

People, Epidemics, and Quarantine: Cholera Epidemics and Medical Reforms in Romania in the 19th Century (1831-1913)

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Abstract. This study aims to address the issues of cholera epidemics, quarantine and public health in Romania during the period between 1831 and 1913. The study is part of a more comprehensive project, in which we analyze quarantine from multiple angles, more precisely the medical, political, economic, diplomatic, demographic and social dimensions. In the following, we will focus our analysis on two aspects: the cholera epidemics up to 1913 and the policy of the health authorities to control cholera through quarantine, prohibitions and public hygiene measures. The emphasis will fall on the health law of 1874 and its effects on public health. The study explores these topics using a wide range of primary sources, including health law articles, bills of mortality, medical reports, and the periodical press. The research allows us to better understand the link between cholera epidemics and public health strategies and reveals how cholera forced state authorities to act urgently and organize a modern public health system.

Keywords: population, cholera, quarantines, public health, modernization, Romania

1. Introduction. Cholera Epidemics and Medical Modernization in Romania

Similarly to many European countries, Romania faced its first cholera epidemic in the summer of 1831, when the disease that had been haunting Russia since

1829 broke through the sanitary cordon organized by the Russians on the Prut River and advanced towards Iași and Bucharest, the capitals of the two principalities, causing numerous victims on its way (Taki 2008: 94).

We should mention that in 1831 Romania had not yet been established as such; the territories under focus in the present study were the principalities of Wallachia and Moldavia, two countries with a complicated legal status, functioning under the suzerainty of the Ottoman Empire and the protectorate of the Russian Empire. This situation was imposed on the two countries by the Treaty of Adrianople of 1829, which ended the Russo-Ottoman War (1828-1829) and considerably strengthened Russia's influence in the Balkans, to the detriment of the Ottoman Empire (Ardeleanu 2008: 57; Ardeleanu 2016: 13-14). Between 1829 and 1834, the two principalities were under Russian military occupation and were ruled by its representative, the Russian general Pavel Kiseleff (1788-1872). While Kiseleff's rule ended in 1834, with the agreement of the Ottoman Empire, Russia would appoint loyal and trustworthy individuals as rulers: Alexandru Dimitrie Ghica (1834-1842) in Wallachia and Mihail Sturdza (1834-1849) on the throne of Moldavia. After the revolution of 1848, these were succeeded by Barbu Știrbei in Bucharest and Grigore Al. Ghica in Iași. Through this, Russia maintained its control over the principalities until 1853, after which, the outbreak of the Crimean War (1853-1856) put an end to Russia's influence in the principalities. Defeated in the war, Russia lost the status of protector of the principalities, which came under the collective guarantee of the "Great European Powers". The Treaty of Paris of 1856 would enshrine the new status of the two countries and pave the way for their union (1859) and the establishment of Romania (Boia 2007: 74-75). The unification project continued in 1878 with Dobrogea and was completed in 1918, through the union of the historical provinces of Transylvania, Bukovina and Bessarabia with Romania (Nicoară 2024: 144-145).

Under the supervision of Governor Kiseleff, a number of modernizing measures were put into practice in the two principalities, such as: the Organic Regulations (1831-1832), documents with constitutional value, and the Danube quarantine system as a barrier against plague and cholera epidemics. Regarding the Organic Regulations, it should be noted that despite their limitations and hidden objectives (the annexation of the Principalities by Russia), they accelerated the modernization process of Romanian society, guided the principalities towards a capitalist economy, and caused important institutional and social changes reflected in the class structure, standard of living, and demography (Filitti 1916: 93; Jelavich 1984: 29-30; Mârza 2005: 83-85). In the following, we will focus on the Danube quarantine system, which played an

important role in managing collective health and in modernizing Romania's healthcare system.

In 1830s, within the context of trade intensification at the Danube mouths, extended connection of Danube ports and cities to international trade networks and increased human mobility, the rulers of the principalities became increasingly aware of the danger of mass diseases and devastating epidemics. The fear of epidemics and the desire to assert a sanitary autonomy for the principalities vis-à-vis the Ottoman Empire were the main reasons that led General Pavel Kiseleff to put into practice Article 6 of the Treaty of Adrianople (1829), on the basis of which the sanitary cordon was set up on the Danube border of the Principalities, between the Ottoman Empire and the two Romanian principalities (Ardeleanu 2024: 154-155). The sanitary cordon was made up of eleven quarantine stations in Wallachia (at Brăila, Calafat and Giurgiu, at Cerneți, Turnul, Zimnicea and Călărași and at Izvoarele, Bechet, Oltenița and Piua-Pietrii) and one in Moldavia (at Galați-țiglina) being directed by the “General Inspector of Quarantines” with the help of the “Quarantine Committee” (one Committee for each principality) (Negulescu and Alexianu 1944: 279-280; Grigoruță 2020: 206). In the first months of its existence, for political reasons, the quarantine system on the Danube was overseen by the Russian general Sergei Dimitrievici Urusov (1786–1869), the trusted man of Governor Kiseleff. Towards the end of 1831, Kiseleff appointed another loyal person, General Nicolae Mavros (1782–1868) as the Inspector General of quarantine (Petrescu 2020: 140; Pippidi 1992: 110). Nicolae Mavros headed the quarantine service of the two Principalities until the 1854 reform, when the institution was abolished. In addition to the aforementioned stations, other quarantines were also functioning in the vicinity of the two principalities, one at Orșova, established by the Habsburgs near the border with Wallachia, and one quarantine at Sulina, which had been established by the Russian authorities in 1829, after taking possession of the Danube Delta (Popa 2008:95; Robarts 2016: 146-147).

The Quarantine Committee was conceived as a special department under the Ministry of the Interior, which would be exclusively responsible for quarantines and public health issues. The Wallachian Committee was composed of three members with decision-making power (the Inspector General of Quarantines, the Deputy Inspector and the Protomedicus of the principality) and 21 officials. The 21 officials formed the “Chancellery of the Quarantine Committee”. Three of staff were medical specialists, while the rest performed various secretarial, cashier, control and supervisory duties, having limited knowledge of cholera (Negulescu and Alexianu 1944: 74-75). The

Committee's tasks included collecting data on contagious diseases, disseminating information about these conditions, monitoring the evolution of epidemics and reporting to the Minister of the Interior on their status on a daily basis, drafting public health bills and sending them to the Minister for approval (Negulescu and Alexianu 1944: 81).

The Kiseleff administration's attempts to stop cholera through sanitary cordons and quarantines at the naval border did not yield the desired results. Cholera found ways to circumvent obstacles and crossed the border into the principalities. Usually, when the first cases of contagious disease appeared in a town, the state authorities used quarantine, sanitary cordons and prohibitions to keep the plague under control. The first step was to identify the disease outbreaks and to declare quarantine. The identified houses were disinfected and families were separated according to signs and symptoms manifested by their members. The sick were admitted to lazarettes (not so much to be cured, but mainly to be isolated and thus to prevent the infection of other people) and those suspected of contagion were isolated in their homes and periodically underwent medical checks. As the epidemic progressed, schools, shops and workshops were closed, public gatherings (church services, fairs and gambling) were banned and free movement between towns was restricted. For the free movement prohibition, the authorities would impose sanitary cordons consisting of several soldiers or gendarmes (Negulescu and Alexianu 1944: 79-80). If the transit of people could not be completely interrupted, the travelers would be checked for signs of illness and subjected to disinfection through body cleanings with vinegar or brine (Buletinul Oficial 1834: 13). A similar procedure was applied to draft animals (oxen, horses or donkeys) and means of transport (carriages, chariots or carts), while cloths and goods were fumigated with aromatic powders and disinfectants (DJAN-Dolj 75/1847). In addition, the consumption of raw or rotten fruits, especially boiled corn and melons, and the "manufacture of starch" (considered harmful to the environment) were also prohibited (SMBAN 3/1865).

In the case of death, the procedure was different. The dead body was placed in a deep pit and then sprinkled with quicklime and finally covered with earth (Buletinul Oficial 34:13). The deceased's personal belongings were then disinfected or burned, if considered worthless. A "radical solution" was applied to dogs and cats in "infected houses". According to the protocol, these animals had to be killed and buried in the ground, while being careful not to touch them (Curierul românesc 1830: 69). To ensure that things were carried out according to law, the governors stipulated that the staff responsible for implementing the measures should swear to scrupulously follow the health

rules and that any departure would be accompanied by very harsh punitive measures. For example, for preserving the remaining goods of the dead, one would have to undergo a double quarantine or several days of hard labour in a salt mine (Negulescu and Alexianu 1944: 84-85:).

Concurrently with the imposition of quarantine and the enforcement of prohibitions, a vast literature on cholera was published, with the help of which the authorities disseminated information related to diseases and epidemics. Through “disease warnings”, public health regulations, instructions, brochures and domestic medicine books, people were advised how to recognize cholera, how it was believed to spread, and how to defend themselves against it (Muzeu Național 1836: 113-114; Cuciureanu 1848). Other instructions stressed the importance of public hygiene and identified the essential elements for the health of the inhabitants: clean drinking water, sanitation and better living conditions.

Related to the last aspect, until 1874, governors also tried to control cholera through concerns about the cleanliness of streets, houses, and water in cities. Thus, the public garbage collection service was normalized and measures were taken to drain puddles of water and swamps in localities; funds were found for paving streets, disinfecting public sewers with chloride of lime and modernizing drinking water supply facilities. Public parks and gardens were also arranged, and more emphasis was placed on food hygiene control in urban centres (Livadă-Cadeschi 2013: 71-72). Last but not least, the villagers were encouraged to build houses with large windows, toilets, and stables for animals. Other measures have been taken in the field of the healthcare system. Gradually, a network of county hospitals was created through which free medical services were provided to the poor population, and measures were taken to increase the number of specialist doctors by encouraging foreign doctors to settle in the principalities, but also by establishing schools and faculties for training specialist doctors, etc (Bărbulescu 2018: 120-121; Trăușan-Matu and Buda 2023: 34-35).

Between 1831 and 1874, during the three cholera pandemics, the Romanian population faced five cholera epidemics, which manifested as irregular outbreaks with varied severity between regions: 1831-1832, 1848-1849, 1855-1856, 1866-1867 and 1873-1874. Although most people tried to uphold the terms of quarantine and prohibitions, the recorded mortality was very high. According to the calculations of Dr. Iacob Felix, during the 1831 epidemic, 20,218 people died of cholera out of the approximately 3,000,000 inhabitants of both Moldavia and Wallachia (Felix 1905: 306). The figures for mortality were equally dramatic in the following epidemic waves; during the

1848-1849 epidemic, between July 1st and August 3rd, in Wallachia, out of the 18,443 cases of illness detected, 3,893 resulted in death (Cernovodeanu 1983: 317). In the case of Moldavia, Dr. Iacob Felix estimated that between May 19th and July 16th, 1848, 7,000 people died of cholera (Felix 1905: 308). The cholera epidemic of 1873 was no less devastating. The figures recorded by Iacob Felix show 3,200 victims out of the 18,000 people infected with cholera (Felix 1905: 309).

After 1874, the year when the first sanitary law of modern Romania was adopted, three more waves would follow, the epidemics of 1876, 1893, and 1913. Broadly, until 1893, the measures of defence against contagion consisted of unconditional quarantine, trade restrictions, bans on gatherings, and public hygiene and sanitation measures. After 1893, with the emergence of research laboratories and the development of vaccines, quarantine was imposed only in strategic locations (at the naval or land border). The effect of the new strategies can be assessed from the number of victims. For example, between July and October 1893, in Romania “1,494 people were infected, of whom 622 recovered and 872 died”, and during the cholera epidemic of 1913, although preventive vaccination of all Romanian soldiers was imposed, over 11,500 soldiers contracted cholera, of whom 1,600 did not survive the contagion (Ciupală 2020: 111).

After 1928, when Alexander Fleming (1881-1955) discovered penicillin, mortality from cholera began to decline significantly in Europe and the United States. Currently, in addition to preventive (sanitization) measures, antibiotics and rehydration salts (the treatment against "metabolic acidosis") are very successful (Ferguson 2021: 135)

2. Cholera, the Law on Sanitary Service Organization (1874) and the Institution of Quarantine

Having seen how many institutions, protocols and medical procedures arose from the state of emergency caused by cholera epidemics, it is worthwhile to inquire what the sanitary law of 1874 proposed in order to limit the spread of infectious diseases. What set it apart from previous quarantine regulations? Under what conditions and manner was quarantine declared as a public health measure?

On June 16th, 1874, following the cholera epidemic of 1873, the Romanian government published the Law on the organization of sanitary service. The first priority of the law was to create a state health service, in the form of a Health Directorate within the Ministry of Interior, whose power of decision and intervention depended on the collaboration of medical and

central or local political authorities. According to the new law, the main health authorities were the Minister of Interior, the Director of the Health Service, the Higher Medical Council and the County Public Hygiene and Sanitation Councils. In case of an epidemic threat, these institutions assessed the type and severity of the plague, decided on intervention measures and approved an organized strategy for the implementation of mandatory rules (Bărbulescu 2009: 33-34). It was not only medical professionals or public health officials who received public health duties and responsibilities, but also border guards, police and state bureaucrats.

Strictly related to epidemics and quarantine, in order to defend the country against epidemic disease, the law provided that the Minister of Interior, after the approval of the Higher Medical Council and the government, could order to close borders for infected or potentially infected travelers, for goods and other objects liable to transmit a contagion, and might seize morbid travellers and their goods for a fixed time, by special regulation (Şuta et al. 2009: 65). The special regulation had to specify the cases when quarantine could be established, the quarantine time for specific diseases, and the hygienic conditions of the quarantines (lazaretto) (Şuta et al. 2009: 65).

In case of an interior epidemic outbreak, the county prefect had the authority to seize houses and infected persons, to order the disinfection of houses, corpses, clothing and other objects and to close schools, but not before receiving the approval of the Council of Public Hygiene or, in special cases, the order of the Minister of Interior (Şuta et al. 2009: 65). By introducing the central approval, a form of partnership was created between local and central authorities regarding primary assistance in the event of a health emergency. Good collaboration between these institutions was essential in order to identify and address environmental risk factors for health. The law provided special sanitary duties for the urban communal councils and for the permanent committees of the rural counties. In case of an epidemic, the members of these committees had to provide care for the sick at their homes, and if the situation worsened, to order the establishment of special hospitals during the epidemic crisis, where the sick could be isolated and cared for.

Furthermore, under the 1874 law, the primary county doctor, city doctor and district doctor were mandated to supervise the state of the environment and propose regulations in order to prevent the spread of infectious disease (Şuta et al. 2009: 99-102). Their main concern was to check that citizens respect public hygiene measures and protect drinking water sources (not to be contaminated with toxic waste). These tasks involved monitoring the living conditions of the citizens. This encompassed almost

everything, from the state of the air, water and housing to how to design houses, cemeteries, businesses, sewage and garbage disposal sites, etc (Șuta et al. 2009: 93-95).

The repeated references to polluted air, the state of environment and public hygiene should be understood in the medical context of the time. The idea of sanitizing urban areas was based on the miasma theory, according to which diseases were generated by a toxic and foul-smelling air, generically called miasma, produced by all kinds of impurities and decaying matter (garbage piles, stagnant water, factory waste, latrines, surface sewers, etc.). Scientists argued that the miasma appeared spontaneously from waste and was transmitted by the inhalation of poisoned air, especially to people more susceptible to the disease (Halliday 2001: 1469). Lacking scientific evidence but basing their conclusions on empirical observation, the proponents of the theory invited the people to consider at the environment and the infected individuals' wretched living conditions, therefore at the factors and places of miasma formation. They advocated for a systematic prevention and control of contagious disease, strict public sanitation laws (for example, regarding the cleanliness of cities, food hygiene, burials in times of epidemics) improved living conditions (Curierul românesc 1830: 1; Buletinul Oficial 1834: 13; Trăușan-Matu and Buda 2003: 26).

Although the adherents of the miasma theory of transmission convincingly argued that epidemics started in unhygienic urban areas, they could not explain why cholera followed the route of human communications as it spread to Europe and North America from the Ganges Delta, or why cholera epidemics broke out and spread in the cold season, when toxic fumes and bad odours were minimal. Such questions came from proponents of the contagion theory. They argued that diseases were spread directly from one person to another, or indirectly, from goods brought from places where diseases were endemic, by means of as yet undetectable chemicals or small organisms, invisible to the naked eye, called "animalcules" or "invisible bullets" (Trăușan-Matu 2021: 74-93). They also argued that the best strategy to prevent and control epidemics had to include three mandatory measures: border control of people and goods, quarantine (with the separation of sick from uninfected and isolation in infirmaries), and health surveillance by issuing "health certificates" to ships and passengers (the tickets were intended to inform the authorities that their holders were either non-contagious, came from plague-free areas or places, or had previously undergone a quarantine before setting traveling again) (Tognotti 2013: 254-259).

There were other voices that demanded a more convincing explanation regarding the nature of the disease (contagious or infectious). Since the middle of the 19th century, doctors and scientists such as John Snow (1813-1858), Louis Pasteur (1822-1895) or John Lister (1827-1912) argued that there was no clear evidence that cholera was transmitted by air and proposed new explanations for its transmission (for example, by means of water or some microorganisms), explanations that had the effect of creating an adequate network of drinking water and sewage in cities, but also introduced disinfection as a measure to fight outbreaks of epidemic disease (Evans 1988: 123–146; Ferguson 2021: 173-174).

Conflicting discussions about the causes of disease could also be heard at the International Sanitary Conference in Vienna, in July 1874, when representatives of twenty-one states met to agree on standardized quarantine. Although failing to reach a consensus on unique quarantine measures, the commissioners unanimously adopted a resolution which, among other things, asserted that “the ambient air is the principal vehicle of the generative agent of cholera” (Howard-Jones 1975: 39). Very briefly, the text of the resolution stated that cholera “spontaneously develops only in India, from where it is exported to other countries by water, and that it is transmitted mainly by man and his clothes”, but it is also possible to transmit through “goods coming from places of infection, through cholera corpses, animals, and certain foods” (Howard-Jones 1975: 39). The text also stated that cholera has an incubation period of 4-5 days and that “no safe disinfecting means are known” (Howard-Jones 1975: 38; Gudin et al. 2010: 27).

Returning to Romania, by issuing specific provisions regarding the cases when quarantine can be declared as a public health measure, the 1874 law allowed the relaxation of isolation measures in favor of a new system of “medical inspection”, which was considerable shorter and more operative. Moreover, by ensuring the primacy of public health measures, the law enabled the organization of an unprecedented response to possible epidemic outbreaks and, at the same time, contributed to the creation of a sanitary infrastructure and helped to ensure better living conditions in cities. In this public health project, an important role fell to the doctors, who were compelled to report any suspicion of contagious disease and to draw up annual reports on the sanitary condition of the county or city they medically supervised. In this process of fighting epidemics, the decision to establish specialized infectious disease hospitals weighed a lot. In order to prevent the spread of an untreatable infection, it was absolutely necessary that patients and their

contacts be isolated in hospitals. Hygiene and isolation measures were dictated by the medical knowledge of the time.

3. Fighting cholera epidemics after 1874. Case study: Iacob Felix and the management of the 1893 cholera epidemic

The fourth cholera pandemic started in 1881, lasted for fifteen years (1881-1896) with some pauses and severely affected countries such as Spain, Germany, the Austrian-Hungarian Empire, the Russian Empire and the Ottoman Empire. Even though Romania had a border with the last three states, until 1892 it managed to prevent cholera from entering the country. How can this success be explained? The documents of the time speak of a coherent and prompt action of the government of introducing river, sea and land quarantines, the strict limitations on human mobility and rapid mobilization of local public health units to clean up unhygienic places and impose protective measures (Regulament 1879: 2-3; Felix 1905: 302; Bacaloglu 1911: 5).

Regarding this strategy, Dr. Iacob Felix (1832-1905), professor of hygiene at the Faculty of Medicine in Bucharest between 1869 and 1902, a pioneer in sanitary research in Romania, promoted the connection between experimental science, social hygiene, and medicine, and director of the Health Service (1892 – 1899), stated in his “Report” to the Minister of the Interior in 1883 that the establishment of land quarantines did not contribute to a large extent to stopping cholera from entering the country, but rather that this was due to rigorous procedures aimed to minimize the risk of contagion. These procedures included prompt telegraph warnings of contagious disease outbreaks, travel restrictions and “the placing of guards at mountain passes, along the Danube and on the river Pruth” (SMBAN 2/1883). Furthermore, he proposed a future abolishment of the quarantine, reasoning that it “expends very large amounts of money” and “holds back the nation's prosperity by limiting trade”. He was instead in favor of a systematic plan of preventive and protective measures, even if they also were “very strict and very expensive” (SMBAN 2/1892).

Together with the establishment of quarantines, the health authorities in Romania's large cities implemented measures to limit the epidemic, which included closing down schools, suspending public gatherings and church services. The Bucharest Hygiene Council report for 1883 mentions another plan to combat contagious disease, based on disinfection services aimed at disease outbreaks, also based on the 1874 law, in addition to public hygiene measures and prohibitions. According to the report, disinfection services

consisted of “sprinkling the dwellings and furniture of the infected” with a solution of “carbolic acid” (phenol, a very toxic substance) or calcium hypochlorite, or fumigations with sulphur (SMBAN 2/1883). Devices with dry heat of up to 120 °C were used in the spraying disinfection process. As they did not ensure a maximum disinfection effect and in addition the dry heat destroyed clothing and bed linen, Dr. Iacob Felix proposed the establishment of a disinfection service next to the Bucharest City Hall, equipped with mobile ovens and machines for spraying disinfectant solutions with wet heat. For the transportation of contagious patients to the hospital, Iacob Felix proposed the purchase of “ambulance carts” that could be regularly disinfected (SMBAN 2/1883). The report also points out some problems faced by the improvised hospitals: the small number of volunteer specialists and the lack of disinfection facilities, which hindered the sanitization process of the halls, barracks and carts.

It should be mentioned that ten years later, in 1893, Bucharest had an operational communal disinfection service consisting of two mobile ovens, four small fixed ovens and several wet heat sprayers. In 1899, the technological inventory of the service was enriched with another large oven and several devices for disinfecting contaminated rooms or objects using formalin (an aqueous formaldehyde solution). Moreover, several sub-surgeons were employed in the service of the City Hall. Although they were not permanently employed, they made a significant effort to halt the spread of contagion which had visible results. The 1899 report records 3,190 disinfection operations compared to only 119 in 1893. The number of interventions would increase from year to year. In 1908, for example, the City Hall service recorded approximately 8,000 interventions (SMBAN 4/1897).

In the summer of 1893, cholera entered Romania from the Ottoman Empire through the port cities of Sulina and Constanța and spread to “15 counties, 21 urban communes and 38 rural communes.” After the epidemic was over, the director of the Health Service Iacob Felix compiled a “Report on the Cholera Epidemic of 1893”, which he sent to the Minister of Interior (Felix 1893: 32). The text shows that in 1893, despite the quarantine, the isolation of the sick and the separation of the sick from the healthy, in Romania between July and October 1893, “1,494 people were infected, of which 622 recovered and 872 died” (Felix 1893: 32). This seemed as a considerable progress, compared to the epidemic of July 1865-April 1866, when “57,088 people fell ill with cholera, of which 24,034 died” (Felix 1901: 308).

At the end of the epidemic, Iacob Felix analysed how the 1893 epidemic was managed and identified several vulnerabilities. The first problem involved the communities most exposed to contagious diseases. According to Felix's analysis, the population most affected by the plague was that of the Danube port cities: Sulina, Tulcea, Galați and Brăila. This was not by chance: at the time, the transport of passengers and goods over long distances was usually undertaken by water, and as disease travels with people, infections would first appear in port cities and then spread, following land routes, to urban agglomerations, which were especially congested and unhygienic areas. In order to remove the danger, I. Felix recommended the application of public health measures devised especially for Romania at the Dresden Sanitary Convention of March 1893, namely the establishment of permanent sanitary services in all Danube and maritime ports, the purchase of modern sanitary facilities and the supplementation of sanitary personnel. In addition, the improvement of public sanitation and strict supervision of public order by the sanitary police were also required. Iacob Felix also suggested granting compensatory damages for the social groups most affected by quarantine rules, such as the raftsmen, people who were engaged in the transport of logs by water (Felix 1893: 33).

Another shortcoming identified by Dr. Felix was related to parts of the public health system, which did not react according to the law. In some cities the infectious disease principles laid down in the 1874 law had been imperfectly put into practice, in the sense that an insufficient quantity of enough vapor disinfection machinery had been purchased, or staff responsible for disinfection had no knowledge on how to use the devices. Finally, if there was any need, I. Felix concluded that epidemic proved that drinking water in Romania constituted a vehicle for spreading disease, just like the 1892 epidemic had demonstrated in Hamburg, and thus revealed the importance of safe water sources (deep wells or pump wells) and modern water filtration technologies (chlorination of water in settling basins and use of sand filters). Because of the way it had spread, the epidemic also showed the importance of factors favouring disease, such as the lack of hygiene, poverty, environmental pollution and the intensification of trade and population movement (Felix 1893: 33-4).

The reports drawn up by Iacob Felix stimulated the development of public health measures in Romania. The doctor's argumentation on abolishing land quarantines and relaxing river and maritime rules, on the rapid implementation of preventive measures agreed upon at international conferences, convinced rulers to invest in both urban sanitation infrastructure (sewers or waste disposal) and public health campaigns aimed at educating the public about the importance of individual and community hygiene practices.

In the 1899-1913 period, while many countries of the world were fighting the sixth cholera pandemic, Romania faced several isolated outbreaks of cholera, with fluctuating severity from one city to another. This performance is explained by the prompt application of the measures agreed to at the international conferences in Dresden and Venice, which Romania joined in 1898, many of these measures having been devised with direct reference to state-of-the-art scientific discoveries from the end of the 19th century (Babeş 1911, 1915). In 1883, the German bacteriologist Robert Koch (1843-1910) demonstrated that the cause of cholera was a comma-shaped bacterium called *Vibrio cholerae*, and in 1893 he explained the aetiology of the disease and the role of water in its transmission. Furthermore, Koch formulated the basic rules for the control of cholera epidemics, which were approved in the same year by the Great Powers at the Dresden Conference and reconfirmed at the Venice Conference in 1897. At both Conferences, Iacob Felix represented Romania (the first time as director of the Sanitary Service, and as a “technical delegate” in Venice) (Felix 1901: 81). The solution agreed upon by all participating states consisted in identifying the epidemic at the initial site of outbreak, prompt communication of “the disease to all governments that have acceded to the Convention” and application of prophylactic measures. At sea, the prophylactic measures consisted of the sanitary inspection of the “supplies” coming from epidemic places, of the crew and passengers, the hospitalization of the sick and contacts in quarantine hospitals (now called sanitary stations) for five days, and the disinfection of luggage and goods considered carriers of infections, of dishes and of drinking or wastewater (Felix 1901: 81).

Moreover, in order to facilitate the disinfection process, the General Directorate of the sanitary service required that the hospitals belonging to sanitary stations situated on the naval frontier, as well as those belonging to railways, be equipped with modern disinfection facilities (Felix 1901: 83). Therefore, at Sulina, both a Danube port and a seaport, where the European Danube Commission built in 1894 a hospital for infectious diseases with 60 beds, separate from the navy hospital, the authorities introduced modern disinfection and water filtration facilities (Felix 1901: 83; Bercuş 1972: 378-79). A similar situation was recorded in the port of Galaţi, where a permanent sanitary service was established to prevent cholera epidemics coming from Russia.

Cholera epidemics became much easier to control and eradicate. However, the beginning of the victory against cholera must be interpreted in the context of a global political, medical and economic collaboration, a

collaboration that was achieved late, after overcoming the controversies generated by political and economic interests of the main European powers or of individual states. In addition to sanitary inspection, hygienic and prophylactic measures, the discovery of remedies, such as the cholera vaccine was very important.

In 1913, during the Second Balkan War, Romania faced a new cholera epidemic. The disease was brought from Bulgaria through mobile food and weapon supply units. In order to keep the epidemic in check, the solution envisaged consisted in the installation of laboratories at the observation points for the diagnosis of the first cases of cholera, the preventive vaccination against cholera of all Romanian soldiers, the examination of the soldiers returning home and the isolation of the sick and healthy carriers (Georgescu and Albulescu 1972: 462; Alexandrescu and Smadu 1913; Ciupală 2020: 110-11). The vaccination campaign was led by Ion Cantacuzino (1863 – 1934), physician, biologist and professor of experimental medicine at the Faculty of Medicine in Bucharest (1901 - 1934), the founder of the Laboratory of Experimental Medicine at the Faculty of Medicine in Bucharest (1901) and of the Institute of Serums and Vaccines in Bucharest (1921). As for the civilian population, at the first registered cases of mandatory cholera vaccination was imposed in the contaminated area, and the installation of infirmaries for the isolation of the sick.

4. Conclusions

The analysis of the quarantine in the Romanian space reveals the struggle of the state administration to counteract a disease about which, at the beginning, not much was known. A struggle that involved both the search and implementation of the most effective measures to prevent contagious diseases (quarantine, sanitation and the provision of minimal medical care), as well as finding the human, material and economic resources to put them into practice. After 1874, as quarantine restrictions became increasingly unpopular, the authorities turned to other preventative measures: they invested in urban sanitation infrastructure (sewage or waste disposal), safe drinking water sources, and launched public health campaigns designed to educate the population about the importance of individual and community hygiene practices, as well as the cholera vaccine.

Related to quarantines, in 1893 the Romanian authorities changed the name of quarantines to “sanitary stations” and considerably softened their rules, though these were never completely abandoned. Their role was still evident: they contributed to limiting infection, delaying the spread of disease

and maintaining a climate of safety in society. In the absence of medicines and correct knowledge about diseases, quarantine nonetheless influenced many aspects of public health. It was the institution that systematically collected information on the state of infectious diseases and sent regular epidemiological reports to the Health Committee. On the basis of these reports, political and health authorities could more easily monitor the evolution of diseases and intervene more quickly to contain them.

In the end, the victory over cholera was facilitated by technological advances in communication and transportation (including the telegraph, and railroads), but the decisive factor was medical progress. In research laboratories, the scientists identified and isolated the killer bacteria and developed vaccines (and after 1928 antibiotics). New medical discoveries, along with public hygiene, worked in tandem to improve people's lives, public health and security.

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