

The Turning Point from an Archaic Arab Medical System to an Early Modern European System in Jerusalem according to the Swiss Physician Titus Tobler (1806-77)

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Abstract. Until the end of the Ottoman period the Hippocratic-Galenic doctrine, which had been improved by medieval Muslim medicine, was the predominant medicine in the Holy Land. The penetration of modern medicine into the region was a slow process, advancing step by step over the years until it was established around the end of the 19th century.

Dr. Titus Tobler, a Swiss physician of many talents, first visited Jerusalem in 1835, then again in 1845, 1857, and 1865. He reported his experiences and impressions in several books and articles. His publications portray the condition of medicine in the city before the advent of the European physicians, their arrival, and the establishment of the first hospitals in the city. Thanks to his endeavours, a professional description of the medical conditions prevailing in Jerusalem in the mid-19th century is available to the public. Tobler's writings include descriptions of the healers, blood-letters, quacks, medicinal substances and their market, and the diseases and illnesses from which the inhabitants suffered. In addition, Tobler produced a detailed report of the *different* hospitals, pharmacies, European physicians, and their experiences. A digest of Tobler's information, its fresh systematic arrangement, and its comparison with other historical sources, early as well as recent, produces a better picture than ever previously available of the medical conditions of the city in the final years of the ascendancy of Arab medical systems and in the early stages of early modern European medicine in Jerusalem and the Holy Land.

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Résumé. Jusqu'à la fin de la période ottomane, la doctrine hippocratico-galénique, qui avait été perfectionnée par la médecine musulmane, était la médecine prédominante en Terre Sainte. La médecine moderne a été introduite dans la région lentement, progressivement, pas à pas au fil des ans, jusqu'à être bien établie vers la fin du dix-neuvième siècle.

Le Docteur Titus Tobler, très talentueux médecin suisse, a fait un premier séjour à Jérusalem en 1835, puis il y est revenu en 1845, 1857 et en 1865. Il a rendu compte de ses expériences et de ses impressions dans plusieurs livres et articles. Ses écrits peignent le portrait de l'état de la médecine dans la ville avant l'avènement des médecins européens, puis de leur arrivée et de l'installation des premiers hôpitaux. Grâce à ses efforts, une excellente description des conditions médicales existant à Jérusalem au milieu du 19^{ème} siècle est accessible au public. Les textes de Tobler comprennent des descriptions des guérisseurs, des charlatans, des saignées, des substances médicinales et de leur marché, et des maladies et affections dont souffraient les habitants. De plus, Tobler a publié un rapport détaillé des différents hôpitaux, des pharmacies, des médecins européens et de leurs pratiques.

Un résumé des informations de Tobler, leur organisation systématique et la comparaison avec d'autres sources historiques, à la fois anciennes et récentes, donnent un meilleur aperçu que celui précédemment disponible des conditions médicales de la ville dans les dernières années de la montée des systèmes médicaux arabes et dans les premières étapes de la médecine européenne moderne à Jérusalem et en Terre Sainte.

INTRODUCTION

Until the end of the Ottoman period the Hippocratic-Galenic medical doctrine, improved by medieval Muslim medicine, predominated in the Holy Land.¹ A critical change in its level and characteristics occurred with the first appearance of modern European medicine in the Holy Land in the mid-19th century. The penetration of modern medicine was slow and laborious over the years, until at last it was established around the end of the 19th century.² One of the most important historical sources for our knowledge of the medical condition in Jerusalem at that time is the writings of Swiss physician Dr. Titus Tobler. His studies, which covered diverse subjects beside medicine, are important for their documentary value. This rare combination of research qualities and critical ability enabled Tobler to review the facts carefully and to publish his findings with the accuracy that characterises his written works.³

Titus Tobler was born in 1806 in the village of Wolfhalden in the Swiss canton of Appenzell. He studied and practised medicine in Zurich, Vienna, and Würzburg (Germany), and in 1827 was awarded his doctorate. A man of exceptional qualities, he engaged in many fields. In Switzerland he went into politics, becoming a member of the parliament, and was concerned with the affairs of local society; he joined various professional committees (and indeed formed one to fight cholera).

Tobler made his living by practising medicine, but he was also a linguist and a writer. He died in 1877 in Munich and was buried in his native village. His outstanding legacy is his contributions to knowledge of the Holy Land in the 19th century. He may well be considered "the father of the German scholarship on the land of Israel." He made four visits to the Holy Land (1835, 1845-6, 1857, 1865), each of which yielded articles and books reporting his researches and his intellectual experiences.⁵ This article deals only with Tobler's writings on medicine.

Tobler's first visit to the Holy Land in 1835 was prompted by his natural curiosity. His second journey, in 1845-46, was to study the Holy Land, though he concentrated on the Holy City of Jerusalem. He lodged at the house of Dr. Simon Fraenkel (1809-80), a native of Germany and the first Jewish physician of the Jewish community in Jerusalem, for which he established medical services.⁶ He had been sent on this mission by Sir Moses Montefiore,⁷ whose major incentive was for Fraenkel to provide a substitute for the British mission hospital inaugurated some years before by the London Society for Promoting Christianity Among the Jews.⁸ The two physicians became friends, and Tobler found Fraenkel's information reliable and useful. In 1853 Tobler published *Recollections of Jerusalem*, based on his earlier visits to the city. One chapter of the book gives a detailed description of the medical institutions in Jerusalem at the time and an account of the establishment of the modern medical institutes.⁹ Ten years after his second and longest visit he wrote *A Description of Medical Conditions in Jerusalem*. This volume draws a unique picture of that aspect of life, one almost totally neglected by the majority of descriptions of the Holy Land written during the 19th century, which number in the hundreds.¹⁰ This volume recently has been partially translated into Hebrew.¹¹

The book's topics are the prevailing medical conditions in Jerusalem, the major diseases, and the licensed physicians. It furnishes important information about the common medical methods, local traditional "pharmacies" and medicinal substances, medical facilities, medicaments, fertility and mortality rates of the population, and other aspects of the medical conditions then prevailing in Jerusalem. The author also provides details about medical conditions of earlier periods, according to written documentary material, and about the opinions of the few Jewish and Christian doctors who worked in Jerusalem until the second half of the 19th century. As stated, this article reviews Titus Tobler's contribution to our knowledge of the medical conditions of Jerusalem shortly before the penetration of the modern medicine.

TOBLER'S DESCRIPTIONS OF MEDICAL CONDITIONS IN JERUSALEM

According to Tobler's report, "Traditional medicine was very common among all the inhabitants of Jerusalem...without any ethnic or religious

differences. Only a few learned physicians lived in the city, and many among the local people preferred to get medical help from different kinds of healers."¹²

Quacks, Bloodletters (Cuppers) and Witch-Doctors

Tobler describes his meetings with many healers of different faiths—Jews, Christians, and Muslims. Medical pluralism prevailed among the inhabitants of the Arab and Ottoman world: some scholars listing three to five different medical philosophies current among the social classes of the peripheral Islamic states in that period.¹³ Tobler was impressed by their numbers and amazed by their methods of cure. He censured treatment administered by an old Jewish woman, whom, he wrote, "created major damage, especially in the treatment of eye inflammations." Another method of treatment that was very popular, according to Tobler, was bloodletting. He reported that Jewish, Christian, and Muslim men were in the practice of opening blood vessels with a wide variety of contrivances and special instruments. In the past they had performed this treatment on the streets, but later it was practised indoors. It was done gratis for the poor and at a small fee for the rest of the patients.¹⁴ Tobler refuted the common belief of Muslim objection to bloodletting,¹⁵ which, he asserted, his own experience proved unfounded.¹⁶

Barbers too engaged in "bloodletting," or more accurately "blood sucking." Tobler describes several Arab barbers and one Jewish, who practised a different method of blood release. They scratched the skin, placed the base of an animal's horn over the wound, and sucked the blood from the cut top of the horn. That way they did not touch the blood. The suction continued for about 30 minutes, and the barbers used a piece of leather to preserve the vacuum pressure when they had to breathe. "This method, which is well known all over the East, was once common in our land (Switzerland) and is still in practice in some spa sites." The scratching and sucking was done on the arms and the neck. The use of a cupping glass for blood letting was reported as well.¹⁷

Of interest is a description by the French traveller Volney, 65 years before Tobler's tour. After his visit to Jerusalem in 1785 Volney drew a sad picture of the condition of formal knowledge (science) in Syria and Egypt:

If one were under pressure he might find a man knowledgeable enough to let blood and having the proper instrument to open a blood vessel. Once a doctor had ordered burn treatment, or written a simple recipe, he considered his work finished. That might be the reason that they ask for medical advice from every European servant, as if he were Esculapion in person. From where would learned physicians evolve if there were not the proper institutions?¹⁸

Reading Volney's impressions, we should note that scholars such as Edward Said insist that Volney's view of Islam as a religion and a system of political institutions was "canonically hostile"; he "eyed the Near Orient" from the viewpoint of "French colonial ambition."¹⁹

We may note here a grim description of the medical conditions and the physician's status in 17th-century Jerusalem, 150 years before Tobler's visit. It is by Rabbi Rafael Malki (d. 1702):

A physician in Jerusalem is hard to find, a knowledgeable one you cannot find at all, others that are not learned and knowledgeable are everywhere. This is because the medical knowledge of the eastern countries, the Turkish Empire...is poor....This is why it is impossible to be a physician in Jerusalem—its inhabitants and its scholars do not believe in real medicine and its practice. In their eyes, anyone who claims to be a doctor and a real physician are equal....In these circumstances, and considering the level of the physicians in the city, one must not turn to any of the doctors of Jerusalem, and whoever follows their instructions is a killer....Better that such doctors be absent than present, and rather...leave the sick in God's hand than place them in the hands of such a one.²⁰

Medical Beliefs

"Medical superstitions were very common in Jerusalem: the magic cure included spells, amulets and the use of magical substances," wrote Tobler.²¹ Other physicians, working in Jerusalem at the beginning of the 20th century, wrote similarly on this subject. Such was Dr. E. W. G. Masterman, who furnished a detailed description of the different beliefs and trends of cures current among the residents of the Holy City.²² A local experienced physician, Dr. T. Canaan, published some works on this subject too,²³ as did the two English scholars G. M. Crowfoot and L. Baldensperger.²⁴

"Amulets were a preferred means of cure; you could hardly find an Arab inhabitant in Jerusalem without an amulet. And Jerusalem was full of magicians...." Tobler describes cases where orthodox Jews sought help from Arab sheikhs (old religious men).²⁵ The use of cautery was common: "They warmed a stone or an iron and placed it on the skin; they frequently set light to cotton for the same treatment." Bathing in a spring was a common treatment, as was the use of leeches, bought in Jaffa or Bethlehem. They were cheapest in the summer.²⁶

Physicians

Tobler's portrayal brings to mind other medical reports sent from the East to London some years previously. These reports, which were published in important medical journals of the time, *Lancet* and the *London Medical Gazette*, and also in the *British and Foreign Medical Review*, in 1842-43, drew similar pictures of the medical conditions prevailing in Syria

and Palestine. Jerusalem was an important city in that region, which attracted the attention of millions of people in Europe. The dearth of physicians was described: "There has not been a single resident practitioner to be found from Gaza to Antioch, from Hebron to Horan, or from Beyrout to Damascus, Homs and Hamah."²⁷ As for the inferior medical conditions: "The poor people all over the country are in sad misery, for want of medical advice; and they flock to such travellers as are in the company of a physician. There is no such thing as a medical man in all Syria; nor do the people appear to have any local knowledge even of herbs. No hospitals, dispensaries, infirmaries, or public charities exist, to receive the diseased, the mendicant, the orphan, or the helpless widow."²⁸

Tobler writes about the first physicians active in the Holy City in his time. He praises the British mission, which was the first to send qualified doctors to Jerusalem. Yet he criticises its members' excessive zeal. According to Tobler's writings, Dr. Albert Wilhelm Gerstmann (1815-41), a converted Jew, was the first European physician (of the 19th century) to practise medicine in Jerusalem.²⁹ He arrived in 1838 and was assisted by his pharmacist, Dr. Melville Peter Bergheim (1815-90). After Dr. Gerstmann's death Dr. Edward Macgowan (1759-1860) was sent to take his place. He arrived in Jerusalem in 1842 and had to work hard, curing hundreds of Jews.³⁰ Tobler lauds Dr. Macgowan's manners and medical skills, but questions his reports on the number of patients he treated.³¹

The first Jewish physician arrived in Jerusalem on 11 April 1843. As noted above, this was Dr. Simon Fraenkel, sent by Sir Moses Montefiore and at his expense, at the request of the Jewish community of Jerusalem. According to Tobler, many Jews, for the most part people of a lower social and economic level, did not appreciate Dr. Fraenkel's manner.³² After some years of communal medical service among the Jews, Dr. Fraenkel left this position and began a private practice in the city.

The Greek community of Jerusalem had their own physician, Dr. Giovanni (Joannes) Assuani, a prominent doctor from Capelonia, who acquired his medical education in Italy and arrived in the city in 1844. For a short period, from 1862 to 1863, Dr. Assuani served as a physician at the Rothschild Hospital.³³

In contrast to his warm words about the Greek physician, Tobler repeatedly berates the Franciscan "so-called physicians." He criticizes their wasting money, their attempts to convert patients, and the low level of their medical skills. He also observes that very few patients went to the Franciscan dispensary for medical help.³⁴

Medicinal Substances

Tobler gives an exceptional account of a visit to *Suk al-Attarin*, the "drug market" of Jerusalem, in the north-west of the city. He made a list of

the substances he saw in one shop, which in the event proved to be the only list, as far as we know, of medicinal substances ever compiled or published in the entire history of Jerusalem until the present. It was written as a distorted transliteration in Gothic lettering of the Arabic names, and it has subsequently been translated and studied. It contains 67 substances and is similar to lists drawn up in the same market in the last few years.³⁵ These substances and 17 others mentioned in Tobler's books are presented in Table 1.

Table 1
Medicinal substances used in 19th Jerusalem according to Dr. Titus Tobler
Plants and Animals

Scientific name	Part used	English Name
<i>Alhagi camelorum</i>	Sugar secretion	Alhagi manna
<i>Aloe spp.</i>	Resin	Aloe
<i>Arbutus andrachne</i>	Fruits	Strawberry Tree
<i>Aristolochia sp.</i>	Roots	Birthwort
<i>Artemisia spp. (or Eryngim spp.)</i>	Seeds	Wormwood
<i>Asarum europaeum</i>	Root	Wild Ginger
<i>Astragalus gummifer</i>	Resin	Tragacanth
<i>Astragalus sarcocolla</i>	Resin	Sarcocolla
<i>Balanites aegyptiaca</i>	Oil	Jericho Balsam
<i>Carum cervi</i>	Oil	Caraway
<i>Cassia absus</i>	Leaves	Cassia
<i>Cassia acutifolia</i>	Leaves, fruits	Senna
<i>Cephaelis ipecacuanha</i>	Resin	Ipecac
<i>Cinchona spp.</i>	Bark	Quinine
<i>Cinnamomum camphora</i>	Leaves	Camphor
<i>Cinnamomum zeylanicum</i>	Bark	Ceylon Cinnamon
<i>Citrus limon</i>	Juice	Lemon
<i>Commiphora myrrha</i>	Resin	Myrrh
<i>Convolvulus scammonia</i>	Roots	Scammony
<i>Cordia myxa</i>	Fruits	Sebesten
<i>Doronicum scorpioides</i>	Root	Panther Strangler
<i>Elettaria cardamomum</i>	Seeds, oil	Malabar Cardamom
<i>Eugenia cartophyllata</i>	Flower buds, oil	Cloves
<i>Ferula galbaniflua</i>	Resin	Galbanum
<i>Glycyrrhiza glabra</i>	Juice	Liquorice

Scientific name	Part used	English Name
<i>Gossypium herbaceum</i>	Seeds	Cotton
<i>Hyoscyamus</i> spp.	Seeds	Hebane
<i>Jalappa</i> spp.	Root	Jalappa
<i>Lepidium sativum</i>	Oil	Garden Cress
<i>Linum usitatissimum</i>	Seeds	Flax
<i>Lycium</i> spp.	Juice	Boxthorn
<i>Malve</i> spp.	Leaves	Mallow
<i>Matricaria</i> spp.	Flowers	Chamomile
<i>Myristica fragrans</i>	Seeds, oil	Nutmeg
<i>Nardostachys jatamansi</i>	Roots	Spikenard
<i>Orchis</i> spp.	Bulbs	Salep
<i>Papaver somniferum</i>	Resin	Poppy Head, Opium
<i>Pimpinella anisum</i>	Seeds	Anise
<i>Piper nigrum</i>	Oil	Black Peper
<i>Pistacia lentiscus</i>	Resin	Lentisk Pistachio
<i>Plantago</i> spp.	Seeds	Fleawort
<i>Prunus armeniaca</i>	Seeds	Apricot
<i>Prunus mahaleb</i>	Seeds	Perfumed Cherry
<i>Pterocarpus santalinus</i>	Leaves	Red Saunders
<i>Rheum</i> spp.	Roots	Rhubarb
<i>Rosmarinus officinalis</i>	Leaves	Rosemary
<i>Ruta</i> spp.	Leaves	Rue
<i>Salvadora persica</i>	Stem	Toothbrush Tree
<i>Sarsaparilla officinalis</i>	Juice	Sarsaparilla
<i>Sassafras officinale</i>	Root	Sassafras
<i>Tamarindus indica</i>	Fruits	Indian Date
<i>Terminalia citrina</i>	Fruits	Myrobalan
<i>Terminalia horrida</i>	Fruits	Myrobalan
<i>Triticum</i> spp.	Seeds	Wheat
<i>Vicia ervilia</i>	Seeds	Bittervetch
<i>Viola odorata</i>	Roots	Sweet Violet
<i>Zingiber officinale</i>	Roots	Ginger

Animals	Parts Used	English Name
<i>Castor fiber</i>	Glands	Common Beaver
<i>Castor fiber</i>	Oil	Common Beaver
<i>Hirudu medicinalis</i>	Animal body	Leech
<i>Homo sapiens</i>	Urine	Human urine
<i>Homo sapiens</i>	Mummified	
<i>Body parts</i>	Mummy	
<i>Lytta vesicatoria</i>	Insect body	Spanish Fly, Cantheridís
<i>Tubipora musica</i>	Coral parts	Coral
<i>Unidentified</i>	Insect body	Kermes

Minerals and other substances (English Names)

Minerals Name

Armenian Earth
 Borax
 English Salt
 Hematite
 Magnesia
 Sulphur
 Tartaric acid
 Tartrate Salt
 Verdigris

Other Substances

Jerusalem Balsam
 Manna
 Theriac
 Pine resin
 Kali
 Kalomel
 Mineral Mummy

Among the 57 substances of plant origin we find herbs such as rosemary (*Rosmarinus officinalis*), camomile (*Matricaria aurea*) and spices such as cinnamon (*Cinnamomum zeylanicum*), ginger (*Zingiber officinale*), and clove (*Eugenia caryophyllata*). The list also contained resins and gums

such as tragacanth (*Astragalus gummifer*), sarcocolla (*Astragalus sarcocolla*), and myrrh (*Commiphora myrrha*), roots such as spikenard (*Nardostachys jatamansi*), rhubarb (*Rheum officinale*), and sweet-violet (*Viola odorata*), seeds and fruits such as myrobalan (*Terminalia citrina*) and bitter-vetch (*Vicia ervilia*), and different oils: black pepper oil (*Piper nigrum*), caraway oil (*Carum carvi*), nutmeg oil (*Myristica fragrans*), and many others.

As for mineral substances Tobler lists nine, mostly different kinds of salts such as borax, English salt, and tartar, pure minerals such as sulphur, and other substances of mineral origin such as *Armenische Bolus*, which is Armenian earth.³⁶ Of the eight substances of animal origin, two were derived from a beaver (*Castor fiber*). Tobler describes *Bibergeil*, meaning beaver gland, and the Arabic term *Dehen el-Mannasar* which is the oil of beaver gland.³⁷

"One of the most unique substances was the "Mumia" (local name); the inhabitants believed it had exceptional curing power."³⁸ This material was the remains of bodies, mainly of Egyptian mummies, which was sold in the markets of Jerusalem.³⁹ Another kind is the mineral mummy, which was imported to the Holy Land from Iran and Russia. Both materials still may be purchased at a certain shop in the Old City of Jerusalem. The mummies were used by members of all faiths in Jerusalem as a remedy for treatment of dying people.

Tobler added information about several special materials such as the oil of the *Zaqum*, which cured wounds within a day. "A Venetian traveller who fell off his horse felt a worrying ache in his chest, rubbed his body with *Zaqum* oil and drank some, and within some days the wound was scarred over and the internal aches were eased."⁴⁰ *Zaqum* is the Arabic and the Hebrew name for Egyptian balsam (*Balanites aegyptiaca*), a tropical tree growing wild in the Judean desert. The oil pressed out of its fruit has been used as a medicine since early history.⁴¹ Tobler also mentions the frequent use of "Theriak" (theriac).⁴² Theriac is a mixture of many medicinal substances: plants, poisonous minerals, and extracts of animals, generally poisonous, such as snakes and scorpions.⁴³ The manufacture of theriac was a well-kept secret kept throughout history. Medieval Muslim medicine made use of a different kind of theriac. Jerusalem theriac was famous for its medicinal qualities and was even exported to other countries.⁴⁴

Pharmacies

According to Tobler's observations, four European pharmacies functioned in Jerusalem in 1846:

1. The Franciscan pharmacy, the best known in the city, was located in the Franciscan monastery. Being the longest standing European pharmacy in Jerusalem, it was highly thought of through the ages.

Travellers and visitors to Jerusalem, such as Troilo at the beginning of the 18th century,⁴⁵ Hasselquist⁴⁶ in 1750, and Seetzen⁴⁷ in 1806, have left us their impressions. All visitors (including Tobler) were impressed by the famous medication Jerusalem balsam, which was manufactured and sold at the place, by the wide variety of medicinal substances, and by the large quantities of drugs in stock.⁴⁸ After a visit to the pharmacy in 1835 Tobler wrote in his notebook, "the place looks ancient...the laboratory is strange, unmatched by any European competitor in being so strange...the instruments have old-fashioned shapes, like the traditional tools of mystic alchemy and astrology.... Together with those instruments were some skeletons, surgical instruments, threatening monsters covered with mould...different types of amulets...and all in ancient dark rooms. Yet the store-room of the medicinal substances was exceptionally fine."⁴⁹

2. *The Greek Orthodox pharmacy*, situated in Dier al-Rum al-Kabbir. According to Tobler, "This was the cleanest of all, it was bright and well designed. The names of medicines were written in magnificent Greek lettering. The Greek Orthodox inhabitants and pilgrims received the medication free of charge."⁵⁰
3. *The English pharmacy* located in their hospital. Recently, a study on the English medical activity in 19th-century Jerusalem reveals its unique activity, a list dating to 1857 of the *materia medica* used by the English pharmacists and physicians was reviewed and published as well.⁵¹
4. *The Jewish pharmacy* which was located in Dr. Fraenkel's house. Tobler recalls some medicine sellers whose "pharmacies" were in the Jewish quarter and were better equipped than those of the Arab drug sellers. Two of these were "of importance; the names of the medicines were written in Hebrew and cleanliness was non-existent." Tobler added that he found there the "Kalomel" and opium decoction that he could not find in the Arab drug market. He also found theriac and other materials. Tobler concludes this passage thus: "Other than at the Christian pharmacies, physicians could find the most essential substances here, as long as they could read the drug's name."⁵²

Hospitals

According to Tobler there were only few hospitals in the city, including the following:

The *hospital for the blind*, situated near the Western Wall of Temple Mount. Tobler comments that only ten patients were being treated there at the time of his visit.⁵³ Thirty years later the ophthalmic hospital of St. John began to operate and treated hundreds of patients every month.⁵⁴

The *Catholic Church hospital for the poor*, known as *Dar Isaac Bek*, was located near the Church of Helena. It had 28 rooms. Tobler adds that

while he was visiting the Franciscan monastery of Saint Salvador he saw some patients. Another Catholic institute was the French hospital, founded in 1851, perhaps to compete with the English hospital, having 22 beds and a clinic (dispensary).⁵⁵ Modern scholars such as Schwake concur with this evaluation, and have described its establishment in detail.⁵⁶

The *English hospital* of the London Society for Promoting Christianity among the Jews was, according to Tobler, the only hospital meeting European standards. This hospital, established in 1844 in the Syrian quarter, had 16 beds. As it belonged to the English mission the Jews placed a ban on it, and a Jew who died in that hospital could not be buried in a Jewish cemetery. Their clinic was very busy, supervised by Dr. Macgowan.⁵⁷

The *Prussian hospital* was not far from the Anglican Church. It was established in 1851, having been designed by the architect Conrad Schick, the renowned Swiss pioneer in Palestine. Dr. Macgowan administered the medical treatment.⁵⁸ One of the first directors of this hospital was Dr. Samuel Hoffmann, son of the founder of the German colonies in Palestine, a member of the Templers. Dr. Simon Fraenkel, being a Prussian national, was one of the first physicians appointed to the hospital.⁵⁹

The *Jewish Hospital* was built by Sir Moses Montefiore in 1843; as noted, Dr. Fraenkel was its director.⁶⁰ By the time Tobler's book was published (1855) this hospital no longer existed and Dr. Fraenkel was practising private medicine in Jerusalem. In 1854 the Rothschild family established a new hospital in the Jewish quarter. This was an important institution, although it was involved in an internal dispute in the city's Jewish community.⁶¹ Tobler does not mention the effort regarded by some scholars as the first to establish a Jewish hospital in Jerusalem, made by Rabbi Israel Baeck in 1844.⁶²

The *Lepers Hospital—Jesushilfe Hospital*. Tobler states that for many years lepers dwelt in hovels near Zion gate, where they lived apart in wretched conditions.⁶³ On 30 May 1867, a leper hospital called the *Jesushilfe* was inaugurated in Jerusalem. In 1887 a better appointed hospital was opened near the German colony.⁶⁴

Maturity and Fertility

"Girls in southern lands start their menstruation earlier than in northern, but it is equally true that writers exaggerate." Tobler adds that in general menstruation was observed in girls aged 13 or even 12, and sometimes younger. He describes exceptional cases he had heard about, where 12-year-old girls were pregnant. He states that 14-year-old mothers were common. Women were reported to give birth at the latest at ages 40 to 45 years, along with the end of the menstruation. "Women are very fertile, as in Syria, and give birth to many children." To cure women of infertility midwives and old women treated them with a plethora of methods,

some of which even caused death. Male impotence was the result of practising sex at too early an age, according to Tobler, and the cure was "not for a physician to deal with but through common sense, morals and the law."⁶⁵ From Tobler's description we learn of the important role of midwives in fertility issues as well as at the birth itself, although the Jerusalem midwives were apparently not trained, nor did they practise according to any regulations. A different situation prevailed in Europe and America, where midwives likewise played an important role but were highly trained and followed regulations.⁶⁶ Dr. Bernard Neumann, director of the Rothschild Hospital, adds more information in his journal published in 1877.⁶⁷ A similar picture of maturity and fertility in Jerusalem, with additional data, is presented by Dr. Masterman 50 years after Neumann's description and more than 75 years after Tobler. He indicates, for example, that the period of breast-feeding was long: two years among the Jews and three years among the Muslims.⁶⁸

Health and Mortality

"The Jerusalem vicinity is not a healthy one," writes Tobler, citing the cistern and the pool as two of the main causes. He refers to the vapour rising from them and the beverages made of their water, as causing disease, even if they were cleaned frequently. (Tobler believed that vapour caused diseases, a common mistake before microbes were discovered). Tobler mentions the tanneries that operated within the city and the sewage, which was haphazard and very rarely processed, as other sources of disease. The final cause he lists is the "piles of garbage accumulated in houses, streets and outside of the city walls." Tobler perused the mortality table of the Latin community in Jerusalem but found its data inadequate for reliable conclusions to be drawn.⁶⁹

Illness and Diseases

Tobler assembles his observations on illness and diseases in one lengthy list. Incidentally, 10 years later the first scientific article was written in Jerusalem by Dr. Thomas Chaplin, and published in the *Lancet*. Before discussing the Fever of Jerusalem, which was his topic, Dr. Chaplin describes the medical "circumstances" of the city. He centres on four, which could easily be to blame for many diseases of the city: the amount of accumulated rubbish, the nucleation of sanitary regulation of the inhabitants, the people's poverty and filthy habits, and the poor water supply.⁷⁰

Returning to Tobler, we may note that his interpretation of the particular disease and illness cannot always be credited with real or modern meanings. He wrote in the 1850s, before the "Laboratory Revolution"⁷¹ and the modern medical paradigm, namely, germ theory. For convenience we have categorized and edited Tobler's data. Occasionally we add comments by other doctors.

Common Diseases and Illness.

Burns: "very frequent, mainly among children, due to the common use of the *mangals* (griddles)." ⁷² **Cataract** "is widespread in Jerusalem, Dr. Macgowan informed me, and therefore encouraged the establishment of the Hospital.... Though other physicians such as myself, Dr. Fraenkel, and Dr. Assuani agreed that cataract was rare in Jerusalem, and we had not heard about a surgery performed in the last 15 months since the hospital was established." ⁷³ Moreover, before his arrival in the city, Tobler states, a British surgeon had performed some successful surgeries. The inhabitants did not trust European eye medicine and preferred to use common powder (unrecognized). **Constipation:** "observed frequently, especially when connected with haemorrhoids." ⁷⁴

Erysipelas: widespread, and was treated with a wide variety of cures including red earth with human urine or silk threads. ⁷⁵ Dr. Masterman added years later that "Erysipelas is by no means uncommon among the town-dwellers, many cases contracting infection at site of the "issues" the people make and keep permanently open on their arms and elsewhere with the idea of benefiting their chronic eye-diseases." ⁷⁶ **Dysentery:** "common especially in the summer when the figs and grapes are ripe." Usually the disease was not deadly, but every once in a while it was accompanied with high temperature. The usual treatment was theriac. ⁷⁷ **Diarrhoea:** "plentiful, all year around, and sometimes evolved into dysentery." The hot climate and high consumption of fruits such as almonds, apricots, and oranges were believed to be the cause. Tobler mentions his personal experiences of diarrhoea. ⁷⁸ Dr. Masterman regarded "Infantile diarrhoea and dysentery" as the cause of many deaths. ⁷⁹

High temperature: very common, acute temperature necessitating treatment. Sugar water was drunk to fight the thirst as a long-standing Arab tradition. ⁸⁰ **Hysteria:** frequent. ⁸¹ Dr. Masterman mentions that Hysteria was common among "members of the Jewish race." ⁸²

Inflammations and haemorrhages: "frequent." ⁸³ **Iritis and keratitis:** "very frequent diseases, mainly among children. Most of the cases are chronic" Tobler describes shocking cases, aggravated by "wrong" treatment with irritating substances of the "healer" women. Inflammations and swellings were very common and many blind people were to be found on the streets. ⁸⁴ Dr. Masterman reports that "Eye diseases are, and probably always have been, very prevalent in the Holy Land." Then goes on to detail the different diseases and symptoms. ⁸⁵ **Laryngitis and cold:** "widespread all year round, mainly after the first winter rain and especially when cold easterly winds blow." ⁸⁶

Oriental leprosy: "Leprosy is a common disease in the East, and Jerusalem hosts many lepers, who dwell in their separate huts near Zion Gate." Tobler describes the symptoms and progress of the disease:

"I saw men without beards... People without teeth...and patients without fingers...the urine is yellow and the excrement is black." Tobler reported that the strongest wed and beget healthy babies. He added that "both Dr. Fraenkel and I heard that the healthy children are taken away...." Death from this terrible disease was sudden. Tobler informs us its cause was unknown, and that it was a genetic condition (an early and unique remark for the mid-19th century, but erroneous). Although there was no cure Tobler lists some treatments: bloodletting, leeches, purgatives, bath, fast, magic, and use of substances such as mercury and snakes. He concludes this unpleasant subject on a humanitarian note. How is it, he wonders, that "the British, who show overdone sympathy towards the Jews, are apathetic to this disaster....A human, compassionate heart would have found the way to get them back to human society. Humanity has many means to fight leprosy."⁸⁷ For his part, Dr. Masterman writes, "Leprosy is not a common disease but it infects all classes—Moslems, Jews and Christians: there are in all Palestine not more, perhaps, than 250 lepers, most of them segregated in Jerusalem." He gives additional useful information.⁸⁸

Pneumonia: appears frequently, in all seasons. Accompanied by high temperature. Dr. Fraenkel cured it with bloodletting and alkali with saltpetre.⁸⁹ *Rheumatism*: common disease, all year round, less in summer. Sometimes accompanied by high temperature. The disease usually causes pain in the chest and the neck.⁹⁰ "Acute rheumatism is fairly common," asserted Dr. Masterman seventy years later, "and is responsible for a large proportion of the cases of valvular diseases of the heart."⁹¹

Stomach diseases: common and followed by high temperature. "They are caused by uncooked food, gourmandizing on sweets, coffee drinking, smoking and early sexual satisfaction."⁹² The common treatment was purgatives and induced vomiting. *Tetanus*: "Dr. Fraenkel observed it frequently among children.... Dr. Assuani reported only one case."⁹³ Decades later Dr. Masterman writes, "Tetanus occurs occasionally....The Turkish Government, through the local authorities, assists all such cases, when needing financial help, to go Egypt or to Constantinople for treatment...."⁹⁴ *Tonsillitis*: widespread, especially among children, accompanied by coughing. According to Dr. Fraenkel's experience the disease was not deadly and the patient could recover without bloodletting. Tobler adds a personal observation: he suffered from tonsillitis himself, was troubled by it for some days and then enjoyed a full recovery.⁹⁵ *Wounds*: "were hardly seen by Dr. Fraenkel, who added that they become cured quickly."⁹⁶

Rare diseases

Asthma: "rare disease."⁹⁷ However, Tobler's determination is strange in light of the many medieval sources relating that asthma was a common

disease in the Levant.⁹⁸ Furthermore, Dr. Masterman later states, "With regard to non-tubercular lung diseases, spasmodic asthma is very prevalent in Jerusalem."⁹⁹ *Chickenpox*: "rare in Jerusalem. Had never been seen by Dr. Fraenkel."¹⁰⁰ *Coughing*: rare, appeared in intensified form among children.¹⁰¹ *Enteritis*: a rare disease, and according to Tobler treated wrongly by the local physician.¹⁰² *Loss of voice*: rare, Dr. Fraenkel reported only two cases. *Migraine*: rare.¹⁰³ *Pleurisy*: was observed rarely by both Dr. Fraenkel and Dr. Assuani.¹⁰⁴ *Psychotic disorders*: "rare, if we do not count stupidity as such a disease," writes Tobler: patients do not seek help from a physician, but from religious authorities such as Muslim sheikhs or monks in a monastery. Tobler states that there was no suicide.¹⁰⁵ Dr. Masterman similarly avers that "Various forms of Idiocy and Insanity are by no means uncommon, but suicide is distinctly rare."¹⁰⁶

Epidemics

Typhus: rare disease; neither Dr. Fraenkel nor Dr. Assuani had seen a case in three years. *Rabies*: "was observed neither in Jerusalem nor in any other city in the East."¹⁰⁷

Cholera: "this disease exists in the Holy Land and Jerusalem."¹⁰⁸ Dr. Masterman asserts that "Cholera appears in severe epidemics at intervals, with an enormous mortality." He adds a significant sentence: "In nothing does the fatalism of the ignorant natives appear more prominently than in their attitude towards this disease. In spite of all warning, they will wash the clothes of cholera patients in the village water-supply." He then describes the Tiberias epidemic of 1902: "many of the people could not be induced to drink the boiled water freely and liberally supplied to them by the resident Scottish doctors, but used this for washing their clothes and drank of the sewage-infected lake-water at their doors."¹⁰⁹ *Oriental Plague and Smallpox*: "It did not cross my mind to describe perfectly this affliction of Jerusalem." But Tobler does try to describe the disease and to convey as much information as he can. "First cases are very hard to diagnose—even for an experienced physician, though after a while anyone could recognise the disease." Tobler admitted that very little was known about the disease and that no empirical proof existed for the notion that the plague evolved from the smell of decayed human bodies. However, he concurred with the idea that the bad smell of bodies and rotten garbage in the streets encouraged the progress of the plague. In addition, "somewhere, somehow the disease is self-generating." Tobler describes some experiments conducted by the Russian and the Ottoman authorities to learn the cause of the disease. "The best solution is isolation," he writes, which the Latin monastery practised in cases of plague. Tobler reports that the plague had struck the country in 1801, 1812, 1834, 1838-39, and

1840-41. He concludes his report, "as far as I could find the plague always hit Jerusalem in the hot season, especially spring and summer."¹¹⁰ Seventy years later Dr. Masterman reports, "Plague has not occurred in epidemic form in Palestine since the first third of the nineteenth century, though sporadic cases have been detected and isolated at the ports; in earlier ages it swept the land with terrible effect."¹¹¹ *Malaria*: one of the most common diseases in the city. All the European physicians agreed that it appeared frequently all year round, but reached a peak in the spring. The disease struck everyone, including babies and nursing mothers. The fever appeared in its single, double, triple, and even quadruple form. The high temperature was not fatal. Tobler seeks its cause in the "consumption of uncooked fruits," and has heard that it "might be from poisonous vapour coming from the Dead Sea." A likely cause, he indicates, could well be the water kept in the dirty cisterns and pools. Dr. Macgowan asserted that dwelling near the Patriarch pool was unhealthy and vulnerable to malaria. Tobler conducted a study and concluded that "there were a considerable number of cases of malaria near the pool, more than in other parts of the city." He blames the vapour and not the quality of the drinking water. The high temperature was treated with large quantities of quinine (Tobler was critical of the quantities). The inhabitants used a "traditional medication, which consisted of: apricot seeds, aniseed, rue, lemon juice and urine. They also used amulets, a vegetarian diet for 40 days and other magics."¹¹² *Malaria* and its causes were extensively described by Dr. Masterman seventy years later from a more experienced and knowledgeable position (i.e., after germ theory and the laboratory revolution).¹¹³ *Malaria* continued to be a common disease in Jerusalem well into the 20th century.¹¹⁴

Strange comments and observations

Abortion: Tobler states that "in some cities of the East methods of abortion were used," which Dr. Fraenkel did not know about. Natural abortions were very rare, occurring mainly in Jewish women.¹¹⁵ *Birth*: in the East only women worked as midwives. Tobler observes that the Jews rarely invited Dr. Fraenkel to treat women in labour. Muslim women gave birth while sitting on a chair, unlike the Jewish women. The labour and the birth could last a day or two. The umbilical cord was cut with scissors and tied up. Dr. Fraenkel observed that in some months most of the deliveries ended in the woman's death.¹¹⁶ Later Dr. Masterman gives similar information in his book, adding that "the period of suckling is long—among the Jews commonly two, and among the Moslems even three, years."¹¹⁷

Haemorrhoids: "widespread, best cure, they say, is a cut in the forehead."¹¹⁸ Dr. Masterman's view of this disease is unique: "Haemorrhoids (piles), due to portal congestion, are very common, particularly among the

Jews, who are accustomed to the regular use of alcohol."¹¹⁹ *Hypochondria*: "common, due to eating habits."¹²⁰ According to Dr. Masterman, hypochondriasis was "common among the members of the Jewish race."¹²¹ *Masturbation*: "was not known, due to early marriages."¹²² Note that masturbation was considered a sin in 18th- and 19th-century Europe. Several books were written on the subject; one of the most important, entitled *Onanism*, was by the Swiss physician Dr. Simon Andr e Tissot (d. 1797). We can learn from this of the medical milieu whence Dr. Tobler came. In British Egypt in 1882 a British physician claimed that masturbation caused trachoma.¹²³ *Shivering*: "frequent, due to excessive sex life."¹²⁴

CONCLUSION

Dr. Titus Tobler's careful recording of the medical conditions of mid-19th-century Jerusalem is a significant document. On each of his prolonged sojourns in the city he assembled the information himself or gathered it from the few European physicians working there. The information we obtain from Tobler is extensive and accurate; he frequently cites other physicians and his discussions with them. In special cases Tobler even reports the minority view of one physician who contradicts the others.

Like any document from that time, Tobler's work is imperfect, with pre-modern medical ideas and mistaken analysis of the data, all according to the mid-19th-century knowledge and medical criteria. Yet historically this document is of a great importance. It illuminates a neglected aspect of Jerusalem, never presented by other travellers or scholars. Tobler indeed draws a unique and rich picture of that important part of the daily life of the inhabitants of the Holy City.

As for the social aspects in Tobler's description, he often failed to grasp the health-related behaviours of the different religious and ethnical groups, minorities, and sects in Jerusalem. Nor could he be helped by the other physicians, all of whom were Europeans and belonged to the upper socio-economic stratum. Tobler's knowledge of the different systems of Arab medicine, which had predominated in the Levant for centuries, was evidently poor. Still, with regard to medicinal plants and healing methods Tobler's accounts are credible and well-founded.

The picture drawn by Tobler in his writings is bleak. The medical conditions of Jerusalem were far inferior to those prevalent in the great European cities at that time. This situation highlights the major importance of the medical work of the London Society for Promoting Christianity among the Jews. Their physicians, hospital, and pharmacy helped the needy inhabitants of the city and fostered positive medical "rivalry" among the different communities in Jerusalem. This "healthy" competition improved the medical conditions in the Holy City and benefited its inhabitants.

Despite the competition among the different European physicians, Tobler's writings illumine the sound relations among them; they associated professionally, learning from each other and preserving a good and healthy professional atmosphere.

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