when the region plunged into war against the Russian Empire, this institute was transferred first to Haleb, then Niğde, and finally, to Erzincan again.

A veterinary hospital and inspection laboratory were established in Ankara, in Tarhan, to head up that region's fight against bovine plague.\textsuperscript{20}

The Bacteriology Institute in Istanbul was further expanded to Kamberlitas in September of 1911. Dr. Paul L. Simond was made Director.\textsuperscript{21}

During the First World War, the Veterinary Bacteriology Institute of Istanbul was busy preparing cow rabies serum, anthrax, mallein, and tuberculin vaccines. As the possibility of the occupation of Istanbul seemed more certain with each passing day, a serum preparation centers were founded in Eskihisar and Şefife in order to ensure continued access to this vital substance. Şefik Bey went with a team to begin work there. During the Greek Occupation, the Eskihisar center was transferred to

\textsuperscript{18}Osman, p.108.
\textsuperscript{19}\textit{Unat. Bacteriology}. p.69-70.
\textsuperscript{20}\textit{Unat. Bacteriology}. p.65
\textsuperscript{21}\textit{Ibid}. p.45.
Kirşehir, and then to Ankara, where Şefik Bey established the *Ankara Etlik Bakteriyoloji Enstitüsü*.

The military established its own veterinary bacteriology institute during World War I.22

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22Yıldırım, p. 1337.
2.5. The Training of Medical Assistants

Before the nineteenth century there was neither official training nor appointment for young men wishing to become health assistants. They usually worked at the side of an individual doctor or pharmacist as a sort of apprentice, dressing wounds, administering medications, and doing other such similar tasks. But with the advent of reform in the Ottoman medical field in the nineteenth century, and the adoption of a western style medical education and training of doctors, it soon became clear that assistants would also need to be trained in the same manner in order to be most effective at their tasks.

The training of medical assistants began in 1846 a small academy was opened in Istanbul during the reign of Abdulmecid (1823-1861) to educate young men who would become vaccination assistants. Abdulmecid was personally interested in this cause, having recently survived an attack of smallpox himself in 1845, and wished to see the spread of vaccinations against this easily preventable disease throughout his realm. The first five candidates, boys between the ages of 13 and 18, were brought to the Imperial Medical Academy in Istanbul from outlying regions of the Empire to learn vaccination techniques and other similar tasks during a months course of study.\(^1\) They had to be able to read and write Ottoman Turkish. Some had completed \textit{Kuran-i Kerim} and all had permission from their parents to become vaccinators.\(^2\)

Of the original five, two went on to learn surgery, two completed five years of medicine and surgery, and the fifth studied comprehensive medicine for a full course of 15 years. Interest among the young was not lacking. Soon a separate school was opened solely for the teaching of vaccination techniques\(^3\). In addition to those skills, students finishing the one month course also received training in simple surgeries such as circumcision.

After receiving their certification, these individuals became officials in the fight against contagious disease. Some went to work for municipal health

\(^1\) Akyüz, p. 27.
\(^2\) Akyüz, p. 57.
\(^3\) Akyüz, p. 27.
organizations and others were appointed to work with doctors in the military.²

During the Constitutional Era, reforms were made in the area of education of health assistants as well as in the major medical schools. Kütük Şehhiye Mektebi ⁵ was opened in 1910 and graduated its first class two years later, in 1912. Akyay describes it as "the first real school opened to teach sağlık memuri".⁶ It was located in the Demirkapi Military Konak.

Students were between the ages of 19 and 23 undergoing a two year course program which included lessons in first aid, internal disorders, contagious diseases, physiology, dissecting, circumcision, children's health, sanitary precautions, medical writing, and official correspondence. They gained experience in the hospitals and fumigation stations of the city. On Mondays, Wednesdays, and Thursdays, patients were examined, and operations, including circumcisions, performed. This institution averaged more than 20 graduates a year, beginning in 1912. ⁷ Yet they were still not enough. More serious work would be done with the education of health assistants during the Republican years than the Ottoman years combined.⁸

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⁴ Özbay, p.57.
⁵ Osman, p.156.
⁶ Akyay, p. 27.
⁷ Osman, p.156.
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III. Official Health Organizations

3.1 Public Health Organizations

Meclis Tahaffuz: The Quarantine Council, was the first public health organization established in the Ottoman Empire. Founded in 1838, in direct response to the cholera epidemic of that year, the organization supervised the establishment of quarantine stations for ships arriving in Istanbul via the Black Sea and the Sea of Marmara. In 1840, it began to look farther afield, to the international shipping lanes which were the major conduit for diseases such as cholera, and made efforts to prevent ships suspected of carrying diseases from entering Ottoman ports. As the Quarantine Organization placed primary emphasis on ports and did not have a large effect on the general population, it must be considered a "civil" health organization, but not a "public" health organization.¹

Public Health services in the Ottoman Empire were first implemented in the Istanbul districts of Galata, the Sixth District of the city, and were closely linked to general civic reforms in those areas. The Sixth District was the second largest in the city, after Fatih, with a population of 237,293 out of a total larger city population of 875,000 in 1882. 100,000 of the residents of Galata were registered as foreigners, but many of these were more likely to have been protected Ottoman subjects. Only 15 to 20% of the remaining were Moslem. There were more than 50 synagogues and churches in the district.² The people living in this predominantly non-Moslem section of the city had considerable contact with Europe and themselves became increasingly European in outlook.

¹Yıldırım, p. 1321-1322.
"It was the non-Muslim embassy proteges of Galata who were most affected by commercial developments during the Crimean War era and whose enhanced economic and social status led them to demand reform of the administration of the capital. Traditional urban administration neither recognized the city as a corporate entity nor provided for a government apparatus separate from that of the Imperial administration as a whole."  

Istanbul was unprepared for the large number of British and French troops that streamed through the city during the Crimean War, which caused food shortages and soaring inflation. The allied forces complained about the state of services in the city, pointing to the unpaved, unlighted streets and poor provisions for the health of the population, which at the time, included themselves.

Discussion began in 1855 on the subject of founding a health organization which would provide services to the people, leading to the formation that year of a special ministry for municipal improvements called Sehremeneti. This organization was to supervise goods and commerce in the guilds and bazaars, and make improvements in general sanitation and street quality. In practice, the Sehremeneti did little beyond commercial regulation, leaving the minority elite of Galata deeply disappointed.

At the close of the Crimean War, the Ottoman Empire was officially recognized at the Treaty of Paris in 1856 as a member of the Council of Europe. Individuals interested in urban reforms this time used this as a pretext to argue that municipal reforms would not only bring an end to the complaints of visiting foreign troops, but also prove that the Empire was capable of "internal regeneration", and worthy of membership in the European community of states.

The minority elite in Galata formed an ad hoc scientific commission which

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3 Davison, Roderic H., "The Millets as Agents of Change in the 19th Century Ottoman Empire", Christians and Jews in the Ottoman Empire, p. 322.
4 Rosenthal, p. 373.
5 Yıldırım, p. 1321-1322.
was given the name *İmam-ı Şehir*. Members of this committee were generally wealthy individuals with influence, who soon brought about the official acceptance of the organization and were themselves granted official status. Reasons for the district of Galata to become the first to undergo urban reform were given as follows by the government:

"Since to begin all things in the above-mentioned district would be sophistry and unworthy, and since the 6th District contains much valuable real estate and many fine buildings and since the majority of those owning property or residing there have seen such things in other countries and understand their value, the reform program will be inaugurated in the Sixth District."

Galata was also thought a good place to begin reforms because of expected compliance with them by the more traditional moslem notables and guilds that remained in the area at that time. Furthermore, the religious authorities of the city would probably not concern themselves with the daily activities of the non-believers.

Municipal reform was now in the hands of this highly westernized council, made up of 6 Galata property holders with at least 100,000 piasters worth of property each as regular members and 4 "foreign" property holders to act as advisors. They were given the task of drawing up a set of new municipal regulations, which resulted in the foundation of the Sixth Municipal District. In return, they demanded independence from the central government, including the rights to tax inhabitants for improvements and establish a municipal treasury, threatening to resign if their demands were not met.\(^6\)

By 1864, positions on the Council Board were evenly divided between wealthy Moslem and non-Moslem property holders. The central government, wanting more control over reform activities at this time, reduced the official standing of the organization to that of an advisory board and rescinded its autonomous privileges. Despite this, under the chairmanship of Server Efendi, some improvements were brought to realization. Municipal services were expanded to include all of Galata, parks and public promenades were constructed, and wells dug to supply drinking

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\(^6\)Rosenthal, p. 373-374
water. A hospital for the poor was also established, an act, Rosenthal explains, resulting from the fusion of the ideals of Islamic charity and western urban reform among officials when the Porte took control.7

All of the administrative units of the municipality districts in the capital, including Galata, were brought together under the supervision of the original municipal organization, Şehremini, which now was strengthened and given more responsibilities. The Metropolitan Council, (Şehremaneti Meclisi) was made up of six members. Below them were the bureau chiefs, who chose an additional three individuals from their original bureau staff to continue as state partisans. Duties of the expanded municipal organization were made clear in a bill published that year. The number of districts in the city fluctuated with time. In 1877 there was a total of 20 districts, but by 1880, this number had decreased to 10 due to lack of personnel to carry out duties.8

In the 1860s, the government also sought to regulate medical and pharmaceutical practices in the Empire. The first bill, entitled Regulation Concerning the Performance of Municipale Pharmacists (Beledi İspenciyerlik Sanatı İcraına Dair Nisânname) was published 22 Recep 1277/1860, and consisted of 49 articles.

Another bill the following year, dated 7 Rebiulahir 1278/1861, and entitled Regulation Concerning Municipale Medical Sciences in the Imperial Ottoman Domains (Memalik-i Mabusa-i Sahane de Tadbırcı Belediye İcraına Dair Nisânname).9 From this point on, doctors wishing to begin practice in Ottoman domains would need to be graduates of the Imperial Medical Academy or hold a diploma from a known European medical institute or be certified by the Office of Public Health in the Medical Academy. Doctors already in practice were required to be certified through the office of the Head Physician of the Ministry of Medicine. Individuals employed by hospitals also needed to be registered with the Ministry of Medicine.

Surgeons, and individuals capable of performing small surgeries who were approved of by the Office of Public Health, could work without the direct supervision of medical doctors. Midwives were not to use tools during the birthing process. Doctors were not to supply medicines to people in areas with an established

7Ibid, p.381
8Akyar, Osmanlı İmparatorluğu'dan Sağlık Örgütleri ve Sosyal Kurumları, p. 18
9Yıldırım, p. 1321-1322.
pharmacist. And finally, aphrodisiacs were no longer to be prescribed. Individuals found disregarding these new laws were to be fined or punished with imprisonment.

A bill published in 1867 decreed the establishment and direction of services in provincial districts.

Beginning in 1869, with the publication of another regulation, pharmacists practicing in Istanbul, Üsküdar, Galata, and Eyub were required to keep records in a specific manner, outlined in 77 articles.

The Civil Medical Association, Cemiyet-i İbbyye-Müllkiye was established in 1869. The Association had eleven main members, all of whom had received educations in foreign countries and were employed with the permission of the Ottoman government. Founded as a committee to approve the appointment of municipal health personnel, which included doctors, pharmacists, vaccinators, and midwives, the men also met twice a week at the hospital to discuss new developments and techniques in the medical profession.

Meetings of this organization were conducted in French until 1 July 1868, after which time Ottoman Turkish became its official language.

The direction of civil health matters was made the responsibility of a new state ministry established in 1870, the Ministry of Civil Medicine (Nezareti İbbyye-i Müllkiye). This committee was made up of a leading president, six doctors and two pharmacists. By law, they were compelled to meet twice a week to oversee the health of the citizens. If, for outstanding reasons, the officially appointed members were unable meet, the director of the Medical Academy was given power to assemble the requisite number of members from among students in the 6th and 9th classes to attend.

The Ministry of Civil Medicine supervised all matters of public health concerning the population. Its members directed the appointment, promotion and transfer of physicians to civil posts, and, if need be, the cancellation of their contracts, and the establishment of medical and pharmaceutical establishments. They approved the diplomas of health personnel in various fields, and led the battle against contagious diseases. Written permission for civil health matters was attained from the Ministry of the Interior (Dahiliye Pekâleti). For matters concerning the Medical Academy, it was sought from the Ministry of War.

The official establishment of municipal health organizations outside of
Istanbul began in 1871 with the publication of a bill ordering the founding of municipal pharmacies not only in Istanbul, but in the provinces as well. It was with this bill that the pharmaceutical profession first came under the administration of general medical regulations. Five years later, in 1876, municipale pharmacists in the provinces were put under the administration of local government doctors and pharmacists holding officially recognized diplomas. Prescriptions were to be filled free of charge to patients whose impoverished condition had been noted by these official medical personnel.

Specific guidelines for the duties of officially appointed hygiene inspectors (Sibahiye Müretteşiplikleri) and physicians (Memleket Tabiblikleri) were published in the 1871 charter of the General Civil Medical Services Directorate (Idare-i Umumiye-i Sibahiye-i Milliye). In this charter it was stated that the salaries of municipal doctors were to be paid by the directors of the cities in which they worked. In return, the doctors were to render free services, including vaccinations, to the inhabitants of the locale, both wealthy and poor.

The municipal pharmacies within which these sessions were conducted were to hang metal signs outside of their shops acknowledging that they were municipal establishments. The date and hour of public examinations were to be posted clearly for the public's information. Patients too ill to attend examinations at the appointed locations were to be treated in their homes. Those able to afford payment did so at a fixed price, which was paid for out of the municipal coffers if the patient was poor. Time and money were not to be wasted by the examination of patients with no apparent illness; this, in order to save the patients from giving up their money unnecessarily.

Responsible for the general health of the area to which they were appointed, doctors were to inspect hospitals, pharmacies and other areas concerning health, and to send monthly reports to the Ministry of Medicine. If an epidemic should break out, doctors were to assess the situation and give direction to the proper authorities as to what should be done.

Doctors graduating from the Imperial Medical Academy were exempt from military service, completing instead five years of service to the civil state. It was usual for a doctor to spend the first two years practicing in a žara district, and the remaining three in a Livya. Hygiene inspectors were generally chosen from among
those doctors who had finished their service and wished to continue as State physicians.\(^{10}\)

Salaries were accorded along a fixed hierarchy of compensation. In 1865, a newly graduated State doctor could expect to earn 600 kuruş a month. By 1890, vilayet doctors were making 12 altın a month, lîva doctors, 8, and kaza doctors, 6. Surgeons, working under the supervision of these doctors, made less. Baghdad, Basra, Bingari, Hicez, Trabîlusgârd, Yemen, and other less developed regions were considered hardship posts. Doctors working in those areas received pay at a ratio of one and a half the normal salary, as did those whose posts were itinerant in nature.\(^{11}\)

The General Public Health Council Meclis-i Sihhiye-i Umumiye, was founded in 1881. Its members were to assess the health condition of the Empire and present suggestion as to what should be done to remedy existing problems and guard against future contagions. They were also to directly serve the public by providing information about foods and medicine, both domestic and imported.

The State published a bill in 1888 under the title "Regulation Concerning State Doctors and Pharmacists" (Memleket Tabileri ve Esacalar Hakkında Nizamnamesi), setting forth their salaries in regard to their location of employment. Kaza doctors were to receive a monthly salary of 600 kuruş and the rank of sâlih, lîva doctors, 800 kuruş and the rank of sâlih, vilayet doctors, 1200 kuruş and the rank of saniye, and hygiene inspectors, a salary of 2,000 kuruş and ranking of mütemeyyiz.\(^{12}\)

The Hygiene Commission (Hufuzulhha Komisyonu) was established in 1891 by the acting mayor of Istanbul in response to a city wide epidemic of cholera. This organization opened ten offices throughout the city, and dealt mostly with general municipal health services.

Not long after this, the Municiple Health Works Directors Foundation (Belediye Sağlık İşleri Müdürlüğü'nün Esası) was established.

In 1895, with the full support of Abdulhamid II, two hospitals, one for men and one for women, were opened in the city, along with a bacteriological center, and a detached building for infectious diseases. This was the last of public health

\(^{10}\) Akşy, p. 13-16.
\(^{11}\) Ibid. p. 23.
\(^{12}\) Ibid. p. 15.
developments in the nineteenth century.

In 1906, the Civil Health Organization, became part of the Ministry of General Military Education, (*Umum Mekatib-i Askeriye Hizareti*), and was renamed the Medical Education Council (*Meclis-i Meṣarî-i Nih*). 13

More changes occurred in administration of public health services during the Constitutional Period. The first happened in 1908, with the separation of the 9 municipal district units within the larger *Sehirimi* organization. Bakırköy, Kağıthane, the Marmara islands and Gebze were accepted as distinct districts. A public health inspector was appointed to the head of each district bureau, chosen from among the ranks of eligible medical officials with approved credentials. Besides this, there were three commissions established for the control of pharmacies, and a Board of Public Health and Hygiene.

Members of the new board of Public Health and Hygiene numbered nearly 300 and included the Head Physician of the Sarayburnu Hospital, four pharmacy control commissioners, and nine members of the Sixth District Brothel Control Commission, fourteen members of the Public Health Organization, and approximately twelve official bacteriologists. There were 78 municipal doctors and pharmacists, 20 civil and military physicians, and 58 members of the teaching staff at the newly created University Medical Faculty. 14

In 1909 there were an estimated 2656 doctors practicing in the Ottoman Empire, 1889 of them Ottoman citizens, and 767 foreign. With a population of 54 million, there was approximately one doctor for every 20,000 people, but as the vast majority of physicians practiced in larger cities, like Istanbul, Selenik, Izmir and Bursa, the ratio of doctor to patient in Anatolia was something more like one professional to 50-100,000 individuals. 15

In 1912, the, the General Council of Civil Medicine (*Meclis Umur-i Tibbiye-i Mülkiye*), and the General Public Health Board (*Subhiye-i Umumiye*), jointly established the School of Military Health/Sanitation (*Subhiye Cevas Mektebi*), which was renamed the Small School of Hygiene Officials (*Küçük Subhiye Memuriyet Mektebi*). It was later closed by the Treaty Powers, who criticized its lack of management coordination and insufficient staff, which was caused by instructors

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13 Yıldırım, p. 1322.
14 Akşam, p. 18-19.
accepting positions at multiple institutions in the same period.

The Directorate of Public Hygiene (Sihhiye Müduriyet-i Umumiyesi) was founded by the Ministry of the Interior (Dahiliye Nezareti) in 1913 with the publication of a bill entitled: "The Provisory Law Concerning the Directorate of General Public Health."

Epidemic diseases continued to be a problem. The Welfare Sanitary Institution (Müessesat-i hayriye-i sihhiye Müduriyeti) was organized in 1909 to modernize existing facilities to conform to modern sanitation requirements. It took over control of Haseki Nisa, Etfal, Beyoğlu Zürük ve Nisa Hospitals and the bimarhanesi at Toptaş. Soon, it also acquired the supervision of Darülaceze, Cerrahpaşa Zürük Hospital, Sevriburnu Quarantine Station, several fumigating centers, a lab in the city center, Karahisar Mineral Waterworks, and Cerrahpaşa and Nuhkuyusu Muşahedehaneler.16

16 February 1912 brought the publication of a set of regulations concerning the General Directorate of Health Works. The organization was to have a general director, an assistant director, both of which had to be registered physicians. Beyond them, there were to be staff for the following commissions: dispensaries control, medical law, general hygiene, general statistics, registration, and adjustments (itibak-i memur).

The membership of the Hygiene Council (Meclis-i Ali Sihhi) was also set forth. It was to contain a second Director, an organizational control leader, an office director, a known "free" doctor, a member from the Court of Appeals, a Law Ministry advisor, the Medical Faculty president, and representatives from the Ministry of War and Navy, the Ministry of Public Works, the Veterinarian General Directorate.

This organization was made legal in another bill, published 14 March 1913.17

In 1914, the Ministry of Interior Affairs (Dahiliye Nezareti) was officially renamed Ministry of Hygiene (Sihhiye Nezareti). At the same time, permission was granted for the establishment of a Public Hygiene, Quarantine and Hijaz Quarantine Directorate (Sihhiye Müduriyet-i Umumiyesi Karantina ve Hicaz Sihhiye Daireti), which was to established provincial medical centers and appoint health directors to supervise them.

16 Yıldırım, p. 1322.
17 Akyay, p.17-19.
On 13 April 1914, Dr. Reşad Riza Bey, the Director of General Health and Hygiene published a bill called "Regulation of Contagious and Epidemic Diseases" (Eumar-i Sarıye ve İstila-i Nizamnamesi) which acknowledged, for the first time in Ottoman history, the governments' responsibility to protect its people against contagious diseases.

A Public Health Museum was opened in 1917 in Istanbul, its stated goal being the education of the people about various contagious and epidemic diseases. It sought to teach how to prevent human-to-human transferred diseases such as tuberculosis, syphilis, and measles, and how to protect against diseases carried by insects and water. The museum featured examples, including colored pictures and full scale models, all of which had been imported from Europe especially for this purpose.

Civil health reforms in Istanbul, then, were a direct result of pressure from western, or "westernized", elements within the capital, from wealthy inhabitants, diplomats, and such short term residents as billeting troops from Europe. There seems, however, to have been no such concerted effort in provincial capitals, where local notables were more conservative and less likely to push for reforms themselves. These population centers seemed to have waited for the central government to provide them with the requisite sanitary measures and health personnel.18
3.2 Health in the Provinces

Municipal organizations in the provinces began in 1869, fourteen years after such organizations were made official in Istanbul with the founding of the Şehremaneti in 1855. In 1869 an official bill was published in Istanbul regarding the rules and regulations of the establishment of public health organizations in provincial capitals. This bill decreed that the groups be made up of a president, a vice president, six full members, and an undisclosed number of clerks to control funds for their tasks. Doctors and Engineers who held Ottoman citizenship were made natural members of such establishments.

On 23 September 1877 another set of regulations was published. Of the 67 articles it presented, the most notable concerned the appointment of officials to oversee this state service. The President of a municipal health organization was to be chosen from the existing state officials in a region. He in turn, would appoint the six regular members, choosing from among his regions more wealthy residents. The organization was to meet twice a week to discuss matters pertaining to the health of the local population. A Member was to work without payment for two and a half years, after which he could resign from his post if he so chose.

Two years later (1879) another set of regulations was published, again regarding municipal organizations in the provincial capitals. A city was to be considered a municipality if it had more than 40,000 residents. A municipality was to hire doctors and pay them from its own allowances.

Other data on health services outside of the capital city of Istanbul are for specific regions, reported in the order as follows: Eastern Rumelia, Anatolia, Iraq, Egypt and Mecca.

**Eastern Rumelia**

In 1864 an official set of regulations was published regarding health personnel and the direction of health works in the province of Eastern Rumelia as follows:
1. Each large population center was to have an official Hygiene Inspector, three doctors, a veterinarian, and a pharmacist on duty to control the health of that region. Their duties included supervision of hospitals and pharmacies, the application of appropriate vaccines, the containment of contagious diseases, and general control of foods and goods in the area.

2. District (кеша) doctors and health personnel were also obliged to supervise levels of health in prisons and brothels in their locales. If a specific region had fewer than 30 villages in its vicinity, its doctor was to visit the surrounding villages every three months and submit an official written report of health circumstances as found there. If there were more than 30 villages, the doctor was to visit each village every four months.

3. Regional gendarmerie posts were to have both a doctor and a surgeon among its staff.

4. Hygiene Inspectors were to be elected by doctors and other individuals appointed by the municipality to perform this task. The Hygiene Inspector was to assist district doctors and work towards the improvement of health services in his area.

5. Surgeons were to act as doctors if no doctor could be found.

6. Dentists were given permission to open offices, providing they could produce an acceptable diploma of training.

7. Pharmacists were to have diplomas and be Ottoman citizens. Foreigners could open pharmacies providing they had their foreign diplomas registered with the State.

8. State certified midwives were to work in conjunction with district
doctors. If a certified midwife was not available in the area, then a midwife with at least five years experience could perform the necessary services with official sanction.

9. Nurses (bastı bakıcılar) who worked in hospitals and other such places were to be supervised by a doctor.
10. Salaries were to be paid as follows:

<table>
<thead>
<tr>
<th>Position</th>
<th>Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hygiene inspector</td>
<td>30 altun</td>
</tr>
<tr>
<td>Hygiene Assembly</td>
<td>20 altun</td>
</tr>
<tr>
<td>Denetleme Council Members</td>
<td>20 altun</td>
</tr>
<tr>
<td>Kaza and Municipole Doctors</td>
<td>15 altun</td>
</tr>
<tr>
<td>Gendarme doctors</td>
<td>13 altun</td>
</tr>
<tr>
<td>Surgeons</td>
<td>5 altun</td>
</tr>
</tbody>
</table>

**Edirne**

There was very little information available on nineteenth century public health services in Edirne, the whole of which consists of the knowledge that a state sponsored hospital for the poor was opened there in 1888.

**Anatolia**

In 1879, a hospital for the poor was established in Bursa.

The residents of İzmir experienced considerably more health services earlier than people in other parts of Anatolia, no doubt due to its function as an international trading port with many foreign residents. The Greek community opened a hospital, *Rum Cemaati Hastanesi*, in 1748, followed by the French in 1775, and the Jews in 1843. The first Ottoman State sponsored hospital for the poor opened there in 1851. These institutions functioned as polyclinics and distributed medicines to the poor. Additional 3-4 bed infirmaries were opened in areas where laborers lived in especially close quarters. The city received its first bacteriology center in 1916.

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which operated under the direction of Dr. Memduh. Mostly typhus and dysentery serum were produced in its laboratories.

**Sivas**

In 1917 Dr. Sami Bey was appointed director of the newly established Sivas Health Institute, which specialized in the treatment of rabies and inoculation of soldiers against typhus and small pox. Troops leaving for the area around Söke were also given vaccine for plague.\(^2\)

**Iraq**

It seems that the majority of 19th century health institutions in the Province of Iraq were first established to serve the military. Baghdad central hospital was originally opened for the 6th Regular Army. In 1866 Dr. Behcet Bey was head doctor in this hospital, with Haci Dr. Ali Efendi as his second. Hüsev reports that Kerkuk Military Hospital is first mentioned in documents in 1876. Beginning in 1884, the cities of Basra, Hankin, and Hulle, and cities each were given a central hospital. Basra Military Hospital, established to serve the Ottoman navy, was opened in 1892 with two military physicians, one pharmacist, a secretary and religious staff. At the close of the nineteenth century, Musul Military Hospital was opened to serve those in the region.

Besim Ömer Paşa reported on the state of health services in the Province of Iraq in 1900. At that time, Dr. Kerim Abdullah Efendi was Vaccination Inspector and director of the vaccination center in Basra Vilayet. Ahmed Dr. Abdullah Efendi held the office of Public Health Inspector in Baghdad Vilayet, and Dr. Paul Garcier, in Musul Vilayet. There were additional vaccination institutions in Basra, Şan, and Şam.

By 1908, Baghdad Central Hospital employed 14 doctors, 168 health care personnel and 131 enlisted servicemen\(^{er}\) on duty. That year, Basra Military Hospital was renamed *Rumen Movki Hastanesi*. During World War I this institution reportedly had a bed count of 250. Mobile hospitals served up to 1500 ill and wounded.\(^3\)

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\(^2\)Ibid, p.11.

\(^3\)Katemi, Hüsev. Osmanlı Devletin Irak Topraklarında Sağlık Hizmetleri, from *Itn*
Egypt

The Egyptian Academy of Medicine (Misr İmam Mektebi) was opened in 1826 with European doctors on the teaching staff. This was a full year before the military medical school opened in Istanbul. Quarantine measures went into effect in 1831, and vaccination work in 1836. An undetermined number of hospitals, and the accompanying provincial health institutions, were established in the 1840s.5

Hicaz

The International Health Conference met in Istanbul in 1866. At this meeting it was decided that a health team should be sent to Hicaz every year during the Hac season to combat infectious diseases. A medical team was sent the following year, in 1867.6 Despite the gravity of the international sanitary problems presented by the nature of the region, due to its central role in the rite of Islam, with hundreds of thousands of pilgrims converging in Mecca and Medina each year, more serious health reform measures for this area were not put into effect until 1895, almost thirty years later.

These major health reforms were in response to the chronic, widespread outbreaks of cholera among pilgrims. In 1899 alone, 13,456 individuals died from this disease. In 1895, 5,000 travellers returning home along the caravan routes also died, a full one third of Hac pilgrims following the routes that year. Yet more died in railway cars and ships, posing a threat of international proportion.

Imposing public health regulations in the area was not an easy task, depending almost entirely on strong local government direction as pilgrims and local trade people were loath to give up their traditions. The medical and ruling officials took their goals seriously, publicly submitting to procedures themselves in order to convince the people of their effectiveness. Mecca Serifti Avnurrefik Paşa ordered his own home disinfected so that everyone could see exactly what such a procedure entailed so they would then be persuaded to allow such a thing in their own homes.


6Yıltdırım, p.1324.
The campaign was a success. Within two years, the total dead from cholera had plummeted from 13,436 to a more modest 306. The populace could not deny that sanitation measures were in their best interest and gave the Meclis-i Şühiye the respect it deserved.

Şerif Hazretleri wrote:

"Bilirsiniz ki, ben huzurumun ve bilimin verilerine tam bir güven duyarım. Fakat samimi olarak itiraf ederimki, bu kadar etkili olансığına inanmamıştım."

So dramatic were the results that health organizations in Mecca received special protection during the Grand Viziership of Merham Çevat Paşa.

As long as Arnurefik Paşa was in charge, there were no more flare-ups of cholera. Public Health is a political arena, which requires of an areas leaders a good deal of tenacity and a personal commitment to ideals. In contrast to Arnurefik Paşa, Hüsrev tells of Ahmet Ratip Paşa, whom he calls "the godless enemy of health organizations" for his alleged pleasure in the relatively high number of deaths in 1902 and 1907/08 outbreaks as a result of his lax attitude towards public sanitation. There was another considerable surge in cholera deaths among pilgrims during 1909, when Abdülhamid was not head of state.7

In 1911, the Hicaz Health Organization was begun under the direction of Dr. Kasim Izzeddin.8 Quarantine application was again seriously pursued. This new Health Organization established a 100 bed hospital with two pharmacists, guest houses in Jeddah and Mecca, and a mobile hospital. Jeddah also received an ice factory.9

In 1914, the Inspectorate of the Ministry of Domestic Affairs took the name of Ministry of Public Health. This organization, the General Health Ministry (Sihhiye Mükâbıřevet-i Ummiyeci), and the Quarantine Association, were given official permission to conduct united inspections throughout what remained of the Empire.

The first written work on the topic of Hac health was Mustafa Reşid Efendi and Mustafa Behçet Efendi’s Tertib-i Ecza, published in 1817. Menafu’i Huccas

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8Yıldırım, p. 1324.
9Aksy, p. 21.
published in 1856. described the climate of Mecca, diseases found there, and contemporary treatments for them.⁹

In 1909 Dr Kasim Izzetin Bey, a member of the Council of Public Health, published an article about hygiene in Mecca in French through publisher Maloine Press. In it he explained cholera outbreaks and the need to lower death rates by educating the people, and disinfection campaigns. Gives a history of outbreaks in Mecca.¹¹

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⁹ Yıldırım, p. 1324.
¹¹ Hatemi, p. 80.
The founding of an international society to aid the sick and wounded in times of war was first formally discussed in a conference held in Geneva, Switzerland, in 1863, and attended by representatives from most of the major nations of Europe. The delegates from Belgium, Denmark, France, Holland, Italy, Norway, Spain, Sweden and Switzerland signed a General Pact on 22 August 1864.

Representatives from the Ottoman Empire did not attend, although the Pact was known about in Istanbul and was thought to be a sound concept, however difficult it might be to implement. They objected, however, to the use of the Christian cross as the organizations symbol. The Bağ-ı Ali waited almost a year to sign the agreement, and in doing so on 5 July 1865, requested that the Islamic crescent be used instead of the cross if the organization was to function in Ottoman territory. The signing of the document seems to have been more of an act of faith, or of compliance, as the Ottomans were unsure of its eventual outcome and had no guarantee that the European powers would honor their request for symbol change. Nothing was done immediately to see to the founding of an official chapter in the Ottoman Empire.

The First Attempt to Found the Ottoman Red Crescent Society

In 1867 the Ottoman government sent Dr. Atpullah Bey as its representative to the International Exposition which was being held in Paris that year. While in Paris, he also attended the Public Health Conference and became convinced that participation in the Red Crescent Society would be useful for the Ottoman Empire. He discussed the matter first with Counte Serurier, one of the Health Conference officials, and then with Henry Dunnany, and obtained from them a document discussing the establishment of a society based in Istanbul whose sole purpose was to help wounded soldiers.

Dr. Atpullah Bey returned to Istanbul and discussed the idea with Ottoman officials. Ümer Paşa, the Commander in Chief, and Serderpo Ekrre liked the idea very much and supported Dr. Atpullah Bey’s efforts to convince the medical community to
participate. Marko Paşa, who was then Director of the Imperial Medical School, Kırımlı Aziz Bey, and other officials like them who were poised for reform, formed a council to draw up a charter (nizamname-i essasi) for the foundation of society. It was completed and approved in June 1869 and offered to the State for ratification. The Bab-i Seraskeru refused to pass the bill on the grounds that it was not the place of civilians to meddle in military affairs. The group of reformers had no choice but to disband.

The Second Attempt

The Sirbistan Karamağ, Osmanlı-Rus War broke out a few years later and gave the Ottoman government an opportunity to observe what the Red Cross could do for wounded soldiers, as it was involved in tending injured Serbs, Romanians, and Russians.

The Red Cross Society, based in Geneva, continued to press for Ottoman involvement. In 1876, Gustave Moynier, president of the Geneva International Committee wrote a letter to Dr. Peştemalci Efendi, a member of Cemiyet-i Tıbbıye-i Şahane. Moynier strongly encouraged the establishment of a society in Istanbul in confederation with the of European nation members of the Society who would welcome their participation and be able to offer valuable assistance. Dr Peştemalci read this letter at a meeting of the Cemiyet-i Tıbbıye-i Şahane and it was agreed that establishment of such a society should be pursued. Nurcan, Reis of the Şahane, and Peştemalci were assigned the task of procuring official sanction for the society from Ruştı Paşa, the Grand Vizier. After some deliberation, they were successful.

The first meeting Mecrühin ve Zaafa-i Askerive ve İndad ve Muvencer Cemiyeti, as the Ottoman Society was called, convened 25 July 1876. Charter members were drawn from the ranks of the Imperial Medical Schools administration, and of Cemiyet-i Tıbbıye and Şihhiye. Marko Paşa presided over this meeting, during which the members discussed how the Geneva Pact could be utilized in Ottoman domains and what kind of symbol would be more appropriate for an Ottoman military

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1 Özdin, Zuhal. "The Foundation of the Ottoman Red Crescent Society According to its Yearbook 'Saimene'". Tıp Tarihi Araştırmaları, 1990, p. 73.
institution to display than the European cross. In the end the crescent was again chosen as the most appropriate symbol. Rules and regulations of the institution were drawn up and a Council was to be put in place. Gathering of aid for wounded troops was to be begun immediately.

This charter was prepared and submitted for approval to the Sublime Port where it met this time with acceptance. The administrative committee of the newly founded Osmanlı Hilal-i Ahmer Cemiyet was chosen 14 April 1877. But members had no time to revel in their success as the Ottoman-Russian war raged on, producing more sick and wounded with each passing moment. The army medical establishment desperately needed more materials and supplies.

The newly formed Society was in sore need of funds as it had only a few hundred liras to its account. Officers and members of the Society, and individuals sympathetic to their goals quickly set about raising funds to realize their projects. In one year they raised nearly 70,000 Ottoman liras from interior regions of the Ottoman Empire and other Islamic countries. With 30,000 of this amount they bought general health supplies, and established mobile hospital units in 9 military regions.

They proceeded to rent trains to transport the wounded to the capital, and for a few thousand liras arranged for some relief for refugees fleeing war torn areas. Four full-time ambulances were established in Istanbul, along with two temporary mobile military hospitals that functioned for the duration of the war. Women, incidentally, were possibly more effective in the organization than their male counterparts. Although they weren't formally organized into a women's auxiliary until the twentieth century, they collected a substantial amount of aid and, during the Bulgarian, Karadağ, Greek wars, personally worked day and night preparing laundry, bed sheets, linens and dressings for the hospital units.

Unfortunately, with the end of the war, the Red Crescent appears to have halted all activities and to not get involved with any relief efforts for the next twenty years.

It wasn't until the Greek War of 1897 that the Society went into temporary action again, this time under the direction of Society president Nurcan Efendi on 12 May 1897. In order to fund their activities, the Society accepted donations from both the public and from its European counterpart, the Red Cross. Ships were rented to transport the wounded from Galust. Medical supplies and medicines were supplied to
the military. After the war ended, the society was once again disbanded.

Five years later, in 1902, on 15 September, a request was sent to the grand Vezier by interested parties wishing to revive Osmanlı Hilal-i Ahmer Cemiyeti to active service. Their request was either ignored or denied, as the society remained inactive. In 1904, wishing to send aid of 500 lira to the Red Cross in the Russo-Japanese war, members asked for permission from the Grand Vezier to do so, but received no reply. In November of 1905, they received a letter from the Grand Vezier asking inquiring how much capital the society had under its control. The Exchequer clearly was thinking to appropriate the amount for its own uses, but Dellasuda Faik Paşa, one of the founders of the Societies opposed this so strongly that the funds remained under Osmanlı Hilal-i Ahmer Cemiyeti's control.

During the last years of Abdulhamid's reign, the society's greatest success was sending Dr. Besim Ümer Paşa to London to attend the 8th International Red Cross Conference, where he persuaded them to accept the crescent as the sign of the Ottoman branch of the society.

Resurgence
Following the 20 July revolution, Dellasuda Faik Pasa, worked for a full year and a half getting the Society re-established. An unofficially founded delegation, under the direction of the wife of Rifat Paşa (then Ottoman ambassador to Paris and former haricîye nazir!), collected 4500 lira in a fairly short time. With this money, and Rifat Paşas support, the society soon gained credibility in official circles.

It was thought necessary to create a committee to prepare a new charter to send to the viceroyate, Var, Bahriye, Dahiliye, Haricîye, Maarif, and Public Health Ministries. Members of this committee were such esteemed men as Dr. Esat Bey, Dr. Besim Ümer Paşa, Haricîye Nazareti Umur-i Siyasiye Müdürü Salih Bey, Mehmet Ali (retired from Bahriye Tabib Miraşvîtkî), Military Hospital Director Tabib binbesa Ali Gâlib Bey, and Daire-i Umur-i Sihhiye Muftetti-i Umumisis Kasim Izzettin Bey. They prepared the charter in Dr. Ümer Paşas home, and, meeting with little opposition from the State, had it examined, approved and registered by Sûreî Devlet by 20 April 1911.

The first meeting of the officially sanctioned, revived Ottoman Red Crescent
Society was held in the salon of Tokatliyan Útel with an opening speech by the Grand Vizier himself, Hakkı Paşa. Elections were held and a president chosen. Officially the society's ranks numbered 100. 30 of them were voted to central membership committee, which met a short week later at Deire-i Umur-i Şhhiye, to choose an administrative committee. Receiving support from the Sultan, the society received a gift of 50 lira and a three storey building in Tophane from Felihat-i Sultanat Yusuf Izzettin Efendi, who was made honorary president. This was the Society's first administrative center for some time, until needs increased with success and administrative offices were moved to a four storey building near Sultan Mahmud Turbesi, which was closer to the Center.

A women auxiliary of the Red Crescent was also formed, supported by Dr. Ümer Paşa, who was appointed muallum muhibrez by them under the presidency of Princess Nimet Hanımefendi, the wife of formal Naval Commander Mahmut Muhtar Paşa. One hundred members were registered and Bağkadin Efendi made an honorary president. Other honorary founding members were the sultana Hazretler and Valide-i Hidiri. This auxiliary group continued to raise funds and aid in the treatment of the wounded.

On 26 April 1912, a year after its official recognition, Osmanlı Hilal-i Ahmer Camiiyet held its first official Congress in a large salon at Deruluñun-i Osmanlı. Huseyin Hilmi, a former Grand Vezier was made president of the Congress which went on for three days. New elections were held and plans discussed. Former Bahriye Nazir Muhtar Paşa was made President of the society, Vice President, Sanilige Dr. Mezher Paşa.

At the Congress it was decided that the central delegate committee was to meet every four weeks, on the first Friday of each month. In reality, they met more frequently, two to three times a month, due to the warring nature of the times. During the meetings, hospital direction, inspection, progress being made and suggestions for the future were discussed. During the Balkan War alone, official Congresses were convened 25 October 1912, 9 December 1912, and 28 Feb 1913. In conclusion, then, it can be said that Official Ottoman support of Osmanlı Hilal-i Ahmer Camiiyet in the nineteenth century was sporadic at best. At first hostile to the idea of a civilian organization involving itself with military matters.

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2Özden, p. 74-77.
even if it be limited to tending sick and wounded soldiers, the State then came to view it as a temporary solution to immediate problems during times of War. During peacetime it received little support, politically or financially, and was even at one time the prey of the Exchequer prowling for funds to pay off State debts. The Society was formed and disbanded three times during the nineteenth century, and was only made permanent in the early years of the twentieth.
3.4 Ottoman Pharmacists and Their Organizations

Pharmacies

Western style pharmacies in the Ottoman Empire pharmacies began in the early years of the nineteenth century. Until the last decade of that century, these pharmacies were the almost without exception owned and operated by non-Moslem subjects. The pharmacies were few in number and seem to have been limited to the Istanbul district of Beyoğlu until Moslem subject became involved in the trade in the late 1890s.

The first pharmacy in Istanbul opened in 1804, in Beyoğlu, Taksim Caddesi No. 491 and was followed in 1839 by another establishment begun by Viennese Dr. Bernard, who was at that time Director of the Medical Academy.2

During the Crimean War, the English, French, and Sardinians used Beyoğlu as a medical center. They established a medical society there and a few pharmacies to serve their needs. It is not clear whether they remained in operation after the war. In 1859, Noel Kanzuk opened a pharmacy diagonally across from the Konak hotel.

Hamdi Bey, a graduate from the Civil Medical Academy, was the first Moslem subject to open a privately owned pharmacy in Istanbul. His establishment was opened for business in 1895 on Zeyrek Street. Later the same year, three more Moslem pharmacies were opened, one by Etem Pertev in Aksaray, another by Mehmed Kazım in Beşiktaş, and the third by Hasan Rauf on the Divan Yolu.

In an effort to increase the number of greatly needed pharmacist in the Empire, these three men actively worked to encourage young Moslems to enter the study of pharmaceutical trade at the Medical Academies. Hamdi Bey personally helped other pharmacists wanting to open their own shops by forming partnerships with them. He also worked to find partners for Jews wanting to open their pharmacies.3

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1 Baylav, p. 199p. 230.
2 Aksay, p. 25.
Pharmacies played a central part in the health of a municipality. These places were not only used for the mixing of medications, filling of prescriptions and dissemination of general medical information; they also serve as places where doctors could serve the public. Doctors did not have their own offices, using instead the rooms above pharmacies to conduct their examinations.

Generally, doctors preferred to work in specific pharmacies, with regular schedules printed in the newspapers ahead of the two days they were to appear each week. The pharmacists helped them with treatment of patients, and with the writing of prescriptions, making sure that the proper amounts of medication were specified.\textsuperscript{4}

**Organization**

In 1870 a board of directors (\textit{Mare-i Tibbiye-i Mulkiye}) was established at the Imperial Medical Academy. Then followed the Ministry of Civil Medicine (\textit{Nesaret-i Tibbiye-i Mulkiye}) and the formation of the Civil Medical Organization (\textit{Cemiyet-i Tibbiye-i Mulkiye}) which had among its members, eight doctors and two pharmacists.

The first official set of regulations concerning the organization of the pharmaceutical profession as a state service was published in 1869. Entitled \textit{"Regulation Concerning the Performance of Municipality Pharmacists" BelediEspenciyarlıkSanatıniİcrasınaDairNисанма}}, the bill contained 49 articles.\textsuperscript{5}

The next official bill concerning pharmaceutical organization was published 17 April 1888 with the name \textit{Memlekетettiğisi ve eczacılıları hakkında nисанма}. Acquisition of official certification and rank and pay scales were discussed in the bills articles.

Pharmacists from this point on would have to obtain certification in the form of a diploma from the Imperial Medical Academy before being allowed to set up shop. Upon graduation from the Academy, these official pharmacists, like doctors, would be required to work for the state for a full five years.

\textsuperscript{4} Ibid. p. 254.
\textsuperscript{5} Yıldırım, p. 1321.
In the twenty third article of the bill, rank and pay scales of pharmaceutical officials were set down as follows according to location of service. Pharmacists in townships (kaza) were to receive a monthly salary of 400 kurus; salary and the rank of rubbe-i rabie. Regional (liwa) pharmacists, 600 kurus a month and the same rank as a township pharmacist. Provincial (vilayet) pharmacists were to receive 800 kurus a month and the rank of rubbe-i salise. Some of these provincial pharmacists were able, on the completion of three years of good service, to take an exam, which, if they passed, would allow them 1500 kurus a month and the rank of sanije sinif-i sanisi.

Another bill, Esas ticaret hakkında nizamnamesi, published in 1865, called for a more thorough registration of official pharmacists.\(^6\)

**Prescriptions**

While pharmacist generally prepared the medicines which were sold in their shops, they were not allowed to prescribe medicines to patients themselves. This task was made the responsibility of physicians alone in order to control the dispensation of medicines more closely. Prescriptions usually arrived at the pharmacist’s written in French. The kind of paper they were written on was not regulated, as long as the name of the medicine was legible.

In the preparation of their medicines, all of which were made in their own laboratories, pharmacists had to be artists as well as scientists. They were in charge of all the steps between collection of the chemicals, preparation, and final distribution. For this they needed the correct instruments and adequate laboratory space.

The mass production of medicines began in the Constitutional era with quinine and aspirin made from German medicines imported by Witting Paşa for the military. The first preparation center was located in Gülhane. Soon after this, Etem Pertev began private production of quinine with his own machine imported from abroad.

The Ottoman Pharmacists organization, Osmanlı Ecsacular Cemiyeti, discussed

\(^6\)Baylav, pp. 254–256.
setting up a large scale laboratory in 1912, but was unable to, due to lack of supplies and the necessary tools.

Meclis-i Umur-i Ihtiyac ve Sihîye-i Ulumîye reisiğine met to discuss the conditions for the manufacture of tablets. From this time on, some drugs could be sold without prescriptions and were to be made in pharmacy laboratories. Pharmacists experimented with the taste and texture of their medicines, especially aspirin tablets. Coating them with a sugary substance from Haci Bekir's confection was attempted, but abandoned as the coatings were usually too large to swallow easily and wouldn't keep over long periods of time.

Inspection of Pharmaceutical Supplies

Many of the pharmaceutical supplies previously used in the Ottoman Empire were not suitable for the type of medicine practiced by the medical establishment which adopted whole heartedly western models. Many of the new substances had to be imported from abroad. According to a bill published in May 1884, Eski"un tihhiye teftis memuriyarinin vassifini mubeyrin talimat, all pharmaceutical supplies and tools for chemists laboratories were to be inspected upon arrival in a customs area set aside expressly for this task. Dangerous chemicals were to be sent immediately to Tophane, and the supplies of dispensaries were to be controled at place of sale.

The Public Hygiene Commission (Hîkimîye-i umumîye komisyon) of 8 July 1885 was joined by interested pharmacists as the commission was to have in its ranks a chief inspector, three physicians, a veterinarian and a pharmacist. The role of the pharmacist was to help in the inspection of food and living conditions which play such a large part in the health of the people.

In June of 1905, a bill was passed concerning the further inspection of pharmaceutical goods arriving from abroad at the customs point. Inspection teams would now be made up of a pharmacist, a botanist, and three chemists, all officially appointed graduates from the appropriate schools.

As the inspection of pharmaceutical goods required laboratory testing in most cases, laboratories were set up in offices not too distant from entry points. Goods
being transported from customs to the inspection point were to be guarded carefully.
There was such an office in Istanbul, in Galata, with three appointed chemists working there. Offices were soon opened in the port cities of Basra, Beyrut, Iskendurun, Iskodra, Izmir, Selenik, Tarabusgarp and Trabzon, each with its own team of officials, using the Ottoman Codex as their guide.

**Organization**

The first organization of pharmacists was "Societe de Pharmacie de Constantinople-Cemiyet-i Eczaciyen der Asitane-i aliyye" established on 9 June 1879. Their primary activity was the publication of *Journal de la Societe de Constantinople.*

An official Ottoman pharmacist's trade society was not established until the twentieth century. It was begun in 1908 by Hamdi Bey, Etem Pertev, Hasan Rauf and Beşir Kemal, who met with 250 pharmacy owners in a casino in Haliç Fener to discuss the foundation of such a society. Two years later, "Societe des Pharmaciens de l'Empire Ottoman" was established. J.C. Rebil, a French pharmacist was appointed its president. Membership began in 1910 with 27 individuals, but this number increased rapidly, to 187 by 1911. This society was renamed *Eczaciler Cemiyeti* in 1911, when French was rejected as its official language in favor of Ottoman Turkish.

**Pharmaceutical Publications**

The first Ottoman Codex was written in 1844 by Professor Bernard. Entitled *Pharmacopea Castreris Ottomana-Pharmacopee militaire Ottoman,* the book was published in French and Italian by Henri Cayol. 194 pages in length, the book listed medicines in French, Italian, Turkish and Latin, with therapeutical medicines listed alphabetically. Simple and compound chemicals were discussed and a description of supplies used by dispensaries was listed in a separate section. Written primarily for the military, the book lists the supplies necessary to run a 3500 bed hospital for one year.

Bernard’s *Codex* was the only work published on the subject for 22 years.
Hüseyin Bey made a translation of a French codex in 1866, which wasn’t published until 1862.

In 1886 Revue Medico-Pharmaceutique was published by Pierre Apery, who went on to publish Bulletin de la Société de Pharmacie de Constantinople in 1893.

Journal de la Société de Pharmacie de Constantinople made its debut in 1897.

In 1911, Ecsaci, the Ottoman pharmaceutical trades’ first periodical in Turkish was brought to press by Nail Halid. Ecsaci continued in print for 16 years.

Genç Kimyager was published by Ecsaci Emin Refiile, Bozca Adali Ecz. Mehmet Kamil in 1911.

On September 14, 1914, an official commission was established for the compilation of a new codex. This commission met twice a week for two years, finally producing the first Turkish Codex during World War I.7

7Ibid. pp. 280-292.
3.5 Quarantine

Quarantine stations are areas where passengers and goods coming into a country undergo isolation for a specific period of time in order to make sure that they are not carrying any dangerous diseases. The practice originated in Italy, by the maritime trading powers of Venice. It was resisted heatedly for years by merchants from all over the world, who saw it as a waste of time and money, and generally accepted contagious diseases as a natural, unavoidable part of running international business. General consensus, both East and West, was that contagious diseases were impossible to get rid of, and were, in fact, visitations of the wrath of God. Yet slowly, Europeans began to see the sense of quarantine and to apply it in their own harbors. After repeated epidemics of diseases such as the plague and cholera that completely disregarded national boundaries, the Europeans began to trace their advent to the arrival of ships from lands to South and East. By the turn of the nineteenth century, they came to believe that the majority of contagions were transported from the Ottoman territories to their own. For quarantine to be completely effective it would have to be put into use not only in European ports, but in ports throughout the world, and especially in such key trade centers as Istanbul. The European powers began to pressure the Ottomans to conform, and the Ottomans soon saw that it was also in their best interest to do so. They began their efforts in 1831 and were met with success. By 1849, massive plague outbreaks had become a thing of the past.

The first account of Ottoman contact with Quarantine is said to have occurred in 1760, when Ottoman ambassador to Prussia, Ahmed Resmi (1700-1783) was isolated at Hungarian border, in the small town of Lazar for 8 days because there had been an outbreak in Istanbul from whence he had come. The first attempt at implementation of quarantine measures by any Ottoman official is said to have occurred in Egypt in 1788 when Kavali Mehmed Ali Pasa (1769-1848). Unfortunately, the data is limited on

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1 Yıldırım, p. 1322.
2 Akyay, p. 20.
3 Mongeri, p. 82.
4 Akyay, p. 20
5 Mongeri, p. 82.
individual attempts of quarantine. We focus here instead on official Ottoman response as manifested in the capital city of Istanbul and, from there, other parts of the Empire.

Istanbul was of primary concern in the matter of the spread of contagious diseases, being the seat of imperial power and trade. Plagues of many sorts had been sweeping through the city for nearly two millennia. Between 1539 and 1920 there were 25 full blown plague epidemics. 70,000 died in 1555, and 150,000 in both 1802 and 1822. During the 1802 contagion, in the inner neighborhoods of Istanbul alone, a reported 500 individuals died each day. It was a serious and ongoing problem.

Hekimbeşâ Mustafa Behced Efendi (1774–1834) was the first to attempt quarantine in Istanbul. In 1822 a particularly severe outbreak occurred with a reported daily death toll of 1500–2000. Doctors advised that people not leave their homes and the *Selahîslâm* was made to accept that plague was a contagious disease. An imperial decree was issued stipulating that corpses not be left in the streets. But that was the extent of the battle against the contagion.

In 1831 at the beginning of a cholera epidemic, Galata Naziri Sarım Bey called a meeting of the interpreters of the friendly nations with embassies in Istanbul. at this meeting they decided on the quarantining of ships coming from the Black Sea at Istinye Harbor, and all ships coming from the Islamic countries and Ottoman ships at Liman-i Kebir, a village next to the signal station at Rumeli Fener. Kamulzade Mustafa Efendi was put in charge of inspection. Not much later, in April 1835, a quarantine station was established in response to an outbreak of cholera which had begun in Alexandria, Cyprus and Syria, and threatened to spread throughout Ottoman lands. In Sarı Sığılar, a village near Çanakkale, quarantine tents were first put into use. Despite these precautions, there were still some fatalities from the disease in the area near Çanakkale, and so the homes of individuals infected were placed under direct quarantine. The general quarantine of the area was lifted at the end of the year when it was clear that the danger had passed.¹

Serious quarantine work in the Ottoman Empire began in 1837 with a memorandum sent to the Sultan by the Grand Vizier Bey Hekimbeşâ Abdulhak Molla, concerning the Quarantine Conference of 1837. Individuals attending the official conference were members of both the religious and bureaucratic factions of

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¹Akyay, p. 20.

²Yıldızım, p. 1322.
ottoman the government who disagreed about the fundamental nature of both
disease and quarantine. The memorandum first requested that a fetva be issued,
assuring that quarantine reforms were not against Islamic precepts, in order that
reform work move more efficiently. Then memorandum reported the specific
measures the Conference members had agreed would need to be taken in order to
effectively fight epidemic diseases in the future: the opening of a quarantine
stations on S(h)am and Rhodes, the use of Kuleli Kisla as a quarantine station, the
cleansing of people and goods coming from infected areas (their goods were to be
cleaned with ash water or sponges), the forbidding of the sale of goods belonging to
sick people, and the disinfection of their homes and streets. The bill also gave
clinical information and suggested the foundation of a quarantine association. From
this time onward, the word *Karantina* began to be used in place of the older *Usul-u
Tahaffuz*.

In response to this memorandum, Sultan Mahmud II, through the offices of
*Şeyhülislam Mekkisede* Mustafa Asum Efendi, issued a royal fetva stating that
quarantine reforms were in accord with şeriat. Yet another decree appointed
Abdülhak Molla, Mehmed Esad Efendi, Selim Sattı Paşa and the French Dr. M. Bulard to
carry out those reforms.

September 1838 saw the founding of *Meclis-i Tahaffuz*, the Quarantine
Association. Members of the organization were professionals and drew regular
salaries. Not long after its foundation, this organization was divided into two separate
divisions, *Meclis-i Tahaffuz Sani*, the High Quarantine Assembly, and *Meclis-i
Tahaffuz Ula*. *Meclis-i Tahaffuz Sani* was soon renamed *Meclis-i Umur Sihhiye*.

At the time of the establishment of *Meclis-i Tahaffuz-i Ula*, or *Fâsket
Karantina Bürüsu*, was under the auspices of the Ministry of Trade. Abdülhak Molla
was appointed its first president. The original number of members was six. Among
them, first Selim Paşa, and then Namik Paşa, looked after quarantine affairs and then
army. Es'ad Efendi defended quarantine as being in accordance with Islam. The
number of members was increased to eight with the addition of two officers
representing commercial and foreign relations, who also appointed by public
decree.

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9 *Akşa*, p. 29.
In May 1838 Istanbul was put under sanitary isolation. All ships coming from other lands were required to undergo quarantine at the newly established quarantine stations at Kuleli Kiasisi and Kucukcekmce, whose founding dates are given as 1839 by Yildirim, and 1838-1842 by Akyay. Quarantine stations were also founded in Kartal, in 1843, and Anadolu Kavagi, in 1844. In addition to the new stations, an imperial decree was sent out in 1839 to the judges and substitute judges of the Empire ordering their active compliance with quarantine procedures. The first Quarantine stations to open outside of Istanbul were found in shipping centers throughout the Empire, in the Red Sea (Kamerun, Ebu Sead, Tur-u Sina(Eltor)), the Agean (Urla, Klarisman, Canakkale, Rodos), the Sea of Marmara (Karak, Tusia), the Black Sea (Sinop, Trabzon), and also in Egypt, Beirut, and Iran (Humuz Bozaci).13

The Füzuk Karantina Meclisi began to take a more international perspective on quarantine soon after its founding. They began to play a strategic part of crucial importance in the worldwide success of quarantine. In January of 1840, at the suggestion of Hariciye Naziri Mustafa Resid Pasa, Germany, England, Austria, Spain, Sweden, Norway, Russia, France, Holland, Belgium, Italy, Greece, Iran, and the United States of America sent representatives to Istanbul to meet with seven Ottoman officials to discuss the subject of international quarantine. In May of 1840 the conference members prepered and signed a bill on quarantine regulations that was printed in both Turkish and French.

As the nature of quarantine work became more and more international in scope, the Füzuk Karantina Meclisi Hariciye Nesarığı was transferred from the Ministry of Trade to the Ministry of Foreign Affairs, at this time under the directorship of Hariciye Naziri Mustafa Resid Pasa. It was then called Karantina Kurulunun Kaskani de Hariciye Vekeli. The new Minister of Quarantine was automatically presented the rank reti-i sani.

The Quarantine Association met in a building in Galata once a week. Europeans, Americans, and Iranians were present. Abdulhak Molla was the first

10 Yildirim, p. 1324.
11 Akyay, p. 20.
12 Yildirim, pp. 1323-1324.
13 Akyay, p. 21.
14 Yildirim, p. 1324.
Baki Efendi, Emin Efendi, Saffet Efendi, Ahmed Efendi, Fevzi Efendi, Arif Bey, Ahmed Midhat Efendi, Dr. Cenab Sehabeddin, Dr. Kaim Izzeddin, and finally, Said Bey, who held the position from 1919 to 1923.  

The first doctor to enter service in the Büyük Karantina Meclisi Burosu was an Austrian, Dr. Miras, who later was followed in 1839 by Dr. L. Robert. Each, in turn, was given the title of Director Quarantine Stations. They brought life to the system. After them, their title was not given to anyone else. After 1846, the task of directing the quarantine system was given to Ottoman members of the quarantine association. The first Health Inspector was Dr. Bartoletti Efendi, who held the position until 1869, when he retired and his title was passed on to Dr. Koconi (Michel Cozzonis), and then, in order, to Duka Paşa, Zitter, Cenab Sehabeddin, Kasim Izzeddin and A. Fuad Bilgen.

To assist these men in their tasks, the quarantine office employed a head clerk, a scribe, an examining clerk, a registering official, a translator, a clerk who could write in foreign languages, a physician involved with general health matters, a physician involved in quarantine in particular, four civil servants and an undetermined number of health officials. This appointed number of doctors was increased during emergencies.

Quarantine stations outside of Istanbul were also staffed by professionals, and positions were generally full. The Kamerun Quarantine station, for example, had 1 Inspector Director, an Assistant Director, 6 doctors, 4 bilingual clerks, and the requisite number of enforcing officials.

Ottoman officials were active members in the International Quarantine Conference, which went on to meet in 1850, 1851, 1866, the last of which was held in Istanbul. During this 1866 meeting it was decided to start Quarantine work in India. Quarantine organization and services were established, and the official period of isolation was increased to 10 days. Quarantine rusumu were taken.  

A list of cities and towns where quarantine stations were operating at the

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15 Akyay, pp. 20-21.
16 Yıldırım, p. 1324.
17 Akyay, p. 21.
18 Ibid, p. 29.
beginning of the 1860s illustrates the extensive effort of the Ottoman government in implementing quarantine regulations throughout its Empire:


After the meeting of the International Health Conference of 1866, still more quarantine stations were established with the latest equipment and techniques. The Ottoman government continued to show serious concern about quarantine measures throughout the rest of the century. In 1883 a bill called *Cerai-i Shibih-i Nisamnamesi* was published. The first section of the bill describes contagious diseases and general laws for dealing effectively with them. The second section describes punishments for those officials and individuals failing to follow those guidelines.

The cholera epidemic of 1893 prompted the establishment of a new quarantine station in Beykoz, Sivriburnu. Later, in 1909, the *Muesseset-i Hayriye-i Shibih* presented this station with a modern sterilizing machine. Following cholera outbreak of September 1901, patients began to be transferred there from other hospitals in the city. The hospital treated 939 patients in the first five months of operation. By 1909, this quarantine station at Sivriburnu was the only hospital treating victims of contagious diseases. It passed under the control of the War Ministry in August of 1911, after which it was used solely for military purposes.19

After 1914, the *Füykse Karantina Burusu* was preserved under the name *Ruhut Shibihesi Müdiriyet*.

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19 Yıldırım, pp. 1323-1324.
3.6 Fumigation Stations

The Ottoman government first began establishing western style fumigation stations during a severe epidemic of cholera which wracked the capital of Istanbul in the year 1893. Soon after this, the use of the machines in the army became an active goal of those involved. Fumigation played, as still plays today, an important role in the health of an army, especially in units travelling through infested areas, and sleeping in close quarters of questionable cleanliness, or struggling to battle with immune systems depleted from insufficient rations.

In fumigation, the main task is to rid dwellings and clothing of parasites and the bacteria of infectious diseases. Suspect materials are isolated and then sterilized by passing through heat, usually steam produced by special machines in Ottoman times called tebbir or stur. Each station had a special vehicle with trained personnel who removed infected items to the treatment area to be sterilized, and then return them to their owners. They also encouraged people to improve their level of domestic sanitation in order to prevent further illness. Fumigation centers were particularly active during times of contagion and were possibly the most effective, and generally beneficial, of all services offered by official preventative health organizations.

Fumigation work began, as has been stated already, in 1893. Three such centers were established in larger Istanbul, in Açıkturbe, Gedikpaşa, Pazarkapisi, Tophane, and Üsküder. In the same year Sura-ı Devlet issued an order allowing the importation of more such pressurized steam machines from abroad for use in Haydarpasa Hospital, which was under construction at that time. Op. Dr. Ancelo Brohor and his assistant, Engineer Lieutenant Commander Mehmed Ali, using one the newly arrived machine the following year at Behriye Merkez Hastanesi, were the first the disinfect an entire factory, Tersane-i Amire.

Domestically produced fumigating machines were first put into use at Hamidiye Etil Hastanesi’s in an area specially set up for that purpose. A Navy machinist officer and four enlisted men collected infected clothing from the hospital and then took them to the fumigation station’s detached building to be
disinfected. After sterilization, the clothes, washed, and then returned to their owners, usually the same day.

1905 brought the establishment of another fumigating station to Istanbul, this time located in Darülceze. Fumigation teams worked diligently to eradicate the spread of disease. In 1907, they performed 24,348 cleanings and 46 sterilizations; in 1908, 17,803 cleanings, and 62,912 sterilizations; in 1909, 22,999 cleanings, and 6,569 sterilizations; and in 1910, 89,970 cleanings and an unknown number of sterilizations. Programs at hospitals such as the ones at managed to extinguish the outbreak in a short time. The fumigating stations at Fındıklı and Balat performed 19,970 cleanings during the cholera epidemic of 1910, their targets including boats, ships, houses, apartments, schools, hotels, boarding houses, work places, stores, and public vehicles such as tramway and subway cars.

It was in 1909 that Dr. Charles Nicolle, a bacteriologist working at the Pasteur Institute in Tunisia, proved conclusively in a landmark study that typhus was spread by parasites such as fleas, ticks, mites, and lice. This information was of great interest to military, as well as civilian, institutions throughout the world as typhus had been a disease which had been known throughout history to level entire armies in a matter of days and render them useless.

The British Navy was the first to apply widespread sanitation of troops, receiving dramatic results simply by quarantining new recruits and sterilizing both them and their clothing. Soon these delousing techniques were being applied regularly by European and Ottoman military establishments with success, a process requiring rigid organization and discipline by participating members.

Müessesə-i Hayriye Sütunve Müşavirlər took over the supervision of the Istanbul fumigation stations in 1911, after which they were further modernized. Fumigating stations were established in other parts of the Empire as well, as part of a program to improve the health of the military and civilian populations in those regions. Trabzon, Zonguldak, Çatalca, and “mercury” maneuver regions in Anatolia received small teams of state officials, disinfecting machines, and supplies of medicine. Yet, even so, these alone were not enough to stave off disease.

In 1913, the Ottoman government produced a bill entitled “Regulation Concerning Provincial Hygiene” which was directed at the governors of provincial and district municipalities. Permanent fumigation stations were to be constructed in
these population centers with the requisite machines and disinfectant medicines to see that the health of the population be improved.

But despite this official decree, there were so few sterilizing machines in Anatolia during World War One, that it was impossible to send enough to all the army units in need of them. There was nothing to do but improvise. Dr. Abdulkadir Lutfi (Noyan) began sterilizing soldier's clothing in bread ovens. When there were no bread ovens to be had, he ordered the clothing baked in underground ovens. Yıldırım writes that the capacity of these makeshift ovens was obviously limited and because the heat of these underground ovens could not be controlled adequately, the clothing sometimes caught fire.

Sterilization continued in this primitive manner until 1916, when Sertababi Dr. Ahmet Fikri (Tüzer), sertababi of the Third Army Sivas Station District Hospital, developed a "vapor box", which was quickly duplicated and put into use in military medical centers, allowing the Ottoman Army to effectively protect itself from parasites. Soon after, Dr. Hüseyin, working in the hospital in Tokat, developed a mobile fumigating barrel, which could be moved around by small groups of trained personnel. Each station came to have one to three of these steam boxes each and sterilization became increasingly effective as it became increasingly efficient. Between the years 1917 and 1918, in 13 months time, operators at these stations deloused 2,283,095 individuals and sterilized the clothing and personal effects of 2,225,265. Fumigation work continued during the War of Independence, as more portable machines were made available to the army and additional stations were established in population centers.¹

¹Yıldırım, p. 1324-1325.
Treatment and Vaccination Centers

In 1889, Dr. Hüseyin Remzi Bey of the Veterinary School, prepared an official report requesting the establishment of a treatment and vaccination center in Istanbul which would offer treatment to patients and send vials of vaccine to the necessary places. He had previously been appointed to the post of Vaccine Inspector in 1872 and was still closely involved in the fight against contagious diseases as a bacteriologist. The first state sponsored smallpox vaccination center, Telikih-i Cüderi Ameliyathanesi, was opened in Istanbul on 23 July 1892. It later was renamed Telkibhane-i Osmanî through a special bill ratified by the sara-yi Devlet.

Five years later, in 1894 this vaccination center was moved into the botanical gardens of the Imperial Medical Schools. This place previously had been used as a preparation center for imported vaccines which were then sent on to destinations throughout the Empire. Soon after, it was also put to use as an instruction center, teaching vaccine theory and technique. Classes met three days a week, during two of which practical subjects were discussed and on the third, theoretical ones. Hüseyin Remzi Bey acted as director of the vaccination center and quality inspector until his death, and then as followed by Zühdü Nazif Bey, Dr. Rifai Hisameddin Bey, Dr. Violi, Dr. Kemal Muhtar (Üzden), and Dr. Şerafeddin (Kam), respectively.

Between 1892 and 1913, smallpox vaccines adequate for 7,260,784 individuals were prepared in this place; between 1914 and 1919, an additional 27,688,449. After the posts to Anatolia was cut, through Kızılay in 1920, 566,000 vaccines were prepared; in 1921, 1,770,000, and in 1922, 1,283,000. During the First World War, the Allied Powers sent a health committee to examine the Telkibhane, and later obtained for the Center a total of 211,010 bottles of vaccine (1917-18, 181,200) (1918-19, 29,800) for military personnel and refugees.¹

Under the direction of the Telkibhane in Istanbul, vaccine centers were also established in Mecca, Basra, Sana, Baghdad, and Şam. The vaccine centers in Baghdad and Şam and, however, were closed in 1913. A vaccine center which was established

¹Yıldırım, pp.1334-1335.
In 1895 with a capacity to administer 48,356 doses of vaccine a year was administered 1,427,059 by 1913.  

In June 1917, Professor Dr. Server Kamil and Dr. Asım were the first to establish a vaccine center in Sivas, realizing that vaccine supplies from Istanbul were insufficient for the area. This new center soon had an production capacity of 200,000 units of vaccine. Within seven months of its founding, the center had administered approximately 841,000 vaccines to the military and civilians of the region. Before long, it was given the name *Sivas Sihhi Müesseseler*, Sivas Institute of Public Health, and began working primarily to prepare vaccinations for the army against typhus, small pox and other preventable diseases. Dr. Tevfik Ismail (Gökçe) administered plague vaccines to soldiers going to fight in the area around Söke in southwestern Anatolia.

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2 Akyeş, p. 30.
3 Yıldırım, p 1335.
3.8 Medicine at the Front

Ottoman doctors trained in west medical theories began to be appointed to specific posts in the military in the 1830s. Until this time the army had relied largely on its own doctors trained in the traditional medical schools in Istanbul, or on physicians of European training and origin. As western medical techniques advanced to the point that they were obviously more beneficial to health on the battlefield than traditional methods, the Ottoman government accepted Abdülhak Molla's proposal that the Empire establish its own medical academy, with European staff, to train Ottoman medical students in the western way.

This chapter relates conditions at the various fronts of war during the nineteenth and early twentieth centuries, illustrating how medical services were implemented and decisions made. The main source for this chapter was Kemal Özbay's work, Türk Asker Hekimliği Tarihi, vol. 1.

Exact Ottoman losses in the battlefield to disease and enemy fire are not known, as Ottoman military doctors generally did not keep records or submit statistical reports to the government while in service. Historians have had to resort to data reported by doctors and statisticians of the opposing forces to be able to estimate Ottoman losses.

The Crimean War

One fourth of all deaths on all sides during the Crimean War are estimated to have been caused not by enemy fire, but by diseases such as dysentery, malaria, scurvy, spotted fever and typhus. Unprepared for the intense cold, both sides suffered from exposure and malnourishment, although in different degrees, according to housing provisions made by their command centers. Of the 428,332 soldiers involved in the war, the British were undoubtedly the best prepared for the confrontation, living in barracks with adequate food and clothing. Ottoman and French troops were left to sleep in tents under reduced levels of hygiene and so, suffered more widely.

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Spotted fever was the most widespread disease during the Crimean War, spread by lice and fleas which flourished among the unwashed troops. Total number of dead from this disease is not known exactly, with contemporary calculations estimating anywhere from 19,200 to 90,000. French Dr. Angel estimated that 75,000 Frenchmen lost their lives to Typhus by December 1857, with an additional 15,000 following before the end of the confrontation. Dr. Poulet reported Ottoman losses to typhus to have been near 13,000. Another contemporary source, reasoning that since Ottoman and French troops were billeted in the same manner, they must have suffered to the same degree, put Ottoman losses as high as 85,666. At either rate, this was a serious loss to Ottoman fighting potential.

Malaria and cholera were the causes of death for thousands of more men. In one outbreak, which began in the city of Tulon, a division of men under the command of General Cornabert lost a reported 80-100 men a day. One 30,000 strong cavalry group was reduced to 3,000. Still more troops died from exposure.

These high rates of mortality were due to poor medical administration and a lack of knowledge of basic sanitary techniques. None of the armies involved in this war had an organized medical corps, not even the British. The Ottomans were no exception. Whatever was done for the ill was done locally, as there was no money for transportation or intensive treatment. Lacking vehicles, patients were dragged on the ground. Doctors wore the uniforms of the units they were attached to, sometimes selling their commissions, or accepting more than one salary as they were both doctors and soldiers. Indeed, they often came under attack themselves. The French army lost 38 doctors in a matter of a few short months.

The Ottoman military accepted doctors from the ranks of friends and foe, who then worked with no central direction as the government had not allotted funds for such a program. There was only one mobile hospital and one central area for the treatment of the ill and wounded. Thousands were evacuated to Istanbul every week. Özbay writes that, even if there had been enough money at this time to finance a centrally controlled medical corps, there would not have been enough doctors available to fill the necessary positions.

Professionally trained female nurses were unknown until Florence Nightingale began work at a hospital in Üsküdar during this war. In the Ottoman
army, the ill were looked after by elderly men, or the less ill, who in either case, were usually weak and lack the necessary training.

The English treated their ill and wounded soldiers in the barracks at Selimiye, which were converted into a temporary hospital for their use. Later, they were sent to the Ottoman hospital in Haydarpaşa. As the number of patients increased steadily throughout the war, the English treated them in Kavak Kasrı in Selimiye, St. George Hospital in Beyoğlu, and when those were still not enough, they converted into temporary centers the cavalry barracks in Çengelköy and two ships harbored in the Golden Horn. The British were given a cemetery near the hospital in Haydarpaşa in which to bury their dead. Due to the large number of fatalities, they were forced to inter the corpses in mass graves of thirty to forty individuals.²

**The Russo-Ottoman War (1876–1878)**

In between the Crimean War and Russo-Ottoman War, changes occurred in the way the Ottoman military establishment supervised the treatment of its ill and wounded. In 1871, an official bill placed army doctors under the direction of the Seraskerlik. Theoretically, this would allow the medical corps to function within the military system in much the same way as their contemporaries did in the reformed armies of Europe, but in practice, the Department of War had difficulty enlisting the necessary number of doctors for the field and was forced to continue the practice of hiring physicians from Europe to fill its ranks.

In 1876, the Ottoman State contracted an unspecified number of doctors from Austria and Hungary to serve alongside 20 English physicians in the regular army in mobile and semi-mobile hospital units at the front.

Troops going to the front were sent as far as possible by train, and then marched the remaining distance with officers at the head of their units. There were no fixed locations for rest and maintenance of the troops. Mounted military police rode ahead of the troops to alert villages and farms of their arrival and to collect supplies, which were ostensibly paid for with government funds. Billeting officers and cooks also travelled ahead, to begin setting up the tents and preparing hot soup for the soldiers. Bread was supplied by nearby bakeries. Tents were set up for the use

²Ibid, p. 36-41.
of doctors and surgeons, who worked inside together in pairs examining and treating patients.

This mobile lifestyle was hard on soldiers. Men who fell ill during these marches were treated by doctors with supplies from accompanying pharmaceutical vehicles. Once the fighting began, casualties were often as high as thirty percent. The doctors generally examined patients and changed bandages in the mornings and were free after noon to complete their other tasks, which included registering the names of those who arrived and departed, and the supervision of quarantine. They did not, as yet, however, keep detailed reports of individuals’ patients, treatment, or recovery/mortality rates.

Once treated, the ill and wounded were transported in available vehicles, or were left on the road to walk together. Soldiers in need of more extensive treatment were transported to hospitals in the provincial centers of Niş, Vidin, Sofya, Plevne, Erzurum, and Kars. In these stationary hospitals, visits were generally made in the mornings, and surgery done one day a week.

The Ottoman Red Crescent, which had just recently been established, was actively involved in the relief of the wounded during the Russo-Ottoman War. Nine of this organization’s twenty-two mobile hospital units were sent to work in Rumelia during this period.

In Vidin, thirty Hungarian, Italian and English doctors worked in accordance looking after the thirty-five battalions of foot soldiers, artillery and cavalry in the region. In Niş, the ill were treated at the local hospital in Kızınlık. The Ziya Tarihi hospital, Üzbeş reports, was under the authority of one Doctor Mehmet. A small number of ships were appropriated along the Tuna coast and put to use as treatment centers.

At the opening of the war, a large hospital was established at Podgorače. Muallim Zoros Paşa established additional hospitals and nursing centers on a small scale near fighting centers, to which the seriously wounded were sent, depending on the condition of the roads and the availability of animals. Meralay Ibrahim was appointed to direct the organization of a mobile hospital unit in Niş in 1878. The government began to solicit civilians at this time, both male and female, who would be willing to travel to provincial centers to help look after the wounded. The proposed employment of females among troops was strongly opposed by some in the
The Plevne Wars: The First Confrontation

When the battle for Plevne began, preparations were made in the provincial capital for the treatment of the expected wounded. Dr. Osman Bey, who incidentally had been educated in Paris, and a team of British physicians were in charge of making sure that the hospitals and other units had sufficient supplies of materials and equipment at all times. In addition to the Central Hospital, several large homes were renovated in the city for use and staffed by soldiers taken from their battalions expressly to look after the wounded. The largest building attached to the Central Hospital was the Bulgarian Mektub, which also was used as a medical center with seven doctors in service.

A temporary health center was opened in Tutenicet to provide services for wounded officers. During the first days of the war, this center was not quite ready, and the officers were forced to sleep on the floors wrapped in their own cloaks.

Ambulances were driven by Bulgarians. These men searched for wounded among the fallen bodies on the battlefields, often carrying lanterns and armed with bayonets for self-defense. They transported the wounded to the medical centers, who were then carried inside by stretcher bearers. During busy times, as many as 70 stretcher bearers raced in and out of the buildings carrying bodies, covered from head to foot in dried blood.

Inside the hospitals, doctors and their assistants worked to dress wounds and perform the necessary surgeries. Disinfection was done with diluted acide phenique and surgeries performed without chloroform. Many Ottoman soldiers of strong religious conviction resisted medicines that contained alcohol and often refused amputations. Doctors sometimes found themselves working in front of small audiences, as the wounded came near to watch surgical procedures. Working into the night, broken limbs were frequently set by candlelight.

Doctors on the battlefields were assisted by soldiers, who carried bandages and tools in a bucket, and distributed water to those who were losing blood through wounds. Other teams worked to bury the dead. The numbers were sometimes horrific. During one particularly serious exchange of fire between the 16th and 22nd of July
in a period of just four hours. 750 Ottoman soldiers and 76 of their officers were killed and their corpses looted, although this practice was strictly forbidden. They found their eventual rest, unidentified, in mass graves.

When the confrontation ended 22 July, all but 200 of the wounded from these various medical centers were sent to Sofya for treatment.

The Second Confrontation
During the second confrontation of the Plevne Wars, the Ottomans lost a reported 800 men, and suffered an additional 900 wounded. These wounded were first sent to the Central Hospital, until the numbers became too great and incoming were transferred to other established medical centers. The Great Mosque of the city flew the flag of the Geneva Pact from its dome and housed hundreds of wounded within. At the front, a mobile hospital unit was established on the other side of a mountain from the fighting for those patients too seriously wounded to be transported. Four doctors worked there with instruments and bandages at one table, within earshot of the battle. It was so close that many of the wounded were able to bring themselves to the treatment center on foot.

After this battle, the wounded were once again transported to Sofya, with the more seriously wounded directed to the Central Hospital where they were treated by a small team of professionals. Back on the field, sanitation teams worked to reburry the dead who had been interred incorrectly during press of battle and had begun to putrefy the air.

The Third Confrontation
During this third confrontation between the Ottomans and the Russians at Plevne, doctors working in the Central Hospital of that city again worked day and night, tending the more than 500 wounded who arrived from the battlefields for treatment. When no more patients could be accommodated at that institution, they were sent on to other sites. There were so many wounded, that after the battle ended, emergency work continued for five more days at the hospitals. Still, many patients died because they refused treatment on religious grounds, choosing instead to accept a fate they
felt God had ordained for them. At this time, the hospital in Plevne was comfortable, free of contagious diseases, and the patients received regular nourishment. Those who were less seriously wounded waited their turn to be examined.

**The Siege of Plevne**

The medical situation became much more desperate with the Russian siege of Plevne from 15 September to 10 December 1878. The health of the Ottoman army grew progressively worse as the autumn progressed and the days grew colder and victory more remote. Army command was forced to decrease rations and suitable winter clothing was not issued. The men began to forage in the country side, burning stalks and vines to keep warm, and killing the oven which were to be used to transport the ill and wounded to medical centers. They died from enemy fire, from disease and exposure.

Hakki Paşa arrived with 300 ox carts of clothes and ammunition, which helped temporarily to relieve the prolonged suffering of the troops with whom he came in contact. 30 of the ox carts were stolen by Russian forces in the night. Once empty, the remaining carts were used to transport the wounded.

The medical center was overwhelmed with the sheer number of men arriving for treatment every day. Two large buildings belonging to a wealthy Turk were transformed into treatment centers, but still there were less than half the beds available that were needed. Patients were laid on dry boards in the corridors, still wearing their own clothing as the hospital lacked the necessary delousing facilities. Supplies began to run out. Antiseptic bandages were bought at the market, and bed sheets, washed by hand, were torn up to dress wounds. Gangrene was common, and a general epidemic of small pox broke out among the patients.

Pests bothered everyone, including the doctors, who also fell victim to typhus and dysentery. At one point, overcrowding was such a serious problem that the patients were compelled to double up on their boards and there were only two doctors and their ten assistants to look after everyone. Özbay writes that veiled Turkish women, connected with Nightingale, working among the wounded, administering soups and milk and comforting the wounded.

Deaths increased in the hospital, and as contagious diseases also struck
hospital personnel, corpses waited in the garden area to be buried.

Noting the seriousness of this crisis, Şevket Paşa opened the Sofya road for a short period to allow medical supplies to pass through with a health team of foreign professionals sent by the Staffer Haus Committee. The head doctor of this team was Dr. Bonne Moor from England. He was accompanied by Doctors Mac Keller, David Cryste Muray, Georg Sticker, Smith and Morissau from France. Having inspected the medical facilities available to the Ottoman wounded, they met with Heyet Osman Paşa and suggested a new hospital be opened immediately. It was obvious that if the wounded stayed in the present facilities, with such an inadequate number of health professionals to treat them, a large number of them would die unnecessarily.

Osman Paşa announced that the 4-5,000 wounded be transported to Sofya where there would be enough doctors to look after them properly. While transported wounded such a distance would obviously a number of them at great risk of losing their lives, it was deemed worth the chance, for it was becoming obvious that along with the cold of winter would come starvation for those who could not fend for themselves. 300 additional ox carts were supplied for those unable to walk. The corpses of those who died during the trip had to be left at the roadside without proper burial. Overall losses of wounded from transportation is estimated to have been something near 7%, compared to the estimated 50% who would have died if they had not been moved to Sofya. ³

The Eastern Front

The military center for operations at the eastern front was Erzurum. In times of relative stability in the area, there was a hospital in almost every other city between there and Kars. These facilities, however, were in no way prepared to deal with the a war of this scale, during which an estimated 3 to 5,000 were wounded and needed treatment.

When the war broke out, there were not enough doctors and supplies at the front. Medical supplies, clothing and vehicles, sent by ship to Trabzon from Istanbul, had not arrived yet, leaving the hospitals in the region practically helpless. The military did not supply mobile hospital units. With no planned system

³Ibid. p. 49-56.
of evacuation, the wounded were left in their place, or brought in to treatment centers set up by the Red Crescent in the arms of their comrades or on the backs of pack animals. The Red Crescent Organization felt compelled by international convention to tend all wounded, Ottoman or not, but the Ottomans protested this and gunshots were frequently heard near station tents. Having received primary care, the wounded were then sent on by ox cart to the hospitals in Kars and Erzurum, seeking supplies of food and bandages along the way in towns and villages through which they passed.

Nine doctors in the hospital in Kars were overwhelmed by the number of wounded who arrived from the field units. Supplies that were to arrive from Erzurum were somehow lost and they were left to treat all of the soldiers on their own. There were many deaths to gangrene, blood poisoning and pneumonia due to lack of antiseptic conditions. And while there was no way of fumigating the clothes of the new arrivals and disinfecting their bodies, pests carrying typhus and other diseases were a persistent problem.

As winter came and the snow began to fall, the road to Erzurum became treacherous for men already weak from wounds sustained in battle. Under the command of Melinkoff, a convoy of 2,000 set off through the snow covered mountains for the Central Hospital. They were trailed by packs of dogs, who quickly disposed of any men left by the wayside. According to a report by Ahmet Muhtar Paşa, only 317 of the original 2,000 actually made it to Erzurum, and that number were frostbitten and reduced to not much more than bones.

Erzurum also suffered a shortage of doctors even though the ranks of Ottoman physicians were bolstered by a team of Austrians and Hungarians. At the beginning of December of that year, as many as 4,000 patients were being treated in the city. When the hospital became over loaded, homes were rented and converted into medical treatment centers, as were existing army barracks.

Typhus was a great problem, striking doctors and wounded alike, with disregard for rank, carrying off Head Physician Yusuf Bey himself. Of the 17,000 stationed troops in the city, an estimated 300 died every day. Death from gangrene was the most common. Fortified by soups and teas, the ill and wounded were not as much at risk from contagious diseases as other elements of the population, such as refugees arriving in the city in flight from attack and starvation in the countryside.
This group in particular suffered a high rate of mortality, dying from exposure, dysentery and typhus. Their corpses were buried in mass graves near the fortress, where they were subsequently torn apart by packs of hungry dogs.

More than 17,000 men died in the hospitals or Erzurum and Kars during this war, and an additional 11,000 on the battlefields. The army lost a full 20% of its total estimated fighting force of 104,000. When Russian forces finally entered the city on 5 February, they found 2,000 ill and wounded lying in the hospital. Head Physician Dr. Hasa had been unable to transport them to Bayburt, despite official orders to do so.

Out of a total force of 993,724, the Russian army lost 32,873 to disease, and 34,743 to enemy fire. According to a report filed by the International Red Cross, they lost 48,000 to typhus alone. Judging from these numbers and the fact that Ottoman and Russian troops waged war under the same conditions, it is possible to imagine that estimates of Ottoman losses as presented by Üzbay are underestimated.

At the close of this war between the Ottomans and the Russians, the Muslim inhabitants of the Balkan provinces attempted to flee to Istanbul and Anatolia, or face a certain death by the victors. The road from Štipka to Istanbul was full of refugees in the middle of winter. Death from disease, starvation, and exposure haunted them as they sought protection in the Ottoman capital.

Istanbul, unprepared for the arrival of hundreds of thousands of distraught refugees, tried to house them as best it could. On 19 January, while the terms of the armistice were being negotiated in Edirne, 100,000 of the refugees were gathered and given shelter in a number of hans and mosques of the city. The Red Crescent, working in conjunction with the International Red Cross, opened three hospitals specifically to deal with this emergency. 14,000 were treated in the unit in Üsküdar, and an additional 7 to 8,000 in Tarabya, an English mobile hospital, and hospitals in the Thracian side of the peninsula.4

The Greek–Ottoman War 1897

Despite ongoing tensions in the Balkan region throughout the late nineteenth century, the Ottoman military establishment had made no further preparations for

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the mobilization of war time health personnel in the region. Once it began, doctors were chosen from the Central hospital and the teaching staff of the Medical Academy in Istanbul to make up temporary medical units under the direction of Ahmet Hilmi Paşa who had been appointed to the position of president governing the Office of Military Hygiene within the Ministry of War. Teams were made up of a head doctor, a surgeon and a pharmacist, who were to work together in Alasonya with enough medicine and equipment for a 50 bed hospital. Divisions in the first and second lines were to receive mobile hospital units. 40 doctors and 25 pharmacists were sent from Istanbul to regions where the 2nd and 3rd Armies were engaged in battle.

Buildings were set aside in Yanya, Alasonya and Havadan to be used as medical centers. A new central hospital was established in Salonika with a capacity of 800 beds. An additional 800 bed hospital was planned for Alasonya, but when it was discovered that there weren't enough good buildings in the city and that the air was actually not very fresh, it was established in Kiliseköy instead.

Hospitals along the supply lines were enlarged. Našič, Serfiče, Kaferye, Sorošič each received a new infirmary with a capacity of 50 beds.

Once the fighting began, the wounded were first treated at mobile hospitals at the front, and then were transported to these medical centers for further treatment and surgery. In serious cases, the wounded were then sent on to Istanbul by train. Hospitals experienced a sharp rise in patient load. The staff at the hospital in Yenişehir, with an original bed capacity of 310, found itself caring for nearly a thousand individuals. To relieve pressure in these facilities, additional 150 bed units were established in Fener, Tırnova, Domeke and Golosta, along with a 400 patient convalescent center in an unspecified place.

<table>
<thead>
<tr>
<th>Place of Hospital</th>
<th>Doctors</th>
<th>Pharmacists</th>
<th>Surgeons</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td>Yenişehir</td>
<td>49</td>
<td>26</td>
<td>10</td>
<td>85</td>
</tr>
<tr>
<td>Alasonya</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Çaltaca</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Tırhala</td>
<td>6</td>
<td>2</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Kardiçe</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>Tırnova</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>Golos</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Domeke</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Lihor</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>7</td>
</tr>
</tbody>
</table>
Karaferye  2  2  1  5
Grebenè  2  1  0  3
Katrin  1  1  1  3
Dominik-Dişkata  2  1  1  4
Nastic  2  2  2  6
Kosköy  1  1  1  3
**TOTAL**  83  52  45  190

Along with the official Ottoman medical establishments in Yenisehir, the Red Crescent and the Ottoman Bank set up their own relief centers. The Russian Red Cross opened hospitals in Deneç and Çaltaca. The German Red Cross sent a team of doctors to Istanbul.

As the war continued, additional hospitals were opened on a small scale in Kondraki, Miçova, Kalinći, Başpinar, Delvinada and Eliğer. Vehicles for transporting patients with a capacity of 15 individuals were appropriated or rented for official use.

Dead and wounded Ottoman soldiers at the battles of Tesalija and Epir are reported as follows:

<table>
<thead>
<tr>
<th></th>
<th>Dead Officers</th>
<th>Plain soldiers</th>
<th>Wounded Officers</th>
<th>Plain soldiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tesalija</td>
<td>40</td>
<td>842</td>
<td>80</td>
<td>2,643</td>
</tr>
<tr>
<td>Epir</td>
<td>11</td>
<td>165</td>
<td>11</td>
<td>91</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>51</td>
<td>1007</td>
<td>91</td>
<td>2,734</td>
</tr>
</tbody>
</table>

Damage from contagious diseases among the ranks of the soldiers at Tesalija was an estimated twenty percent, with a mortality rate from disease of 1 per 4,000 at most. Overall, a total of 30,000-38,000 are said to have died from contagion. As deaths from disease increased, more teams of health professionals from Istanbul were sent along with additional food and blankets to try to treat them and bring the contagion to an end. Many of the doctors, some of them who had volunteered their services, were

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also struck down by disease. Dr. Hasan Zühtü Bey, a leading bacteriologist who had been educated in Paris, volunteered for service, only to travel to Tesalıya and contract a fatal case of typhus.6

The Constitutional Era
Military field medicine underwent reform during the Constitutional era. It had been noticed in the previous years that military doctors spent so much time in the field that they lacked the opportunity to refresh their knowledge at the Medical Academy in Istanbul, and were consequently falling behind in technique. The educational system at the medical academy was changed to conform more closely to medical programs in Germany, and the doctors began competitions among themselves for research and development. In August of 1910, twelve of the competition winners were sent to Germany to study at Keizer Wilhelm Academy and learn the health procedures of the Prussian army.

Military bacteriologists began preparing and administering their own vaccinations. With the discovery that typhus was caused by the bites of ticks, fleas and lice, and the subsequent development of a preventative vaccine against it, some headway was made against this disease which had brought such grief to the army. The following year Miralay Adıcan and Binabsız Ismail Hakkı, both of the Hygiene Bureau, were sent to Berlin to study as a team with Süleyman Emin and Vefik Nahi.7

In spite of these improvements, there continued to be a shortage of properly trained medical specialists in the Ottoman military establishment. Field health services were especially lacking. Dr. Folbrecht was brought from Germany to improve overall organization.

The Ottoman-Italian War
Such was the state of Ottoman military field medicine at the outbreak of the Ottoman-Italian war in 1911. The Red Crescent was active in recruiting additional health

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6 Zühtü, Bacteriology, p.170.
7 Özsay, p.75.
professionals, offering a monthly salary of 20 to 30 altun. By October of that year, the organization had signed on six doctors and fifteen nurses, who were then sent in convoy out onto the Mersily-Tunus road.

An aid team of ten set up a hospital in Aziziye in existing school buildings and tents, with an overall capacity of 100 beds. This capacity was soon increased to 150. This team of ten doctors and support staff saw duty in the field, bringing in the wounded along with the stretcher bearers with one doctor and one nurse for every group of bearers. Another such team, comprising of 25 individuals, was established on 4 December 1911 once it was discovered that contagious diseases had begun to spread among the troops. They were under the direction of Op. Dr. Emin (Seyitoğlu/Turdakul) and Op. Sedettin Vedat (Kocah). On 21 January 1911, they set up mobile hospitals in tents in Derne, with Dr. Emin performing the more difficult surgeries.

Medical professionals came from France and England. The English established a 50 bed hospital in Nifrin, and a 100 bed hospital in Garyan, and two mobile hospitals. A group of professionals breaking off from the main hospital in Aziziye opened another center in a rented building in the town of Humus.

On 21 January 1911, the military high command decided that an additional hospital should be established in Birecik. Doctors and nurses left from Istanbul with a train of 312 camels loaded with equipment and supplies, and eventually began work in the hospital set up in Elkadina near Tobrik. One group of doctors travelling overland to Trablisa, finding the roads closed in the Tuna region, turned around and went instead by way of Egypt. Enver Paşa announced that he wanted two doctors and three pharmacists to go to the front to observe operations there. Dr Hasan Kadri and Muhuuddin Bey were sent, but the three pharmacists declined going at the last minute and stayed in the capital.

Egypt at this time had a well supplied central hospital with a team of medical professional using the latest techniques. During one two month period, over 200 difficult surgeries were performed there. Chloroform was being used as an anesthesia by this time, which proved a great improvement over alcohol, although many patients still refused to submit to it for religious regions.

The Red Crescent opened hospital units in Egypt, and a convalescent center was opened in Şehat, which was also used as a polyclinic. The German Red Cross
section opened a mobile hospital, which functioned in the field from 27 February until 11 March, when it lost its entire medical team to typhus. Malaria and dysentery were also a problem. 1,000 were hospitalized in Geriyvan, and 1,714 in Nifrin with contagious diseases and battle wounds. A cholera epidemic swept through Trablis, Rumeli and Anatolia, causing high mortality among the civilian populations of these areas.8

The Balkan War
During the Balkan War, cholera was a big threat. It struck the soldiers in a dysenteric form, infecting 13,400 of them almost over night. Field inspector Kadri Paşa spoke of establishing a hospital in the region to look after these men, but nothing could actually be done for them, as they fell ill in a sensitive area of strategic importance. Central command sent two doctors to care for them, but they were obviously not nearly enough. Medicines quickly ran out and the patients were left to suffering the open, without tents for shelter. It spread throughout the military.

Lazariköy, on the border of Kestanelik, was especially hard hit. On 2 November, the Army's third column experienced 536 cases. By the next day this number had increased to 952. The mobile hospital units in the area were working past capacity. The hospital in Hadim Köy, which had an original capacity of 300 patients, was treating 4,000 of them. Many were left waiting for treatment, where their cases worsened and caused further spread.

A large number of the ill and wounded were transported to Istanbul. The park at Sarayburnu was turned into a city of tents while the city sought alternatives to the problem of sheltering such large numbers of ill and wounded. The situation was further compounded by the arrival of thousands of civilian refugees from Thrace, many of them also ill and seeking shelter. Municipal organizations turned large hotels, schools, and private homes along the Bosphorus into treatment centers, but soon fell short of funds to complete their project. The English Red Cross and the Egyptian Red Crescent each sent three health teams to Istanbul. Three nurses from Germany were stationed in hospital in Yeşilköy, where an estimated

8Ibid. p.81-83.
20,000 patients were treated for cholera, and 600 for general dysentery.

Thousands of newly arrived cholera victims were dumped in Gülhane every day. They disembarked from the trains between the record factory and the station. The corpses of men who had died en route were unloaded and piled up under the ramps. There wasn't enough food and the soldiers in the tent city began to starve. The disease spread to the general population. An estimated three to four thousand of the porters working in the Sarayburnu-Sirkeci district fell sick and died. An estimated 30,000 people had fallen ill in the city, with a full one third of them dying. The hospitals were more than full. Haci Emin Paşa worked to get some of the ill transferred to Tuzla Quarantine Station by boat. With no time to bury the dead properly, the bodies, still clothed and presenting a considerable health threat, were burned on the shore just south of the factory.

Doctors made their rounds among the living in the tent camp, dressed in rubber boots and oil clothe coats bearing the Red Crescent band on their arms. They were assisted by soldiers who had volunteered for the job, there being an insufficient number of properly trained nurses available. As the war continued, the need for health professionals at the front increased steadily. Medical assistants working in Gülhane park were compelled to leave Istanbul, as were Dr. Akif Muhtar and Dr. Nazif, supply organizers for the Red Crescent.

**October 1912 Yanya Siege**

In October of 1912, the battle for Yanya began, leading to a siege of that place. The mortality rates from disease and starvation was high, in addition from those from enemy fire. Cholera posed an additional threat, hitting both the army and the civilian population in such areas as Berat, Amony, and Velor. Fiberi, in Albania, suffered a particularly virulent outbreak. The central hospital in Yanya and those in Papasoğlu, Adamideis, Elizabet, and Sultaniiy were full. A mobile hospital unit run by Dr. Mahir and Mesih Sabih recorded 5,936 individuals down with disease. Deaths in Yanya, credited to contagious disease, are estimated to have been 10,000. Between 13 and 18 February, in just five days, there were 528 deaths.

The hospitals in Leskovik and Premedi treated patients for dysentery, typhus and relapsing fever. Patients in Leskovik died at a rate of 150 a day. Those at Premedi
died 41 a day. The doctors, not knowing that these illnesses were caused by the bites of fleas, ticks and lice and could be prevented by careful delousing and disinfection, felt helpless and often fell victim themselves.⁹

Throughout the nineteenth and early twentieth century, Ottoman military field medicine suffered from a general lack of doctors, lack of funding, and, until the constitutional era, lack of adequate central organization. Overall efforts in the nineteenth century on the part of the Ottoman state seems to have been crisis oriented. In times of peace, little was done to prepare for the next confrontation. Hospitals and mobile units were generally established to function within a specific time frame. Officials waited until an outbreak of a disease, or a high rate of wounded from battle, warranted attention to an area, and then sent in teams of doctors with equipment, who soon became overwhelmed by the situation. Ottoman military doctors, overloaded as they were in the field for most of the nineteenth century at various fronts, were unable to keep abreast of medical advancements. Foreign medical specialists were called in to supplement the ranks of domestically educated doctors, and were especially relied upon to conduct reform in military medical field organization.

IV. The Battle against Specific Diseases

4.1 Cholera

"Cholera is an acute illness which results from colonization of the small intestine by *Vibrio cholerae*. The disease is characterized by its epidemic occurrence and the production in the more severe cases of massive diarrhea with rapid depletion of extracellular fluid and electrolytes. It has an incubation of 12 to 48 hours, followed by watery, generally painless diarrhea. Vomiting generally follows, but occasionally precedes, the onset of diarrhea; the vomiting is characteristically effortless and not preceded by nausea. As saline depletion progresses, severe muscles cramps, commonly involving calves, occur....the disease runs its course in 2 to 7 days and subsequent manifestations depend on the adequacy of electrolyte repletion therapy. With prompt fluid and electrolyte repletion, physiologic recovery is remarkably rapid, and mortality is exceptionally rare. The important causes of death, in inadequately treated patients, are hypotensive shock, metabolic acidosis, and uremia resulting from acute tubular necrosis."\(^1\)

The resilient cholera bacilli is passed from human to human through a variety of ways. The primary route is from improperly disposed of stool matter, whether left exposed to human contact, or rinsed from clothing and sheets into public water supplies. Individuals with light infections unknowingly carry the bacteria into other areas. Corpses left unburied also pose a danger, left exposed to the elements and to parasites, which then transport the bacteria to water and food supplies. The cholera bacilli thrives in some foods, improperly prepared, where it may stay active as long as eight days.\(^2\)

Cholera originated in India, more specifically in the regions of Assam.

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Bengal, and the Ganges river valley. It began to spread out of this region in 1817, when it passed overland throughout Asia, and in 1828, was transported by ship to the rest of the world.

The earlier international routes of this disease were by land along the caravan routes from India to Persia. From Persia it spread to Russia and the Arab lands as far as Egypt, where it was carried by ship by travellers to the Atlantic and eventually the Americas. Islamic pilgrims from the Asian countries preferred to travel this overland route until the advent of the steam ship, as winds in the Red Sea were unpredictable and often left sailing vessels adrift for days, even weeks, at a time. The overland, though arduous, enabled them to schedule their journeys so as to arrive in the Hijaz in time for religious ceremonies. The Hijaz became a major redistribution center for disease as people came from all over the world to meet in one place at a specific point in time each year.

Siegfried writes that the overland route to Mecca was made even more dangerous in terms of disease due to the fact that it also served as the transportation route of Shia pilgrims transporting the corpses of their relatives to be buried at such sites as Kaba, An Najaf, and Samara. Between 1873 and 1891, he reports, 663,000 of these pilgrims transported 96,766 corpses.

Steam travel began in 1858, greatly reducing travel time between ports and introducing the era of cholera pan-epidemic, the disease being carried to ports around the world before its hosts even knew they were infected. One of the most frequently routes travelled by steam ship was from China and India through the Suez canal to the Mediterranean, the Atlantic and the world beyond.

In 1893, there were 16,325 Egyptians, 15,711 Algerians, 20,397 Indians, 13,856 Dutch East Indies, 9,675 Sudanese, 2,644 Persians, 1,641 Russians, 13,477 Turks, and 120 Bosnians present during Haj. As an example, the vicious epidemic of 1865 was begun by the Javan delegation, who brought the cholera bacillus with them to the pilgrimage center. From their original group of 10,000 individuals, 3,000 were lost to the disease. From the entire number of pilgrims from all countries that year, some 90,000 people, cholera claimed the lives of 15,000.3

It spread to the world when the captain of an Egyptian ship transporting

3Ibid. p. 40-42.
pilgrims reported in Suez that his passage from Mecca had been without disease in order to escape strict quarantine laws. He was allowed through Suez to the Mediterranean. Only later was it learned that he had actually supervised the burial at sea of over one hundred corpses of individuals who had died from cholera.\textsuperscript{4} Control over the health of these pilgrim understandably became one of the most seriously pursued international health goals in the nineteenth century.

Cholera was first seen in Istanbul in 1831. In Istanbul, Mongeri reports that at least 3,000 people died that year. By 1832 it had effectively spread to the rest of the Ottoman Empire.\textsuperscript{5} This outbreak marked the beginning of quarantine application in the Ottoman Empire.

In 1831, Mustafa Behçet Efendi, the Empire's Head Physician, was quick to identify the disease and publish a pamphlet on the subject called \textit{Kolera Rivesci}. In the pamphlet, which was distributed to Ottoman civil and military leaders, he presented general information in order to educate people about the nature of cholera, and suggested ways to prevent infection. Under Mustafa Behçet Efendi's direction, all ships from the Black Sea were quarantined in Istinye, and those coming from the Aegean were quarantined in Büyük Liman.

Another pamphlet on cholera was written in Istanbul in 1847 by Ismail Efendi, who had also been an Imperial Head Physician at one time. He, however, did not believe that cholera was contagious, even though 4,275 out of an infected 9,239 people in the capital died that year from the disease and he presumably had ample opportunity to witness its spread.

The city was hit by another outbreak in 1854-55, raging unchecked for a full year and a half.

The cholera epidemic that hit Istanbul in July 1865 is possibly the best documented Ottoman contagion in the nineteenth century, due to the work of Louis Mongeri, a French physician living and working in the capital, who was personally involved in official measures to fight the disease and wrote a book on the experience afterwards. From his publication it is possible to understand the mechanics of an urban contagion: how one spreads, how the inhabitants react to the threat, and how

\textsuperscript{4}Ibid., p. 49.
\textsuperscript{5}Werner, p. 38.
the government work to combat it.

News of contagion first arrived in Istanbul from Egypt, but as officials there blamed the deaths on plague, no one in the capital was particularly concerned as plague would be readily identifiable among passengers at quarantine check points along the way. Telegrams from Alexandria arrived, signalling cholera there, but too late for the information to be of any use, for by that time the epidemic had already spread by Ottoman frigate to Izmir. It's ferociousness set off a panic among the people, who thought the very air must be poisoned and began to flee the city.6

On 28 June 1865, an official Ottoman ship, Mouktiri-surur, arrived in Istanbul from Egypt, which it had left five days earlier with a clean bill of health. This, along with the fact that the ship had not stopped at any point along the way, made quarantine officials feel that there was no cause for isolation of the passengers. They were allowed to disembark. That night, 12 of the men who had stayed on board came down with diarrhea. They were taken ashore to the navy hospital, where their illness was diagnosed as simple dysentery. Then they began to die, one by one.

This raised suspicions at the Board of Health, where it was decided that the case should be more closely investigated. It was then discovered that there had been several cases of diarrhea on board while the ship was en route, and that two men had actually died and been buried at sea. The Board of Health ordered that the ship be disinfected at the fumigation station at Büyükköliman. For reasons unknown, the remaining men on the ship were not put under surveillance, but were freely allowed to go ashore into the city.

Very soon, cholera broke out in the naval hospital and among the non-enlisted men at the Arsenal. Then deaths began in Kasımpaşa, 12 to 15 a day, among the Kurdish and Armenian laborers who lived packed into the hams in squalid conditions. The rest of the city was free from cholera at this time, except for a few cases on the shore near Kasımpaşa among Kurds and Armenians living there.7 It appears that the reason for this was that the workers of Kasımpaşa were generally very poor and rarely left the district, except for Bayram and Easter holidays. They

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6 Mongeri, p. 12.
7 Ibid, p. 15.
also were of a fatalistic nature and did not attempt to flee the contagion.

It is thought that an infected worker from Kasımpaşa went to a coffee house in Yeniköy on 11 July and fell ill there. From him, the disease spread the next day to the Greeks and Jews who frequented the coffee shop, and from them, on to their families on the 13th.\footnote{Ibid, p.19.}

On the 14th of July, a policeman was reported ill in the barracks. Three Jewish families vacationing at the sea that day were also infected.

The night of the 15th, the entire district of Yeniköy broke out in cholera. Greeks, Moslems, Armenians were hit equally hard, and almost all of them tried to flee, transporting their ill with them to other parts of the city.

July 16, Fuad Paşa directed a meeting of officials of the Board of Health, the Medical Academy, and the Sublime Porte during which emergency public health assistance to combat the contagion was discussed at great length. A commission was established and given the following tasks in order to gather a sufficient number of doctors to create and organize the medical services required immediately by the stricken populace. The members were to consult with the Chief of Military Sanitation to find out how the military would deal with such a situation, and then decide which measures were to be taken. Dispensaries and posts of aid were to be established and put into operation throughout the city, which was divided into separate zones for administrative purposes. Necessary materials were to be gathered and then distributed to the temporary hospitals which were set up in each area.

Medical personnel were divided into three groups: inspectors, resident doctors, and medical aids, with each Inspector supervising three, and in some cases four, of the districts.

This medical organization was also to notify the state of all cases of public health menace in the city, especially the proper handling of produce and waste disposal. They were also to report all cases of cholera, listing the name, age, place of habitation of each victim, his or her present condition, and eventual outcome. The ill were to be transported to treatment centers.

Mehmed Paşa, the Minister of the Police, was appointed president of the new health commission, with the principle doctor of that ministry acting as his assistant.
Doctors Galenzi, Mongeri, Naramzi, Paraviale Bey, Saligh Bey, Stepen Bey and Zographies formed the core of the general members. When it became clear that there were not enough official physicians to complete the specified tasks, volunteer doctors were encouraged to take part.

Mongeri writes that although it was a sound, thorough plan, orders were not always carried out to the letter. The process was difficult to regulate and individuals often acted in ways that were contrary to the established rules of public hygiene. Sometimes there simply were not enough supplies to go around. He gives as an example, the pharmacies.

The pharmacies of the city were to distribute medicines to people suffering from cholera free of charge, with the knowledge that they would be reimbursed at the end of the epidemic. But many pharmacies actually were forced to close during this time due to lack of personnel or medicinal supplies. It was impossible for these establishments to function as planned originally by the Board.

To correct this problem of supply, the Board moved to send out mobile medical units. 4 large hospitals in Istanbul, 2 in Scutari, and one small one with a capacity of 20 to 30 beds in each of the villages along the Bosphorus.

The health commission received its first reports from its field doctors on 19 July. The first cases were observed along the Bosphorus in Kasımpaşa or Yeniköy, but it soon spread to the other villages as people fled with their ill.

Between 17 and 19 July, Dr. Litzika reported 24 deaths in Yeniköy, which had become almost entirely deserted. The people who remained faced starvation as well as infection from the disease. He requested that food and materials for a temporary hospital be sent immediately. Dr. Marielli, in Kasımpaşa, reported 40 ill and dead, the uninfected in dire need of adequate tents and food.

Dr. Bolonki, in Tatavi, reported no cases 17 July, but two 19 July. Dr Zoeros Paşa, in Beşiktaş, reported an outbreak on the 17th in an Armenian household which had contact with the Arsenal. Two servants had fallen ill and the family decided to flee to Çamlıca. There was evidence of infection in the construction area of the imperial palace, among the porters, and day workers, from the Hens. He requested tents and hospital materials be sent as soon as possible.

Dr. Jarayotti, in Yenimahalle, reported that there were two cases in a family
which had fled from Yeniköy. There were no cases on the Asian side of the city at this time, except among the Armenian family which had fled from Beşiktes. In Fener, Dr. Triandafílides noted cholera in many quarters, all among families who had from Yeniköy.

Dr. Stamp, the health Inspector of Pera reported no cases there, but added that the hans were full of Poles, Romanians and Jews who should be moved to the countryside as soon as possible. He requested the necessary tents and transportation. The doctor in Balat, reported that it was also free from contagion.9 Mongeri estimates that, by 19 July, a full 9,000 individuals had become infected.

By 21 July, almost all of the villages on both sides the Bosphorus were experiencing cholera at contagion levels. The disease entered and ravished each village in virtually the same pattern. First it made headway among the homes and business establishments on waterfront, after which it quickly spread its way up the valleys and ravines. No place seemed safe.

The inhabitants of Arnavutköy, thinking the waterfront air infected, fled to the top of their hills. From there they were transported temporary lodgings in tents and barracks in the hills above Bebek, which experienced only a small outbreak.

Tarabya refused to accept refugees and was making plans to disinfect its sewage system, a few infected individuals managed to sneak into the village and were ill in secret until 30 July, when it spread to the rest of the village. Out of a population of 2000, 278 eventually died. The people were filled with terror and began to flee, spreading the disease wherever they went.10 Some of them fled into the Belgrade forest, spreading the disease there, too. No place was safe except the village of Belgrade, which effectively cut off all communications with the outside world and set up armed guards on the periphery with orders to shoot.

On 22 July, the Sixth Municipal Bureau in Beyoğlu set up a hospital near the Galata Tower. Three soldiers fell ill in Hasköy on 23 July. They were transported to Kadıköy Military Hospital, which, until this time, had been free from contagion.

As late as this, official opinion in the government was that cholera was not transportable and that quarantining individuals and transport vessels was a waste of

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9Ibid. p. 23-25.
10Ibid. p. 28-31.
valuable time. Doctors in Istanbul fought against this ingrained concept, insisting that the epidemic had been caused in the first place by the failure of the inspection team in Büyük İmam, which had allowed the infected sailors to escape the required isolation. Mongeri estimated that because city officials refused to cordon off districts of the city, effecting large scale quarantine, 40,000 to 50,000 individuals became infected with the disease in the space of less than a week.

Salonika, on the other hand, when beset by large numbers of refugees from Istanbul arriving by ship, set up a relief center for them two hours from the city under strict hygienic supervision. As a result, there was no sizeable epidemic of cholera in Salonika that year.\textsuperscript{11}

The doctors and health workers did everything they could to lessen the ferocity of the epidemic. For this, they were awarded a special citation by the Ottoman government, marking the first time in the history of the Ottoman Empire that such an award had been given.\textsuperscript{12}

Mehmed Paşa, the Minister of Police, who was some 80 years old at the time of the epidemic, worked non-stop to make the necessary changes in the city. He closed down slaughter houses inside the city, which had ignored the strictest orders to relocate. He persuaded moslems to allow fumigation teams to disinfect suspect coffins, and to altogether transfer many previously interred bodies and coffins from the ancient cemeteries of the old city to newer cemeteries with more hygienic conditions. He personally convinced many reluctant large home owners to temporarily convert their residences into infirmaries for the ill. Among the families who volunteered their homes were the M. Fedemontes of Çinglekoğ, the Hansons, Glavarys, and Federicis of Kandilli, the Fleurys and Toucases in Paşabahçe, and the Khourmousis on Chaliei Island.\textsuperscript{13}

In 1866, the year after the epidemic, the International Health Congress met in Istanbul in Galatasaray. The 17 country assembly appointed Hekimbaşa Salih Efendi its president. During their meeting, they discussed ways to prevent future pandemics, and came to the decision that an official public health team, Meclis-i

\textsuperscript{11}Ibid, p. 36-38.
\textsuperscript{12}Yıldırım, p. 1326.
\textsuperscript{13}Mongeri, p. 55-56
Umur-i Sihhiye be sent to Hicaz every year during the pilgrimage season, beginning in 1867.

It was five years before the next outbreak of cholera in Istanbul. This one originated in India, and spread along the overland caravan routes until it was picked up by ship in Russia, and continued on to Istanbul. The disease entered the Ottoman capital despite the ships having been quarantined in Kavaklæ. The number of deaths in this epidemic is not clear.

During one of the nineteenth century epidemics, it is not clear which one, a group of nuns rented a storefront in Galata, which they then put to use as a treatment center for people who had collapsed in the streets and were transported there by their personnel. When the epidemic passed, this establishment entered municipal service as Sixth Municipal Bureau’s Hospital for the Wounded (Altınca Daire-i Belediye Mecrubin Hastanesi), which was later renamed Beyoğlu Men’s Hospital (Beyoğlu Zükrü Hastanesi).

In 1883 Robert Koch identified the cholera bacillus, touching off an international quest to develop an effective vaccine, which finally became reality in 1902. Ottoman bacteriologists began their research of cholera in 1893.

The 1893 pandemic began in Yemen, whose pilgrims carried it to Mecca during Hac. It was then carried on board a Russian vessel to Istanbul, where it found entrance at Galata before spreading to the rest of the city.

It was during this 1893 outbreak that special units were founded in various hospitals to serve the victims of cholera and the number of municipal doctors increased to between 80 and 100.

By far the most significant result of this epidemic was the opening of the Imperial Bacteriology Laboratory in Istanbul. This epidemic being lighter than others in recent experience, it was decided to set up a laboratory to make sure that the disease was actually cholera. Foreign specialists were brought in from the Pasteur Institute in France to direct work in laboratories. Russian pilgrims returning from Mecca brought cholera to Istanbul again between the years 1907 and 1915. Dr. Çemil Topuzlu, working in Şehrîmîni, was able to contain the disease and

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14 Siegfried, p.39.
prevent serious consequences. 1910 saw a particularly violent outbreak, which resulted in the establishment of cholera treatment units with twenty four beds each at hospitals in Demirkapi, Nuhkuyusu, Şişli, and Yenibahçe. These were soon found to be insufficient, so four times as many portable hospitals were brought and installed at Demirkapi and Gülhane Hospitals. Cholera vaccine was first prepared in the Ottoman Empire during the Balkan War by bacteriologists Dr. Reşad Riza and Mustafa Hilmi at Gülhane Hospital in Istanbul. Soon after the development of the vaccine, cholera ceased to be a serious threat in the Ottoman Empire.

The last real epidemic of cholera in the world occurred in Egypt in 1918.

Ottoman Publications on Cholera

Dr. Besim Ümer Paşa and Dr. Aki Muhtar published a book in the early twentieth century entitled Kolera Hastalığında İthabi Larım Gelen Tedabi ve Etkileyen Rehber. Serious work on the subject was also published by the Imperial Ottoman Medical Society.15

4.2 Dysentery

"Dysentery refers to an acute bacillary infection of the intestinal tract produced by one of the four *Shigella* species. The spectrum of disease ranges from mild, watery diarrhea, to severe dysentery characterized by crampy abdominal pain, tenesmus, fever, and signs of systemic toxicity...symptoms usually begin abruptly one to seven days after exposure. Patients initially have watery stools accompanied by fever (as high as 41 degrees Centigrade), diffuse abdominal pain, nausea, and vomiting...Dysentery develops after the first few days of illness.16

Dysentery is native to tropical, and subtropical regions, of the world and to the Mediterranean basin region. It spreads to humans through a variety of way, but

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15 Yiğit, p. 1326-1327.
most commonly through contaminated water, improperly handled food, and airborne parasites, which first land on contaminated feces and then carry bacteria to food, which is then ingested by unsuspecting people. In severe, untreated cases, the bowels of the victim can become pitted with deep, painful ulcers, and can prove fatal.17

Since ancient times dysentery has been a great trouble to military institutions, breaking out in epidemic proportions among soldiers who are weak from malnutrition and exposure to the elements, unable to provide adequate care for themselves or their comrades. During many campaigns throughout history, more soldiers have died from this disease than from enemy gunfire or cannon, as in the case of the British army during the Crimean War, which lost 10 soldiers to dysentery for every one lost to enemy fire.18

The Ottoman military establishment was not immune to the ravages of dysentery while on campaign. Between the years 1915 and 1918, during the First World War, the Ottoman Third Army lost approximately 5,942 men out of 12,642 in the field who were disabled by the disease.

This loss of life on the battlefield to disease eased somewhat with the establishment of widespread sanitary measures at the beginning of the twentieth century. Positive results were immediately received once the soldiers underwent the proper disinfecting processes and were given vaccinations to prevent infection. Dysentery serum was widely applied with satisfactory results.19

4.3 Leprosy

"Leprosy (Hansen's Disease) is a chronic granulomatous infection of humans, which attacks superficial tissues, especially the skin and peripheral nerves...the clinical and immunological manifestations of disease form a continuum extending from polar tuberculoid leprosy to polar lepromatous leprosy, mycobacterium leprae, or

17 Werner, p. 49-50.
18 McNeill, p. 51.
19 Yaldirim, p. 1328.
Hansen's bacilli is the casual agent of leprosy...the incubation period is frequently 3-5 years."^20

Leprosy was, for many centuries, a common disease in Europe and the Mediterranean. It played a large part among the diseases of mankind in the region until it was completely overshadowed in the fourteenth century by the arrival and periodic return of the devastating bubonic plague. For centuries the word "leprosy" was actually a rather loose label for a number of disfiguring skin diseases, of which the disease which we now call "Hansen's disease" is just one. Amoer Hansen, a Norwegian bacteriologist, identified the bacterial agent which causes the specific disease which now carries his name in 1877, distinguishing it from other types of skin diseases.

It is thought that "Hansen's Disease" first came to the Mediterranean basin and Europe in the sixth century a.d. In response to it, and other disfiguring skin diseases, special buildings known as "leprosariums" were built in almost every region. These buildings served as isolation centers for sufferers who once lived in the immediate and surrounding areas, providing them with care and maintenance services. By the 13th century there were approximately 19,000 such buildings in Europe. ^21 In fifteenth century the Ottoman sultan ordered that leprosaria be constructed in the cities of Edirne, Istanbul, Bursa, Cyprus, and Crete. ^22

The decline of leprosy as a major disease is thought to have been caused by a gradual rise in incidence of pulmonary tuberculosis over the centuries. The rise of tuberculosis as a serious disease closely follows the growth of cities in the medieval period. Spread through air droplets by means of coughing or sneezing, it is highly contagious and thrives easily in areas of high population density. Hansen's Disease, in comparison, requires prolonged by skin-to-skin contact to be spread to a new body. As Hansens Disease and tuberculosis share an immune system response within the bodies of humans, the more virulent tuberculosis bacillus slowly gained dominance in human experience.

As incidence of Hansens Disease declined among the general population of

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^20 Emaunald et al. p. 633.
^22 Yildirim, p. 1329.
Eire, the leprosariums in Europe were put to other uses, as hospitals, or, as quarantine stations in the battle against bubonic plague, as in Venice.  

The leprosariums of the Ottoman Empire were actively maintained until well into the nineteenth century. A leprosarium in the district of Üsküdar, built in 1514, was first repaired in 1816, and then again in 1843. It was finally closed down in 1932 due to lack of patients.  

4.4 Malaria

Malaria is a protozoan disease transmitted to humans by the bite of *Anopheles* mosquitoes. It is characterized by fever, rigors, splenomegaly, anemia, a chronic relapsing course... the invasion, alteration, and destruction of red blood cells by malaria parasites. Local ad systematic circulatory changes, an the related metabolic abnormalities are all important in the pathophysiology of malaria... the incubation period between the bite of the mosquito and onset of symptoms is usually 10-14 days. Chills, fever, headache, muscle pains, splenomegaly, and anemia are common.  

Malaria has been native to Anatolia and the Middle East since at least Antique times. Spread by the bite of mosquitoes which thrive in marshy regions, it has always proven a serious threat to local populations and armies. Until the seventeenth century, when Europeans began to successfully use quinine against the symptoms of the disease, there was no relief from malaria. Quinine, a medicine derived from the bark of the south american quinchona tree, does not, however, prevent or cure the disease. It only provides a certain amount relief from the symptoms themselves, especially the recurrent fevers.  

Dr. Charles Lewis Letheran, announced from his research laboratories in...

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23 McNeill, p.155.
24 Yıldırım, p. 1328.
26 McNeill, p. 245.
North Africa in 1878 that the bite of the anopheles mosquito was the cause of the disease. By the 1890's, the active agent of malaria, *Malaria plasmodium* was also identified, and scientists set about finding a vaccine for the disease in a quest that would prove fruitless for many years. It was not until the 1920's that mosquito control, through the use of insecticides, became an option for widespread use, and not until after World War II that DDT discovered and produced inexpensively enough to be applied on a worldwide basis.

Early information about malaria and its treatment came to the Ottoman Empire in 1732, in a publication entitled *Risale-i Haciyyet-i Kinakina* (*Tuht-i Ahije*).

During the Balkan wars, an significant portion of the Empire suffered terribly from malaria. Approximately three quarters of the population, both civilian and military, carried the disease, a situation which increased in seriousness with the beginning of World War I. Beginning in 1910, provisions were made to have quinine distributed to the population for free.

During the "military intervention" of the Allies in Macedonia in 1916-17, the French army lost approximately 100,000 of an original force of 150,000, and the English, a total of 70,000.

In 1917, an Ottoman law for the cheap sale of quinine was passed to help the army procure enough supplies of to treat its troops. But still malaria drained their strength. In 4 years, 412,000 contracted the disease and 20,000 died from it. An entire unit of army porters was sent back from the front at one point because they were unable to perform their duties.

In the hotter regions of the Empire, especially in Hicaz and Iraq, soldiers were forced to retreat to cooler regions due to the prevalence of *Malaria tropica*. Quinine, the only measure of protection available at the time, was first issued in card form in 1917 to the Kafkas Region's Third Army.

Incidence of malaria increased significantly during the War for

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27 Werner, et al., p. 213
28 McNeill, p. 245.
29 Yıldırım, p. 1330.
30 Werner, et al., p. 213.
Independence among the troops fighting in the regions of Bursa, Eskihisar, Afyon, Haymana, Ankara, and the swamps of Pursuk and Sakarya. Quinine distribution as a preventative measure began at this time, resulting in rates of infection decreasing noticeably. When the disease spread later to Ankara, Izmir, Aydin, Adana, Antakya, Diyarbekir, Samsun, and Trakya, a group of university professors founded a Malaria Fighting Commission in order to combat it as best they could through research and application. Health Minister Dr. Refik (Saydam) began working in malaria-infested areas after their first meeting in 1924. 31

4.5 Plague

"Plague is an acute infection of human beings, wild rodents, and their ectoparasites which is caused by the gram-negative bacillus *F. varians*. Wild rodent contact leads to sporadic human disease: the historically explosive urban epidemics resulted from transmission of disease into rats. Human bubonic plague follows bites by rodent fleas...primary plague pneumonia is transmitted between humans by cough-generated aerosols, has a fulminant course, and is almost universally fatal is untreated." 32

The medical name for the disease known as the Plague, or "The Black Death" is *Pasteurella pestis*. In 1894 a scientist by the name of Yersin pinpointed and labelled the active agent, having discovered that it lived in the stomachs of fleas, small parasitic insects which live on the blood of mammals, most commonly humans and approximately 200 types of rodents worldwide. 33

There are three different types of plague as the disease occurs in humans: bubonic, septicæmic, and pneumonic. The bubonic type is not always fatal, yet mortality rates for this type of plague have been estimated at somewhere between 30 and 90 percent. 34 Symptoms include aching limbs, high fever, grossly swollen

31 Yildirim, p. 1330.
32 Braunwald et al., p. 595.
33 Seigfried, p. 58.
34 McNeill, p. 147.
lymph nodes, and intense suffering until death follows within two to or five days. In
septicaemic plague, the bloodstream becomes so infected with the bacillus that the
telltale buboes have no time to form, and the victim dies in the space of a few hours.
This form is not, however, very common. The most deadly of the three forms of
plague is the third type, pneumonia plague, which is transmitted through air
droplets and infects the lungs, causing symptoms similar to those of pneumonia. "It
is one of the deadliest diseases known to man. Case mortality is 100%. It is extremely
infectious." One inside the human population, it can survive without the rat-flea-
human equation. 35

The rats that carried Plague to the Mediterranean region came from a small
number of areas in Eastern Asia: Mongolia, Manchuria, Hunan, Bengal, and the
valley of the Ganges river, travelling westward sometime in the sixth century AD.
and forming sub-centers of disease in such areas as Indochina, Western Asia, Iran,
and some parts of Africa. Human activities such as commerce, migration,
colonization, pilgrimages, wars, conquests, and the exploitation of natural resources
contributed to the spread of the disease as these rats travelled in ships and along
caravan routes where food was readily available. The rats were especially good
climbers, and were able to board ships easily but running up the mooring ropes and
slipping unnoticed into the hold.

This is how they travelled throughout the world, landing in warm weather
ports and disappearing into the town in search of food, in the process of which they
passed their fleas to the local populations of rodents and humans. Seaports then,
played an important part in the spread of the disease, so much so that "a map of the
epidemic would then be a map of the great sea routes of the time." 36

Istanbul, a major port in the Mediterranean in both commercial and political
terms, for centuries under the Byzantines and the Ottomans, was always as a primary
center for the spread of the disease. Its residents suffered frequent outbreaks. Of the
one hundred and fifty years between 1700 and 1850, the city suffered plague
outbreaks 94 of them, or 60% of the entire period. In the eighteenth century, the

36 Siegfried, p. 53.
city lost 200,000 people between the months of April and September of one year, out of a total population of 600,000.  

In Istanbul, and in other port cities throughout the Empire, outbreaks of the illness were limited to a fairly small number of humans who lived and worked in places where the number of occupants was high and the level of hygiene low. Among these in particular were the housing places of the porters, hans, and barracks. The fighting units of the Sultan were particularly at risk as their living quarters were in the harbor area of the city.

There were outbreaks of plague in this area into the 20th century, as there were nine year of plague in the eleven years between 1919 and 1929. In the nineteenth century alone there were epidemics in 1803, 1811, 1812-1813, 1815 and 1822 there were many deaths in the capital city of Istanbul. The last big outbreak of the disease was in 1836-37 when 20,000-30,000 people died. In this epidemic, some victims were isolated at Menteş Hospital on Kız külesi. French doctor M. Bulard looked after them there. He later wrote a book called *de la Peste Orientale* (Paris 1839). There were smaller outbreaks in 1841, 1847, 1869, 1899, 1919, 1920, and in 1923. Beginning in 1837, preventative quarantine measures were put into action.

Until Yersin's discovery of the plague causing bacillus in 1894, the true nature of plague and its causes were unknown. The most effective of all the tried methods of preventing plague over the year was quarantine. Calmette and Borrel developed the first vaccine against the disease in 1895, after which time other vaccines were introduced. In Turkey, Mederies Dr. Reñil Bey and Mistafa Hilmi Bey in 1920 developed a successful plague vaccine for the first time.

4.6 Rabies

"Rabies is an acute viral disease of the central nervous system that affects all mammals and is transmitted by infected secretions, usually saliva. Most exposures to rabies are through the bite of an infected animal...Rabies exists in two epidemiologic forms: urban, propagated chiefly by unimmunized domestic dogs and/or cats, and

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37 *Pamuk*, p. 45
38 *Yıldırım*, p. 1325.
syphilitic, propagated by skunks, foxes, raccoons, mongooses, wolves, and bats, human infection tends to occur in locales where rabies is enzootic or epizootic, where there is a large population of unimmunized domestic animals, and where human contact with the outdoors is common. The clinical manifestations of rabies can be divided into four stages: 1) non-specific prodrome, 2) acute encephalitis similar to other viral encephalitides, 3) a profound dysfunction of brainstem centers which produces the classic feature of rabies encephalitis, and 4) rarely, recovery...median survival after the onset of symptoms is four days.

Rabies, or hydrophobia, made its first appearance in Anatolia in 1586 and remains to this day. This fatal disease is generally restricted to outbreaks in individuals who have come into contact with infected animals, domestic or wild. Occasionally rabies occurs in epidemic proportions, as in 1696, when 40 people Afyon were stricken, and in Antalya in 1852, when the number reached as high as 128.

The active agents involved in rabies was identified in the mid-nineteenth century at the Pasteur Institute in Paris. Louis Pasteur introduced a vaccine for rabies in 1885. The following year the Ottoman government sent a 10,000 Franc donation to the Pasteur Institute along with a research commission of three doctors to acquire the knowledge skills necessary to produce this vaccine. Doctors Zoeros Paşa, Hüseyin Remzi Bey and veterinarian Hüsnü Bey were chosen for this task.

When the three men returned to Istanbul six months later, they presented a report to the medical community and Sultan Abdülhamid II. As a direct result of this report, the Rabies and Bacteriology Institute was established the following year. Dr. Zoeros Paşa was appointed its first director. Using immunized rabbits that the team had brought back with them from Paris, the Institute produced its first rabies vaccine successfully on 2 June 1887. In its first 12 months of operation, 2,350 individuals received treatment there.

Zoeros Paşa was replaced as Director of the Rabies Institute in 1899 by Auguste C. Marie, a doctor from the Pasteur Institute in Paris. Dr. Marie stayed one year in Istanbul before he was replaced by Dr. P. Remlinger. Dr. Remlinger held this position for ten years. He was followed by Dr. Paul Simond (1911-14), who was then followed by Dr. Haim Naum (1914-1922).
As people bitten by rabid animals were often not able to make the long journey to Istanbul from other parts of the Empire, rabies treatment centers were established in Salonika in 1905, and in 1917, in Sivas and in Şam. Heim Nuss was called to open the Sivas Rabies Treatment and Smallpox Vaccination Institute, which treated 87 bite victims in 7 months. In addition to these regional centers, military medical doctors helped in the treatment of rabies victims when needed.

Simply treating bite victims was sometimes thought to not be enough. City officials began a program in Istanbul in 1910 to decrease the numbers of wild dogs roaming the streets in an attempt to control the disease in the capital. Within a short time, 80,000 animals were captured and shipped to the island of Heyürüz in the Sea of Marmara. By royal decree they were condemned to die of hunger and thirst, left to kill one another as they vainly struggled to survive. This inhumane treatment of animals created an uproar in the city. After this, other methods were sought to destroy the animals in a more humane way.\footnote{Yıldırım, p. 1335.}

4.7 Recurring Fever

For many years recurring, or relapsing, fever, a serious febrile disease, was confused with other diseases similar to it, especially with typhus and other diseases carried by parasites. In 1901, Süleyman Numan, working in the laboratories at the Hospital in Gülhane, positively identified recurring fever, distinguishing it from other disease for the first time in the Ottoman history.

There was a light outbreak of this disease in the Balkan Wars, and a rather severe one during World War One between November 1914 to September 1918. Beginning in the spring of 1915, salvarsan, an arsenic compound found to be somewhat successful in combating the disease, was sent to the military troops in the interior and Mediterranean regions, and applied without significant negative side effects. Advances in delousing procedures helped control this parasite-carried
disease significantly.40

4.8 Smallpox

"Smallpox is a severe, contagious, febrile disease characterized by a vesicular and pustular eruption...the virus gains access to the body by the respiratory tract and multiplies in unidentified sites, probably the lymph nodes or liver...the incubation period of smallpox is about 12 days, with extremes of 4 to 7 days. The disease can be divided into a prodrome, and early eruptive phase, and a period of vesiculation and pustule formation...the pustules increase in numbers, and spread from the face and distal extremities to involve the trunk...they are most concentrated on the face and distal extremities...the pustule (eventually) umbilicate and form crusts and scabs, which usually fall off three weeks after the beginning of illness, leaving small scars or deep pits."41

Smallpox entered the Mediterranean basin sometime between the years a.d. 37 and 653. It is thought to have originated in China, and then spread to India and lands farther west. Later, it was brought westward by Roman troops as they returned through Mesopotamia on their way home from battle campaigns. In 165 a.d., a vicious epidemic broke out in the Roman Empire, raging non-stop for the next fifteen years, touching off a decay in population, which, some believe, was to continue for the next 500 years.42 An entirely new disease to the region, death rates were very high, the virus meeting with little resistance along its path, sweeping away the rich and poor alike. Emperor Marcus Aurelius died from smallpox in a.d. 180.43

In Mohammed’s time, smallpox was referred to as “the plague”.44 In the

40Ibid., p. 1328.
41Braunwald et al., p. 687.
42McNeill, p. 94.
43Werner, et al., p. 117.
ninth century. Abu-Bakr Mohammed bin Zakariyya Ar-Rezi (c. 865–923/32), a
physician living in Baghdad, gave the first clear description of the disease and made
the distinction between it and measles. The name of his publication was "Kitabul
hasbavul ve cuder." McNeill writes that "epidemic disease involving skin rashes
were of immemorial familiarity in Near Eastern lands." By the sixteenth century
it had become a standard childhood disease in European lands, called "small pox" to
distinguish it from "great pox", that is, syphilis.

Inoculation practices also originated in China and India following after the
disease itself, until the practice of them became widespread in Arabic regions,
Persia, and North Africa. In the 11th century, Chinese physicians took lightly
infected children and put them with healthy children. Another method was to take
pus scabs from the nose of an infected person, grind them into a powder and then
with puffs, gave vaccinate healthy people. McNeill describes another method:

"Near Eastern folkways...had incrusted the simple practice of
smallpox inoculation with a full compliment of myth and ritual by
the time learned Europeans first investigated the matter. The
person to be inoculated was viewed as "buying" the disease, and to
make the transaction effective, had to give ritual gifts to the
person who performed the inoculation. The inoculation was made
between thumb and forefinger so that the resulting pockmark
showed quite conspicuously, and identified the receiver as a sort of
initiate ever after. The entire ritual looked like an adaptation of
commercial customs; and a priori one may believe that spread of
inoculation at a folk level could most readily have occurred via
caravan personnel, for whom protection against smallpox was an
obvious advantage."

It is not known exactly when smallpox inoculation practices first came to Anatolia.
Cevdet Paşa, nineteenth century reformer, reported that vaccination methods had

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45 Werner, et al., p. 118.
46 Unver, Süleyi, Türkiye de Cicek Alesi ve Tarihi. T.C. Istanbul Universitesi Tib
Tarihi Enst. # 38, Istanbul 1948, p. 279.
47 McNeill, p. 104.
48 Werner, p. 118.
long been known to Anatolian Yoruks. There are sources which speak of an Anatolian vaccinator being brought to the capital city of Istanbul in 1697 to vaccinate children there. The process of inoculation had become standard in Edirne by the turn of the 18th century.

The first person in the Ottoman Empire to describe the application of inoculations in Latin publications was Dr. Emanuel Timonius in 1714, who reported that the Caucasians used needles dipped in pus to perform vaccinations among their own people. This publication did not attract notice in Europe for some time. It was first translated into German in 1745.

English Lady Montague was responsible for the introduction and eventual acceptance of the smallpox vaccine in Europe and the rest of the world. Living in Istanbul during the reign of Ahmed III, Lady Montague learned quite a bit about Ottoman culture. Her letters home, published in London in 1763 as *Sarke Mektuplar*, was quickly translated into other European languages. In the 31st letter of 1717, she wrote to her friend Sarah Chirswell while in Edirne about the smallpox vaccination techniques she saw there and strongly recommended they put into use in England. She felt so positive about this that she had her own 3 year old son, Cerrah Maitland, inoculated while still in Istanbul. Upon return to England in 1722, she wrote two books solely on the subject of smallpox and were soon translated into German. The information was carried to America and techniques applied there before in England.

After receiving the published information from Emanuel Timonius and Lady Montague, doctors in Europe began to make their own experiments, led by Edward Jenner (1749-1823). Jenner, described as "an alert country doctor", noticed that milkmaids rarely contracted smallpox and concluded that those women must have acquired some kind of immunity after having come into contact with the udders of cows infected with cowpox, a bovine disease to which smallpox is now known to be

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50*Envir.* p. 279-280.
51*Yildirim.* p. 1333.
52*Envir.* p. 280.
53*Yildirim.* p. 1334.
54*Envir.* p. 280.
55*Yildirim.* p. 1332.
closely related.

While experimenting with vaccines made from the cowpox virus, Jenner discovered that the danger of humans contracting cowpox was highly unlikely, while at the same time it produced immunity against small pox of humans. Thus was produced a safer method of vaccination, involving only the transfer of a small amount of pus from individuals who had been successfully inoculated with cowpox vaccine to new patients. On 14 May 1796, Edward Jenner successfully vaccinated a child named Sarah Nelms. His method of smallpox vaccine preparation and administration quickly won favor throughout Europe and North America.

The vaccine came to be known as "vaccination H. Jennerium", or simply "cowpox". In Ottoman Turkish, it was known as "telkib-i bekar", "Cenne er eysu", or "aşıl çiçek aşısı". It was first put into use in Istanbul on 23 December 1800.

Edward Jenner's book, An Inquiry into the Causes and Effects of the Variola Vaccinacea or Cowpox, was published in 1798. It was translated into Ottoman Turkish by Mustafa Behçet Efendi in 1801 under the title Risale-i Telkib-i Bakar. Şahzade Attal Sultan Efendi then included a translation of Aloisio Careno's writings on vaccination in his 1812 book Mi'arûl Fihha.

In the beginning, smallpox vaccine was imported from Europe for use in the Ottoman Empire. This was difficult, time consuming, and expensive. In 1811, Şahzade Ayazağa Köy, using the methods described in Jenner's book, successfully produced and applied his own vaccine, thus freeing the Ottoman government from reliance on foreign supplies of this much needed commodity. He suggested to Mahmud II at this time that a vaccination center be established in Istanbul, but nothing came into being.

The development of a smallpox vaccine paralleled the advance of health services in general during and after the Tanzimat. With determination and the help of official regulations, vaccinators were put into service at The Imperial Medical Academy beginning in 1879. İstefenaki was the first vaccinator to be graduated.

56 McNeill, p. 22.
57 Öner, p. 282.
58 McNeill, p. 22.
59 Yıldırım, p. 1334.
from the program in 1840.60 He, and the vaccinators to follow him, were given appointments to service in the field.

Beginning in 1845, Istefenaki worked actively to increase the number of trained small pox vaccinators in the Ottoman Empire.61 The program suffered a serious setback, however, in 1847, when Dr. Ismail Paşa in the surgery department at the Academy, attempted to renew vaccines made from cows and obtained results that were fatal to the subjects. The Ottoman medical establishment then began to mistrust its own abilities to produce successful vaccine, and resumed importations from Europe.

A law was passed in 1840 stating that vaccinations would be offered free of charge from the Medical Academy. Within the next two years, 1,705 school children were vaccinated by leading students of that institution. Centers were created in other parts of the city to provide easy access for everyone for everyone. Trained vaccinators were sent to Anatolia to perform the vaccinations.

There were several serious outbreaks of the disease in the Ottoman Empire in the nineteenth century. One of the worst hit Istanbul in 1845. Everyone with children was ordered to have them immunized immediately or be punished. Between 1847-1887 many population centers in Anatolia were struck, and in 1873 and 1894-95, Istanbul again.

Sultan Abdulmecid I himself became a victim of smallpox during the 1845 epidemic, but managed to survive. He subsequently became very interested in the campaign to increase the practice of inoculation and supported health officials in their quest. In 1846 the Sultan travelled to Edirne and had all of the children there vaccinated. He instructed his chief physician to give a speech to calm people’s fear. During the same year a decree was issued ordering the vaccination of all children, although this actually did not come to pass.

The Medical Academy became more involved in the training of vaccinators. Candidates were brought to the Academy from all over the Empire to be trained, as described in more detail elsewhere in this paper. Abdulmecid I was so interested in what was going on in the program that attended graduation ceremonies in 1845 and

60Unver, p. 282-284.
61Unat, p. 1-16.
1846 and went so far as to present the degrees himself. The vaccination specialists were then stationed throughout the Empire and supervised periodically by travelling physicians.

Ottoman doctors continued to try to develop their own vaccine, but by 1845, were still not obtaining the desired results. Ismail Paşa sent to Vienna that for a supply of serum, but when it arrived and was applied, it also failed to give him the results he desired. He returned once more to developing his own. He sent men out to the villages to find cows with cowpox, and, using their pus, made fresh vaccine. This batch, however, still produced violent responses in his subjects, so the development of a smallpox vaccine was put off for the time being while European serums were again imported.

Meşhur Tıbbiye-i Milliye Meclisi, meanwhile, was published in 1845/46, a 48 paged document in Turkish, Greek, Armenian and Hebrew, which became an important source on the regulations for preparation and performance of the vaccine.

The state continued in its efforts to inoculate the populace. A 1849 decree ordered the free application of vaccine to all and appointed Dr. İstefani Bey chief vaccinator. Vaccinations were made available in Kayseri in 1851, and in Bolu in 1853, two specialist were sent to complete the task, their travel expenses covered by the Imperial Medical Academy.62

No other official action was taken against smallpox until May 1872, when Umur Tıbbiye-i Milliye Meclisi met under the direction of Dr. Marko Paşa, to discuss, among other things, official vaccination policy. Dr. Hüseyin Remzi Bey, appointed during the meeting to the newly created post of Vaccination Inspector, was to supervise the importation of European vaccines and their re-shipment of vaccines and other supplies to destinations throughout the Empire. Dr. Ali Rasit Bey began the translation from French to Ottoman Turkish of Muallim Miralay Dr. Abdullah Bey's lectures on zoology.

In 1880, Dr. G. Battista Violi opened a private clinic in Beyoğlu called Établissement Vaccinogenè. Institut Vaccinogen, at Aynali Pasaj #15, which specialized in the application of steam cow pox vaccine. 63

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62Uluer, p. 283-284.
63Yıldırım, p. 1334.
An official set of regulations was published 18 May 1885, concerning the administration of vaccine, followed by another regulation on 9 July which made vaccine mandatory for all. In this respect, the Ottoman government was ahead of some nations in the west in terms of public policy. The government of England did not institute such an order until 1928/29, as mandatory vaccination was considered an attack on personal freedom.

1892 brought the establishment of The Smallpox Inoculation Center, Telixh-i Cudari Ameliyathenesi, or Cicek Asisi Vesi, in Istanbul. European serums were used while supplies lasted, after which the vaccinators resorted to retrovaccine, the traditional method of person to person transmission. Yet another small pox vaccination station was established in 1895, following another outbreak of the disease in 1894. Between 1892 and 1897 600,000 children received vaccination. Dr. Hüseyin Remzi Bey wrote the first full books on the subject: Aşı Dersi (Ist. 1311/1893/94), and Ameli ve Nazari Aşı Dersi (Ist. 1312/1894/95). Despite these efforts, Ottoman officials were unable to control the spread of the disease.

During the spring of 1912, there were fresh outbreaks of small pox in Istanbul, due largely to the arrival of literally hundreds of thousands of refugees from the Balkans who had never been inoculated. This happened during the continued social upheaval of World War One and the Turkish War for Independence. Through it all, doctors and bacteriologists worked to vaccinate as many individuals as they could, fortunate in the support of first the Ottoman government and then that of the young Turkish Republic.

4.9 Syphilis

"Syphilis is a chronic systemic infection caused by Treponema pallidum subspecies pallidum, is usually sexually transmitted, and is characterized by an incubation period averaging 3 weeks, followed by primary lesions associated with regional lymph adenopathy; a secondary bacteremia stage associated with

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64 Üner, p. 236.
65 Yıldırım, p. 1334.
generalized mucocutaneous lesions and generalized lymphadenopathy; a latent period of subclinical infection lasting many years; and in about 1/3 of untreated cases, a tertiary stage characterized by progressive destructive mucocutaneous musculoskeletal or parenchymal lesions, aortitis, or central nervous system disease. 66

According to standard reports, syphilis first appeared in Europe in 1493 when what was left of Columbus' fleet returned to Barcelona from the first sea voyages to the New World. There is, however, some speculation that syphilis may actually have been present in Europe and the Near East in early and medieval times. Known as "yaws", this earlier disease primarily affected children and was commonly classified as a form of leprosy. Caused by the same agent, the spirochete, the only differences between syphilis and yaws are the means and subsequent routes of their infections.

It is thought that this earlier type of syphilis, which was transmitted primarily by skin-to-skin contact, decreased with the increase of the use of woolen clothing. Perhaps more importantly, it was unable to compete with a far more virulent infection that was becoming increasingly more common in the growing urban centers of Europe, pulmonary tuberculosis. 67

The fifteenth century variety of syphilis, remained fairly local in Spain, until the 1495 blockade of Napoleon's troops, which brought on its spread to the rest of the continent at a surprising pace.

In 1497, Johannes Widmann, the personal physician of the Margrave of Baden, established that the disease was spread through sexual contact. Not long after, it was given the name "syphilis" by Girolama Fracastro, apparently "after a hero in a rhyming treatise he wrote" on the disease. So "syphilis" it became, although throughout most of the world, for the next 300 years, the disease was known as "The Great Pox" or, more euphemistically, "the French disease"

Once the sexual nature of the transmission of this disease had been established, strict regulations were imposed in Europe to limit contact between men and women. Mixed sex bathing in public bath houses, for example, was made

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66 Braunwald et al., p. 639.
67 Werner, et al., p. 73.
illegal. Various treatments were concocted over the years to cure victims, among which were the application of mercury, arsenic, guaiacum (the bark of a south American tree), iodine, bismuth, Na-K, bitartrate, tellerium, vanadium, platinum, and gold, and the placement of the individual in contraptions known as "sweating boxes".

The active agent, the *spirochete*, was identified by German zoologist Fritz Richard Scaudinn in 1906, who it *spirocheta Fallica*. Within a year, Paul Erlich and his Japanese associate, Sahachiro Hata, developed a drug known as salvarsan, an arsenic preparation, which "acted directly on causative organs", but unfortunately could could not offer any help to sufferers of the more advanced paralytic syphilis. Erhlich was awarded a Nobel prize for this work in 1909.

Within the Ottoman Empire, syphilis did become a serious concern until the mid-nineteenth century. It was first noticed among troops in occupied territories following the Russo-Ottoman Wars (1806-1812, 1828-29). The number of victims increased dramatically during and after the Crimean War (1854), and Ottoman Russian Wars (1877-78).

It was enough of a concern that Haifiz Mehmed Efendi wrote a pamphlet describing the disease in 1854.

In the Ottoman Empire, this disease came to be known as "dau1 estrenc, illetet-i estrenc, marar-i estrenc", and, of course, *Fransir hastalığ*. Returning soldiers spread the disease from the shores of the Black Sea, to the civilian populations of Sinop and the larger Kastamonou region, from whence it spread to the interior. Results of this uncontrolled contagion included a high rate of still births among infected women, mother's milk unfit for consumption, and outright cases among school children.

With this rapid spread of the disease to the civilian population, positive official action began to be taken in the cities. One of the first steps was to legalize prostitution in specified districts of Istanbul and to introduce medical supervision of them in 1856. This tactic was only partly successful as some of the women working in

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68 Ibid. p. 57.
69 Ibid. p. 45.
70 Osman, p. 240.
71 Yildirim, p.1329.
these areas were not Ottoman citizens and thus could not be subject to routine health inspection for fear of the accusation by their government representatives that their freedoms were being limited. Because of this diplomatic nuance, the legal brothels continued to present a serious health problem to the city. A health commission was established in 1869/70 in the Sixth Municipal Bureau in Beyoğlu, the district in which most of the brothels were located, to discuss ways to ensure the health of the working women. Dr. Serviçen Efendi, appointed director of the project, later presented a report to the Imperial Medical Society.

Ahmed Said Efendi published *Tarihce-i Illet-i Effrene* in 1874, describing his travels in Erzurum, Trabzon, Bayburt, Diyarbekir, Bursa, Kuthaya, and Musul provinces. He wrote of the rather widespread venereal diseases he found in these regions, explaining that it was sometimes difficult to accurately tell the difference between syphilis and gonorrhea without proper laboratory equipment on hand. He also discussed treatment with mercury ointment and iodur do potassium.\(^2\)

In 1878, Dr. Michael requested that the Sixth Municipal Bureau in Beyoğlu grant him permission to supervise the health of the women working in the brothels. He prepared a report in collaboration with Dr. Miralay Agop Handanyan in which they presented their results of a study concerning the effects of syphilis in humans and requested that all employees in brothels in Beyoğlu and Galata undergo regular health inspections. In addition, they stressed that it was the state’s responsibility to look after the general health of its citizens.

Dr. Michael and Dr. Miralay Agop Handanyan’s report was presented to a joint meeting of the Municipality and the Civil Medical Society, where it was discussed at some length. As a direct result of this, Regulation \(^*\)480 received approval from parliament, and the Sultan, 6 February, 1879.

Regulation \(^*\)480, *Emrar-i Subreviye Nisannamesi*, called for the establishment in 1879 of an organization that would systematically inspect brothel employees and attempt to prevent the spread of infectious diseases. This organization would have its headquarters in the Directorate of the Sixth Municipal Bureau.

The requisite number of doctors, assistants, and civil servants of the

\(^2\)Osman, p. 240.
municipality were sent into the brothels to make health inspections. Employees of these establishments found to be in need of treatment were sent to to the two Sixth Municipal Bureau Nisa Hospitals, which were located conveniently in Beyoğlu and Galata, so patients could reach them easily. As these hospitals had neither sufficient tools not laboratories, they were, for the most part, used as isolation units.

This hospital was renamed Beyoğlu Nisa Hospital on 14 October 1909. Whether or not it became an actual treatment center at this time is not known. At a later point in time, this hospital was later transferred to Muessevat-i Hayriye Sibhiye. The building was then modernized, and equipped with the necessary microscopes, salvarsan, and mercury medicines to treat syphilis. An addition treatment center in Beyoğlu was opened the same year.73

In 1883, Baron von der Goltz was brought to the Ottoman Empire to reorganize the military establishment. In a report to the Sultan, he noted, among other things, the high rate of syphilis among soldiers and suggested that a battle against this disease be started immediately. He recommended German dermatologist Dr. Ernst von Düring for this task.

Von Düring served the Ottoman State from 1889 to 1902 as professor of dermatology at the polyclinic, presenting lectures on skin diseases and syphilis. He was also appointed head doctor at Haydarpasa Military Hospital, and General Health Inspector of Ankara and Kastamonu regions.

Because of the high level of infection among troops stationed this last region, the official battle against syphilis was begun there in 1896. With the assistance of sixteen doctors and two pharmacists, Dr. von During travelled through Anatolia, treating children and workers infected with syphilis, and instructing local doctors. In areas without a municipal or regional doctors, he assigned military doctors to work looking after patients.74 He crossed Anatolia a total of 14 times.

At von Düring's suggestion, medical centers for the diagnosis and treatment of syphilis were built in Kastamonu, Bolu, Bartın, Düzce and Cide. In these hospitals, syphilis patients, both civil and military, were treated according to their needs. Von During was awarded the degree of civil general, for his dedicated service to the

73İldırım, p. 1329.
74Akyüz, p. 31.
Empire. In 1902, he established a dermatology course in Kiel and taught there as a professor for some time.

The last official Ottoman involvement in the battle against syphilis was the founding of *Teskil Otunacak Memleket Hastaneler ve Seyyar Hekayet-i Tıbbiye'ye Dairesi* in Kastamonou Province in 1910.

**Ottoman Publications on Syphilis**

Cerrah Ibrahim b. Abdullah is reported by Yıldırım to have been the first Ottoman physician to write about syphilis, although the date of his publication is not given.

Hekimbaşı Hayrullah Efendi wrote a book about gonorrhea, a different sexually transmitted disease, in 1844.

A pamphlet written by an unknown writer was published in Istanbul in 1845/46.

Hafız Mehmen, assistant teacher at *Müfredet-i Tıbb* wrote a piece in 1854 entitled *Mecmu-i Duaş Subresiye*, which explained syphilis and its open sores, using text and illustrations.

Ahmed Said Bey’s *Tarıhca-i illet-i Efren* (Ist. 1287/1870) gave information about syphilis, gonorrhea, and itching illnesses.  

**4.10 Tuberculosis**

"Tuberculosis is a chronic bacterial infection carried by *Mycobacterium tuberculosis* and characterized by the formation of granulomas in infected tissues and by florid cell-mediated hypersensitivity. The usual site of disease is the lungs, but other organs may be involved. In the absence of effective treatment, a chronic wasting course is usual and death ultimately supervenes in most cases." *M. tuberculosis* is transmitted from person to person via the aerial route..."
vocalizing...adequate ventilation is the most important measure which can be employed to reduce the infectiousness of environment...the overall death rate of untreated pulmonary tuberculosis probably approaches 60%, the median course of death is 2 1/2 years. 76

Tuberculosis is an ancient disease, one of the oldest and most common on earth. 77 Traces of the disease have been found in skeletons dating from the Stone Age, and in forms preserved in imperial Egyptian mummies. Descriptions of tuberculosis also appear in the Chinese Huang Ti Nei-Ching, the world's oldest known medical book, dated b.c 3,000. 78

The disease thrives best in urban areas where populations are condensed and there is a greater chance of the bacilli, transported in water droplets sent into the air by coughing and sneezing, finding new hosts. The increase in incident of tuberculosis in Europe in the thirteenth century closely followed the rise of urban centers at that time. Oblivious of class barriers, it has infected all manner of people, from slum to palace. Among its more illustrious European victims over the centuries have been Emperor Joseph II, Cardinal Richelieu, Calvin, Chopin, Schiller 79, and, among the Ottomans, Mahmud II and Abdulmejid. 80

French physician Sylvius Deleboe, dissecting cadavers in the seventeenth century, discovered modules, *tubercula gladiolosa*, in the lungs and intestines of his subject. 81 In 1865, Jean Antoine Villekin, made the hypothesis that the disease was contagious. But Robert Koch was the one to isolate and identify the agent itself, working in a laboratory in 1881, proving in 1882 that the disease was communicable, not hereditary in nature. 82 He then worked to prepare an antidote, a substance called tuberculin. Louis Pasteur, studying the virus while in England in 1887.

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76Braunwald et al., p. 613.
77McNeill, p. 251.
78Werner, et al., p. 181.
79Ibid., p. 187.
80Ibid., p. 1331.
81Werner, p. 183.
82Koch, incidentally, became internationally famous for this discovery. In Japan there reportedly is a temple dedicated to his memory where a ceremony is held every year to commemorate the anniversary of his death. Werner, p. 187.
remarked that it virus was "unusually tenacious".\textsuperscript{33}

Treatment for tuberculosis in the nineteenth century included fresh air, sun, frequent baths, rest cures, and occupational therapy, along with the segregation of individuals carrying its most virulent form, known as "open tuberculosis". Florence Nightingale also recommended high altitude as a treatment.

Research and treatment in the Ottoman Empire began in Istanbul, when Edwin von Muligen published an article on the subject in \textit{Cemiyet-i Tibbiye-i Sahan} in 1885. Dr. Rifat of Salonika followed with another in 1887.

By 1890, Koch's tuberculin was the subject of much interest in Istanbul, but when the medicine was first applied in the German hospital, it failed to take effect. Doctors, Haresancu, Feyzullah, Naim, and von Düring were sent to Berlin with imperial orders from Abdulhamid II himself to learn more about the drug. When they returned in 1891, they published their findings in \textit{Gazette Medicale d'Orient} and requested the Sultan's permission to use it.

During a meeting of the Imperial Medical Society on 8 February 1895, Abdulhamid II requested that Dr. Mavroyani, chief physician at that time, prepare a full report on tuberculosis, and the preventative measures which could be taken against it. Within a short time, Dr. Mavroyani and his staff produced a comprehensive document in which they stated emphatically that tuberculosis was a contagious disease, which transferred easily to individuals whose health was less than optimal. They concluded that prevention of the further spread of the illness was entirely possible and that the condition of those carrying the disease could be improved with the establishment of sanatoriums (\textit{ünüket})

As a direct result of this report, tuberculosis sufferers began to be isolated from other patients in hospitals, and each patient was given his or her own saliva repository. Spitting was made forbidden in barracks and schools.\textsuperscript{34}

The first children's tuberculosis center was opened in Hamidiye Etfal Hospital on 31 August 1906, offering a full 24 beds in a unit away from the other patients. The first fully operational sanatorium was opened in Kuthaya in 1907.\textsuperscript{35}

\textsuperscript{33}McNeill, p. 129.
\textsuperscript{34}Yıldırım, p.1331
\textsuperscript{35}Akyay, p.33.
Attempts were made by various doctors and medical institutions to establish separate sanatoriums on islands in the Marmara Sea around the turn of the century, but were met with no success until as late as 1924.

In 1905, Dr. Osman Nuri introduced a method to separate the tuberculosis bacteria from other bacteria. Ch. Dopter and E. Sacquepee followed up with an article on this method, entitled *Precis de Bacteriologie*.

Between 1910 and 1913 veterinary professor Dr. Osman Bey conducted extensive research in Istanbul with tuberculin. According to Istanbul statistics concerning cause of death from the year 1913, tuberculosis was the third leading cause of death after heart and lung diseases in the city.\(^{36}\)

In 1918, a formal organization was established to specifically fight this disease. Called the Ottoman Society Fighting Against Tuberculosis (*Verele Mucadele Osmanlı Cemiyeti*), Dr. Besim Ömer Paşa was appointed its first director.

### Ottoman publications on tuberculosis:

<table>
<thead>
<tr>
<th>Author</th>
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<td>Dr. Resat Riza</td>
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<td>Dr., Behcet Salih</td>
<td><em>Vere Namil Başlar ve Verean de Kurtuluş ve Koruma Careleri Nelerdir.</em></td>
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### 4.11 Typhoid Fever

*Salamondella typhi* gains access to the body by the oral route in almost all cases as a consequence of the ingestion of contaminated food, water, or milk. Humans are the only true reservoir of *S. typhi* in nature, and persons with typhoid fever, a convalescent, or chronic carriers, always serve as the ultimate source of infection...the fact that *S. typhi* may survive freezing or drying enhances the possibility of spread by contaminated ice, dust, foods

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\(^{36}\)Ibid, p. 33.

\(^{87}\)Yıldırım, p. 1331.
and sewage...the importance of sewage disposal, a pure water supply, and control of carriers, is highlighted repeatedly by the occurrence of outbreaks which develop when defects in sanitation occur. Incubation period lasts an average of 10 days, then the victim develops fever, tiredness, and is unable to eat. Bloating, constipation, and other abdominal discomforts are common. In the second week of its four week course, red spots appear, lasting from 2-4 days. The most feared complications, which may lead to death, are intestinal hemorrhage and perforation.\textsuperscript{88}

Typhoid fever has been known throughout the world since ancient times, but wasn't identified as a disease distinct from others until 1829. Like dysentery and typhus, it was a serious problem for military establishments and in any region where optimal sanitary conditions could not be maintained due to social upheaval and famine.

In 1880, Karl J. Eberth, a scientist working in Würzburg, Germany, who discovered the agent of typhus, an extraordinarily resilient bacillus, which could be passed from person to person through contaminated food, water and even soiled clothing and bed linen. Once the agent had been established, work began on producing an effective serum to prevent infection.\textsuperscript{89}

By 1909, Ottoman medical officials felt it was time the Empire produce its own vaccine against typhoid and the topic was at a conference that same year under the direction of Dr. Burhaneddin (Noyan). Mehmed Şevket Paşa supported the idea and made the necessary appropriations so that a Ottoman-produced typhoid vaccine was produced and applied by the end of 1912. The subjects of inoculation were soldiers in the Çatalca region, who welcomed the vaccination specialists under the supervision of Dr. Mustafa Hilmi Bey, professor of bacteriology at Gülhane Medical Academy. The Ottoman vaccine was clearly effective, as statistics regarding deaths from specific diseases show: there were 8,608 Ottoman deaths to typhoid, compared to 111,481 among the Germans, and 127,048 among the French.

Centers for the preparation of vaccines for typhoid, dysentery and cholera were established in Erzurum, Sivas and Merzofah in 1915. Combining their products with those sent from Istanbul, these centers were able to inoculate 361,000 people.

\textsuperscript{88}Braunwald et al., p. 595.
\textsuperscript{89}Werner, et al., p.140.
using 953 kg of typhoid vaccine.

It was also in 1915 that a small outbreak of paratyphoid fever type A occurred in Erzurum. Work immediately begun on the development of vaccines against both types A and B using mixed bacilli.

4.12 Typhus

"The majority of the rickettsias are maintained in nature by a cycle which involves an insect vector and an animal reservoir, and infection of humans is unimportant in the cycle. " It is thought, however, that epidemic typhus involves only humans and lice. "Of all the afflictions of the human race the rickettsial diseases, particularly epidemic typhus, rank among the foremost as cause of suffering and death."The classic epidemic form of typhus as a severe, febrile disease caused by R. prowazekii and transmitted to humans by the body louse...after an incubation period of about 7 days, an abrupt onset of headache, chill, and rapidly mounting fever ushers in the illness...Neurological features range from headache and general spasticity to extreme agitation, stupor and coma...in untreated cases, arotemia often reaches high levels as a result of vascular and renal failure, and death occurs late in the second week of the illness."90

Since ancient times typhus has been confused with other fever illnesses, and misdiagnosed by historians as "plague". It wasn't until 1546 that the European A. Pre (Fracastor) identified typhus as a distinct illness. The fact that typhus is spread by small parasites such as ticks and lice and that it could be easily prevented by disinfection and vaccination was not verified until the early years of the twentieth century.

Typhus was a nightmare disease for the military establishment of the nineteenth century with the increasing frequency of large scale confrontations involving hundreds of thousands of combatants who spent much of their time

90Braunwald et al. p. 754.
cramped together in trenches. Lice flourished on bodies of unwashed, poorly clothed and ill-fed soldiers and was speedily passed on to new recruits, seriously undermining the fighting ability of the troops. Often in battle, more losses were made to typhus than to the enemy. This was true for both sides in the Crimean War of 1854-1856. In the Russo-Ottoman War of 1877-78, it was the main cause of deaths for approximately 40,000 soldiers on each side. An additional 30,000 became victims during the Greek War in 1897.  

Dr. Charles Nicolle engineered a monumental breakthrough to the understanding of typhus when he, working at the Pasteur Institute in Tunisia in 1909, proved that the disease was transported by fleas, lice, mites, and ticks. The agent was given the name *Rickettsia prowazekii*, after Howard Ricketts and Stanislaus von Prowazek, two young scientists who had died from the disease while studying it in the field. This discovery opened the door to the eventual eradication of this disease among modern military units.

With no vaccine against the disease immediately available, international efforts were focused on prevention, especially on the development of an effective delousing techniques. As discussed in the unit about fumigation in this paper, the British Navy was the first military organization to apply thorough quarantine and delousing processes among its men to great success.  Soon the other military establishments of Europe, including the Ottomans, were following suit, until, as McNeill writes, "passing men and clothing through delousing stations became part of the ritual going to and returning from the front."

In the Ottoman Empire, delousing was carried out using a simple system of bread ovens which had been developed by Dr. Abdulkadir (Noyan) in the late nineteenth century. This system had already been found to be somewhat inefficient and rather cumbersome. The army needed mobile fumigation units. Dr. Ahmet Fikri (Tüzer), stationed at the medical center in Sivas, produced mobile steams boxes, while Dr. Hüseyin at the hospital in Tokat used steam in barrels. Both methods proved a success.

91 Yıldırım, p. 1327.
92 Werner, et al., p. 150.
93 McNeill, p. 252.
But quarantine and delousing stations require financing and a high level of
organizations that is often difficult to sustain during times of defeat, such as the
Ottomans were experiencing in the Balkan Wars. Despite generally successful efforts
to fend off the disease, there were still outbreaks of it at the end of 1912 and
beginning of 1913 among the imperial forces at Catalca, further complicated by the
appearance of cholera and dysentery. There were many deaths, but they did manage
to stave off wild contagions as had been known to occur in earlier years.

Further outbreaks occurred during the early years of the First World War,
when the disease spread from the Kafkas region to the interior of Anatolia. The use
of disinfectants and fumigation was significantly increased in 1915 after a
particularly widespread outbreak that winter. The number of deaths decreased
significantly and the program was continued indefinitely.

Meanwhile, researchers at the Pasteur Institute were working on developing
an effective vaccine against typhus. It was soon established that typhus, once it
entered a human system, remained there forever, so efforts concentrated on
developing a vaccine that would prevent initial infection. A vaccine affording
temporary protection against the disease was finally produced in 1913, by Dr.
Nicholle himself.

The first Ottoman use of this occurred in March 1915, when doctors working
at military stations throughout the Empire began inoculations. Dr. Abdulkedar
(Noyan) supervised this program in Baghdad, as did Dr. Tenfik (Sağlam) at the
Kafkas region, and Dr. Hamdi Suat (Aknor) in Erzurum. Dr. Reşad Riza was the first
bacteriologist to successfully produce Nicholle's vaccine in the Ottoman Empire,
which he did in 1916. This short term vaccine was used until 1939, when Dr. Cox
developed a more effective vaccine. Five years later Dr. Kemal Plevnelioglu
reproduced the vaccine at Gülhane Hastanesi.\textsuperscript{94}

\textsuperscript{94}Yıldırım, p. 1327-1328.
VI. Conclusion

The westernization of health practices in the Ottoman Empire began with the establishment of the Imperial Medical School in Istanbul in 1827. It was at this time that Sultan Murat II, following the advice of his advisor Abdulhak Molla Paşa, became convinced that the strength of his fighting forces could be dramatically improved, and the defensive capabilities of his Empire thereby improved, with the adoption of western medical practice. The health of the military establishment remained of critical importance to the Ottoman government, and was given priority attention above civil health, throughout the nineteenth and early twentieth centuries.

Prior to the opening of the Imperial Medical Academy in 1827, the Ottoman army hired foreign doctors to tend its sick and wounded, or relied on conscripts to perform the necessary tasks. Once the educational system was established, the newly trained physicians received officer status in the army along with their official diplomas and were assigned posts at medical facilities throughout the Empire. Vaccination and fumigation programs generally were applied first to military units and then later to the civilian population as needed.

Civil medical posts in provincial centers were staffed by foreign doctors who were recruited from abroad and paid substantial salaries. The Imperial Medical Academy did not begin the education of physicians for the civilian sector until as late as 1868. Even then, the Civil Medical Academy was established as a branch of the larger Military Medical Academy and remained under its administrative control until the two schools were united at the newly created Medical Faculty at Istanbul University in 1906.

The government was jealous of its control over public health administration in all areas. Municipal health reforms, begun in Istanbul in the late 1860's, came only as a result of intense pressure from leading minority residents and foreign powers following the Crimean War. It was nearly ten years from the beginning of this pressure until the establishment of an official municipal services directorate
same time, they strove to become independent in the development of vaccines, which was crucial to the maintenance of health among the troops. In the first decade of the twentieth century, when it became known that typhus was spread by pests, Ottoman military doctors worked to create their own mobile delousing machines to be used on the field.

While there were substantial improvements in the health of the military throughout the period discussed, in general it appears that measures were of a temporary nature. In almost every war, medical personnel and supplies were in chronic short supply, and the government resisted the formation of independent humanitarian groups wishing to gather aid to assist ill and wounded soldiers and refugees during times of war. At best, the central government viewed such organizations as the Ottoman Red Crescent Society as a temporary measure during times of crises. In peacetime, the members of this organization were compelled to disband and bring their activities to a halt. It seems to have survived through the sheer willpower of certain individuals, and the support of foreign governments. By the end of the nineteenth century it had finally gained official status, only to have its reserve of funds become subject to prey by the Ottoman Exchequer as that office sought to shore up the flagging government.

Foreign influence in the introduction of western medical techniques was considerable. When the first medical academy was opened in 1827, it was staffed entirely by European medical specialists, who gave their lessons in the French language. Even after Ottoman doctors began to take teaching posts at the Academy, French remained the language of instruction. Efforts to make the transition to instruction in Ottoman Turkish beginning in the 1850s were strongly resisted by the medical staff, most of whom were either foreign or of non-turkish ethnic origin. When a number of students who had pushed for translations of European documents into Turkish in the 1850’s became reform minded, medical government officials in the 1860s, they were finally able to convince the government that the education of its elite in foreign languages was against its best interests. Turkish was made the official language of instruction at the Civil Medical Academy when it opened in 1868, and later at the Military Medical Academy, in 1872.

The extent of foreign involvement in the medical advances of the Ottoman Empire in the nineteenth century remains unclear. None of the sources approaches
for greater Istanbul. Health services in the provinces seem to have been restricted to the largest cities, and especially to those of commercial and strategic importance. Little was done to provide for the comfort of individuals living in agricultural hinterlands, where the ratio of doctor to patient at the end of the nineteenth century was reportedly one to tens of thousands. A limited number of treatment centers were set up in Sivas and Kastamonu to treat cases of rabies and syphilis which broke out among the general population following the return of troops to that region from the Crimean War.

Quarantine certainly had the greatest effect on the health of the people. Properly applied in sea ports and major overland trading centers, plague, which had been a regular scourge for centuries, died out in epidemic form by the turn of the century. Typhus, transmitted by ticks and lice, was overcome through fumigation campaigns. Cholera, too, was slowly brought under control, though it continued to be a problem among the army and refugees until an effective vaccine against it was prepared and widely applied during the Balkan Wars.

Still, there were many improvements in the state of civilian health as the century progressed. Once the validity of Pasteur’s germ theory had been established, proving beyond a doubt that diseases were caused by microscopic organism and not strictly by the displeasure of God or by evil winds, sanitation and vaccination efforts increased considerably in the Empire. Medical scientists were sent to the leading bacteriology centers of Europe to be trained, and then were returned to Istanbul to positions as supervisors and instructors at a number of facilities such as the Imperial Bacteriology and Virology Institute in Nişantaşı, also known as “the Pasteur Institute of Constantinople”. Hospitals were established for the poor of Istanbul and other large population centers, and brothels were put under strict health supervision. Sanitation officials worked to rid the city of the health dangers of illegally operating tanneries and dye shops, foul produce and meats, improperly buried corpses, and open air sewage systems.

Medical advances in the Ottoman Empire followed a similar path of development as did advances in other Imperial nations. Primary focus was on the military, which was necessary to maintain control and defense of territory. As the Ottomans adopted European weapons and fighting techniques, they adopted European medicine. At the
this topic directly, preferring instead to focus on the accomplishments of individuals. Throughout the data, teams of foreign health specialists mysteriously appear to assess quarantine systems, vaccination techniques, sanitation mechanisms, and military relief for the wounded, but nothing is offered as to their underlying motives, or even who sent them on their assessments. Red Cross units from various countries attend the fallen in Istanbul and at the fronts during the wars at the turn of the twentieth century, but again, nothing is said as to how their presence was accomplished.

The bacteriology research center established in 1892 in Istanbul and supervised by Charles Nicolle for many years, is referred to in Turkish documents as "the Imperial Ottoman Bacteriology and Virology Institute", but in English documents it is "The Pasteur Institute of Constantinople", which implies a strong connection with the parent institute in Paris. Are we to believe that Dr. Nicolle came solely for the generous salary, which was more than six times his French salary, and the social success of the Ottoman capital, or that he was a Pasteur-trained scientist sent out to direct services in the field? It would be of great use to study this matter further from contemporary nineteenth century documents, and from French sources, to find out to what extent the Ottoman institutions were independent, and how the French, and later the German, governments viewed their involvements there. The political and economic motives behind the assistance of European governments remains to be explored.

A study such as this provides background for further research, but does little itself to dispel questions about the mechanisms of the westernization process in the field of medicine and health service. Considering the almost entirely descriptive nature of existing research on the subject of nineteenth century Ottoman health, it is clear that a comparative approach, with a focus on economics and international policy, needs to be done in order to correctly assess the place of the Ottoman Empire's efforts in the spectrum of world events.
Sources Cited


McCarthy, Justin, Muslims and Minorities, the Population of Ottoman Anatolia and the End of the Empire, New York University Press, New York, 1983.


Mongeri, Louis, Études sur l'épidémie de cholera qui a régné à Constantinople en 1865 suivies d'un appendice sur la nature du cholera et des devors medicines sanitaires, Constantinople Imprimerie, M. de Castro, 1866.

Osman, Mazhar, Sıhhat Almanası, Kader Matbaası, Istanbul, 1933.


Yıldırım, Dr. Nuram  
Tanzimat'tan Cumhuriyete Koruyucu Sağlık Uygulamaları.  
Bilim, Eğitim, Siyaset ve Toplumsal Olaylar, İletişim Yayınları, İstanbul 1965.