HISTORY OF MEDICINE

UDC: 616.9-036.22 (091)
DOI: https://doi.org/10.2298/VSP220225047S

Plague epidemics in the southern region of the Habsburg Monarchy in the XVIII century – fear, prejudices, and consequences

Epidemija kuge u južnom regionu Habsburške monarhije u XVIII veku – strah, predrasude i posledice

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Key words:
disease outbreaks; history of medicine; history, 18th century; plague; serbia.

Ključne reči:
epidemije; istorija medicine; istorija, 18. vek; kuga; srbija.

Introduction

In the history of human civilization, the plague, an acute infectious zoonotic disease, represented one of the most dangerous epidemic diseases with an extremely high mortality rate. Thucydides described the plague that ravaged from 435 to 430 before Christ (BC) [1]. The plague struck again in 166 *anno Domini* (AD) and from 215 to 266 AD in the Roman Empire. The "Justinianic Plague" struck the Byzantine Empire from 531 to 580 AD. The plague epidemic was quite intense during the 40s and 50s of the 14th century. The plague is caused by the *Yersinia pestis* bacteria, transmitted from rodents to humans by fleas, and when an infected person has the so-called lung plague (pneumonic), it can also be transmitted through the air. In addition to this type, the most common is the bubonic plague, which got its name from the word buboes, meaning swollen lymph glands. The incubation period for this type of plague is between two and five days from the appearance of the first symptoms – chills, high fever, and in some cases, high pulse rate and hypertension. Soon after, more symptoms appear, the lymph nodes become swollen, the chills and high fever continue, and, at this stage, extreme headaches become quite frequent. This is followed by coughing, which at a certain point turns into coughing out blood, and the final stage of the disease is sepsis, which ends in death, often only 48 hrs after its beginning, although the illness may last longer. When it comes to treatment, it is crucial to begin as early as possible, preferably in the first 24 hrs, by giving the patient streptomycin. Moreover, implementing isolation measures quickly, especially in cases of pneumonic plague, is essential [2–4].

There were several plague outbreaks in the Habsburg Monarchy during the seventeenth and eighteenth centuries, usually not on the entire territory, but with catastrophic outcomes in the regions where it did appear. After the Battle of Vienna (1683–1699), when the borders of the Monarchy were expanded far to the south and the east, the plague broke out as early as 1703 and 1704 in the eastern regions, widely among the Serbian population. A more extensive plague epidemic broke out in 1708 in the south of the state, in the region of Bačka (between the rivers Tisa and Danube). Only five years later, the plague devastated the southern regions of the Monarchy once again, with the last recorded time being in Vienna, at which time 13,407 people died. That same year, it also hit Styria, Carniola, and Carinthia. During the same period, 35,834 people died from the plague in Prague. This was the last plague epidemic that hit Vienna, and it was recorded that the plague killed 10% of the population on the territory of the Kingdom of Hungary. In the period that followed, there were sporadic plague outbreaks of varying intensity, especially from 1738 to 1744, while in 1740, it spread over almost the entire territory of the Kingdom of Hungary. The situation became even worse with the outbreak of the War of the Austrian Succession (1740) because the army spread and transmitted the disease more easily. The war was fought in the Lands of the Bohemian Crown, with Silesia at the center of the fighting, and then the retreat to Moravia brought the dise-

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ase there. The enormous number of deaths during this epidemic compelled the state to enforce improved measures and intensify border security in order to prevent the plague from spreading to the Monarchy [5–8].

For the purposes of this study, all available literature was used, both published and unpublished sources dealing with this subject in Serbian, Latin, and German. The interpreted unpublished sources can be found in the Serbian Academy of Sciences and Arts Archives in Sremski Karlovci, in 'A' and 'B' funds, which also include documents based on the correspondence between the metropolitans of Karlovci, state representatives, and the Royal Court (fund 'A'), as well as written documents created on the territory of Srem (fund 'B'), hit by an epidemic outbreak in 1795/96. While researching this Archive, several dozens of documents were discovered concerning efforts to prevent the plague, the metropolitan's instructions to close churches, regulations regarding sanitary measures, numerous data on implementation oversights, as well as the reactions of the people. Based on such data, it was easier to form a picture of the situation in Srem at the time of the last great plague epidemic in the southern part of the Habsburg Monarchy. Furthermore, the plague managed to enter the Banat region for the first time in 1737. It caused damages in the city of Temeswar (*Timişoara*, in Romanian) [9]. In addition to the excellent archival material, published sources were also used in writing this study, including the work written by Dr. Franz von Schrauder, a physician who was in Srem at the time of the epidemic and who described its development [10].

The places with the highest number of patients with plague are shown in Figure 1.

The sanitary cordon and the battle against fear and prejudices among the general population

For the most part, the plague was transmitted to the Habsburg Monarchy from the Ottoman Empire, where the epidemic never seized completely but rather only abated [11–13]. Just how much this influenced the decision to implement health regulations in the Habsburg Monarchy is demonstrated by the fact that all traffic to the Ottoman Empire was forbidden during the time of the epidemic, in accordance with "the Plague patent" *(Pestpatent)* of June 25, 1710, and *Pestordnung* of 1713, in order to prevent the spread of the disease. Moreover, the majority of the work on health laws was initiated precisely under the influence of the horrific devastation incurred by the plague in 1738–1744. By this, the military frontier, a specific region that constituted a large part of the Austrian army and extended from the Adriatic Sea to Transylvania, also served as a sanitary cordon, or in other words, a heavily guarded territory established in 1553 to prevent attacks from the Ottoman Empire and the epidemic from spreading inland [14, 15]. Border control was implemented by placing a series of guard stations along the frontier which were close to each other, enabling the people inside to see the next station with their naked eye and thus preventing any attempts of illegal border crossing. The border regiments had special medical service personnel, and all hospitals were under the supervision of military surgeons. Through their trustworthy people, special sanitary commissions gathered information on the state of health in the Turkish border regions regularly, and in addition, there was also a special health police. A series of laws issued from 1731 to 1740 regulated the construction of quarantines – buildings for isolat-

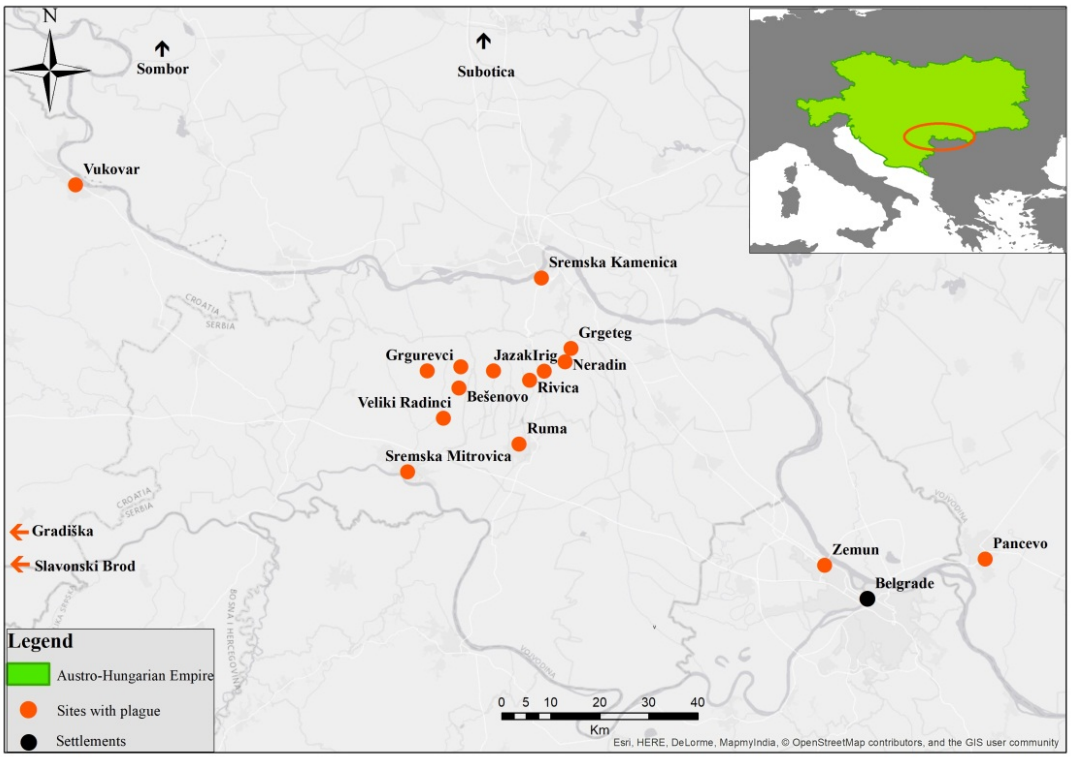

Fig. 1 – Places with the highest number of cases of plague.
Source: The map made by the authors.

ing individuals crossing from one state to the other, in detail. Depending on the presence of the epidemic in the neighboring regions, the people, together with their goods or personal items, had to spend either a specific amount of time in these buildings or until the healthcare workers were convinced there was no infection. At times when there was no plague epidemic in the neighboring regions of the Ottoman Empire, the quarantine lasted 21 days, which was considered the first stage of defense and applied to everyone.

When there was an ongoing plague epidemic in the distant regions of the Ottoman Empire, the second stage of defense was implemented, according to which the quarantine lasted 28 days. During an epidemic outbreak in the border region, the quarantine lasted 42 days for individuals and 56 days for goods, which was considered the third stage of defense. In the quarantine area, the trade goods and personal items were unpacked, smoked, and exposed to the sun, which was the standard procedure for disinfection. The construction of quarantine buildings began in 1731 using friable materials, but most of the work was done during the time of Maria Theresa when the buildings were erected using solid materials. Crossing borders in the southern part of the Monarchy, especially during the epidemic, was enabled only in places with quarantines (the most significant were Pančevo, Zemun, Sremska Mitrovica, Slavonski Brod, and Gradiška). The defense system was improved in 1753 when the Royal Health Commission was formed and then again in 1755 when the *Ordo pestis* was issued, which was then supplemented in 1764, all following comprehensive state reforms defined by Professor Gerard van Swieten in cases pertaining to health issues. These reforms prohibited (1745) the work of quack doctors, and, as of August 3, 1756, the deceased were not allowed to be buried until the surgeons examined the body and established the cause of death. Furthermore, a decree was issued according to which the deceased were not to be buried at least 36 hrs after the moment of death [16, 17].

The implementation of these measures prevented the plague from spreading outside the border region of the Monarchy in 1762 and contained the infection to six villages, thus proving its efficiency [18]. Although the southern neighbors of the Habsburg Monarchy had another plaque outbreak the following year, it did not spread to its regions due to the implementation of the decision to prohibit traffic at borders without quarantine facilities. The Serbian Church within the Monarchy played a very significant role because its archbishop requested, in the form of a pastoral letter, that the people cease all communication with the Ottoman Empire [19]. In 1770, based on the acquired experience and the implemented regulations, van Swieten wrote the General Norm of Health Service, according to which doctors, surgeons, and pharmacists were required to have a university degree and whose goal was to increase the level of health awareness. In addition, anyone who violated the plague prevention regulations was sentenced to death by hanging, and the same sentence applied to all accomplices and officers who enabled individuals to evade the quarantine altogether or leave before the stipulated period, as well as individuals who gave false statements regarding the origin of the goods and the people. The efficiency of these regulations was obvious because their implementation in the second half of the eighteenth century kept the plague epidemic along the border of the Monarchy with the Ottoman Empire at bay. Most of these regulations were repeated in the so-called Chenot Norm issued in 1785, which also dealt with measures for plague prevention, and only the recommended quarantine period was shortened [20, 21].

New regulations, issued during the Joseph II reign, applied to all the nations of the heterogeneous Monarchy and all levels of society. However, the reaction to this set of laws varied. Regulations regarding the burial of the deceased were met with the greatest disapproval, mostly among the uneducated or barely educated population (peasants), but also the clergy, and this was the case with the majority of the Serb and Vlach population in the southern regions of the Monarchy. Although the provisions prescribed the period between the burial of the deceased and the time of death, the appearance of the grave sites, which had to be outside the town borders, fenced and orderly, not allowing the deceased to be carried through town in open caskets, and so on, undoubtedly represented a set of progressive civilizational norms, from the aspect of customs, they nevertheless violated established practices. The Serb population, most of whom lived precisely in the Military Frontier, met all of the decrees with disapproval. At the time when these important health regulations were issued, Archbishop Pavle Nenadović was the ecclesiastical and secular leader and the Serbian Orthodox Metropolitan of Karlovci (1749–1768). He was an educated individual who, sometimes on his initiative and sometimes the state's, attempted to eradicate every type of superstition, both the negative pagan burial customs and rituals and the unhealthy lifestyle. Following his death, the state took over the initiative through its Regulations of 1770, 1777, and the Declaration of 1779. However, the resistance of the people was not broken, which was evident during the plague epidemic outbreak in 1795/96 in Srem, a border region with the Ottoman Empire, from where the disease was transmitted, just as in all the earlier instances [22, 23].

In the eighteenth century, prayers for protection from the plague spread among the population. The chapel of Saint Roch was built in Subotica for that purpose [24]. For the same purpose, crosses can still be found on the roads in the region of Vojvodina. The fear spread among the general population primarily due to the sight of nodes on the body, followed by a 40–41°C fever. Similarly, the effects of the disease were noticed among the population in Serbia in the 19th century [25–27]. Sterile corridors and medical cordons were practiced in Serbia in the 1830s and 1840s, which was very significant to the Habsburg Monarchy. Dealing with the plague was in the jurisdiction of the Ministry of Internal Affairs and later the Ministry of Education. Close to the border with the Ottoman Empire, seven quarantine points were established. The two most significant quarantine points were in Supovac village near Aleksinac and Janko's Gorge (Serbian: *Jankova klisura*) along the river Blatašnica between Kruševac and Kuršumlija. The report from the Aleksinac quarantine showed the emergence of plague circles in Novi Pazar and Pešter hills. Quarantine in Radujevac (today's Ne-

gotin) showed an outbreak of plague in Silistrija, Bulgaria. The Ministry of Internal Affairs of Serbia reported that the Albanian riot at the southern border might have posed a threat to the further spread of the plague and that the southern medical corridors had to be strengthened [28]. It was also noted that the Romanian government had decided to set up quarantine facilities on the left bank of the Danube river alongside the Radujevac quarantine. In March 1840, an order was issued for all packages sent in large quantities from Turkey to Belgrade to be cleaned in quarantine and taxes charged. Austrian sources imply that there was no plague in the neighboring Turkish provinces, but the situation was quite different in more distant regions [29].

Plague outbreak in Srem and the consequences of the extent of the infection

In 1795, the plague broke out in Srem twice, first on the Military Frontier, where it was easily suppressed due to the sanitary measures whose implementation was overseen by the military authorities, and then, that same year in July, on the territory adjacent to the Military Frontier, where it spread quickly through the prosperous town of Irig and the surrounding villages. At first, the sanitary personnel did not believe it to be the plague. The first death cases were diagnosed with a severe infection caused by poor nutrition, mainly insufficiently baked bread made of recently harvested wheat or immature wheat grains. That was the opinion until the beginning of August when Doctor Andras Budai came to Irig and the village of Neradin and observed the symptoms of the disease and the changes it caused in people. He noticed that the patients suffered from fever, headaches, debility, weakness, and chills. This first phase of the illness was followed by drowsiness and absence of mind, whereby the patients would forget about hunger and thirst, at which time the first signs of derangement were manifested. Additional symptoms were nausea and the urge to vomit, followed by extreme pain. He noticed that between the second and fourth day, the patient began to suffer from painful swelling, differing in size, in the loin area, inner thighs, below the knee, armpit, and glands around the ears. He established that towards the end, *petechiae* of different sizes and colors emerged and that the dying "looked horrific", as well as that death occurred on the second or third day after the first symptoms, although more frequently on the sixth or seventh day. The symptoms and manifestations, as Doctor Budai described them, clearly confirmed that these were cases of plague [30].

Measures to prevent the disease from spreading were immediately taken: guards were placed around the parts of the town where the infected patients died or simply around the houses with reported death cases; a building was allocated for receiving patients, and a separate burial site was organized; an order was issued forbidding all burial rituals and enforcing compulsory burning of the deceased clothing; the villages and the surrounding crop fields were closed off; sanitary cordons were organized; quarantine facilities and guard posts were erected; disinfection measures were implemented in the infected areas where all the less valuable items were burned, and the more valuable washed, often by adding alcoholic beverages or vinegar, which were thought to have medicinal properties; the homes were disinfected by burning saltpeter, bran, and sulfur or by pouring vinegar on red-hot iron. To facilitate the operation of all organizations involved in preventing the spread of the epidemic, a special royal commissioner was appointed to deal with all the issues. That person was Baron Josef Pichler, and Doctor Franz van Schraud was sent to the infected areas [31].

As is the case with all the restrictions, the sanitary measures prescribed before and during the epidemic were only partially successful in limiting the spread of the plague. It soon became apparent that folk customs, especially those regarding burial rituals, presented a serious problem in the process of eradicating the epidemic. One of the customs – giving away the deceased belongings to relatives and friends after the funeral – contributed a great deal to the spread of the infection, which was thus passed on to healthy individuals. In the beginning, the plague also spread because the deceased were always bathed, which was another part of the burial ritual, and by doing so, the individuals who performed the bathing also became infected through direct contact. The spread of the infection created a state of chaos, which resulted in noncompliance with the sanitary measures and regulations issued for the exact purpose of preventing the spread of the disease from the already infected to the noninfected areas. That became so widespread that the only Serbian grammar school, located in Sremski Karlovci, was closed during the 1795/96 school year because both the students and teachers fled in fear of the epidemic [32]. The population resisted the order to isolate the ill in separate buildings while the patients were often left to fend for themselves, so they left their homes and died in the surrounding vineyards, forests, gardens, etc. Only after the bodies of the deceased were discovered were they buried on the spot where they had been found, most often in improperly dug shallow graves without notifying doctors or state authorities. Due to fear, people refused to participate in any work involving the ill, including the construction of hospitals. On the other hand, they were unwilling to give up the burial ceremonies, which included carrying an open casket with the deceased, whose body was kissed at least once during the prayer for the departed soul or during the wake, which sometimes lasted up to several days. The order stating that the deceased had to be buried within 48 hrs was not abided by, and so there were instances when the deceased were not buried for as long as eight days [33]. Similar measures had roots and good practices from 16th century England [34].

The mortality rate was the highest during field work season, at the time when the population intermingled the most. The epidemic in Irig peaked in October 1795, at least regarding the number of deaths. The crop fields of these villages bordered each other, and the villages themselves were not located far from one another. The people were interconnected as neighbors, friends, relatives, or simply through trade which enabled easier contact between the infected and noninfected individuals and the spread of the epidemic. In the second group of villages, the plague broke out in August

and took a great number of lives during the next three months. This group included Rivica and Jazak, two villages in the close vicinity of Irig, the town which suffered a catastrophic human loss. The third group represented villages to which the plague was transmitted from an already infected region, most often accidentally, as was the case with Veliki Radinci, Grgurevci, Bešenovo, Kamenica, Bešenovački Prnjavor, and the town of Vukovar. The plague did not spread to these villages until the end of October, excluding Vukovar; therefore, the greatest number of deaths occurred in November. In these cases, the number of deaths concerning the number of inhabitants is far less than in the previous two groups. However, since the number of those infected in the third group was significantly lower, the spread of the plague within them points more to carelessness than poor control [35].

The doctors turned to the Serbian Orthodox Church for help in their battle against the plague because they were aware that strict adherence to religious customs was one of the ways the infection was being spread. Knowing who might be able to help in such a situation, the doctors approached Archbishop Stefan Stratimirović of Karlovci (1790–1836), who wrote to the ministry and archpriests through his exarch, Stefan Avakumović, hoping that his advisories would help calm the state of chaos, which was the first step in eradicating the disease. In August, the exarch had already sent a letter forbidding priests from bringing the deceased into churches. Then he ordered that the deceased be taken to the cemeteries without their family or friends being present and with the assistance of individuals whose job was to perform burials. Finally, he ordered them not to allow the custom of kissing the deceased. He also asked the ministry to close all the churches immediately and hold services outdoors, but his orders and requests fell on deaf ears. The churches remained open, and public burials and the rituals that accompany them were continued as if there was no epidemic. While the high clergy was aware of all the benefits of these measures, the lower priesthood was not, least of all the congregation, and so, not only did they not abide by Avakumović's orders, but the churches were kept open all through 1795, and the burials organized with open caskets. By doing so, the priests not only disregarded the orders of their superiors but also aided in spreading the infection. Similar methods can be seen a few decades later in the region of Dalmatia [36].

After October 1795, the plague began to recede because this was the end of all field work, and there was no intermingling between the healthy and the infected population. Only then were all the measures that were meant to subdue the plague truly enforced, including isolation of both homes with infected individuals or death cases, as well as entire villages and regions. For this purpose, in addition to guards composed of the general population, the military was also distributed to all five posts, i.e., sanitary cordons. Another fact contributing to the reduction of the epidemic had to do with the erection of cordons, providing tighter closure, which additionally prevented communication between the infected and non-infected regions. Still, the most beneficial measure was isolating the infected in separate buildings. On the outskirts of most villages, buildings were erected during September and October where the patients were placed and thus isolated from the rest of the population. It soon became evident that this decision was a good one because although the number of deaths in quarantine was high, the number of new cases of infection was low, almost insignificant. Separating and sending the infected to treatment facilities and then doing the same with the rest of the population (e.g., all the citizens of Irig had to go through a six-week quarantine at the time when the plague had already been stopped, so the town was completely deserted for a time) contributed to slowing down the epidemic followed by its complete eradication. When the population abided by the sanitary measures, especially the measure stating that infected individuals or entire families were to be isolated from those who were not infected, the spread of the disease was easily stopped and quickly eradicated. There are two examples of such cases: the villages of Grgeteg and Bešenovo. In the first village, following the initial fear of the plague, the inhabitants accepted the advice of the doctors – they placed the infected individuals or families into quarantines and positioned guards around the village. As a result, almost half of the infected died in the period 1795–1796 before these measures were imposed. The rest of the infected died while in quarantine, with only a few individuals who did not abide by the measures and came into contact with the inhabitants of Neradin, where the plague was desolating the village at that same time. Bešenovo is the second example of how quick action, this time taken by the citizens themselves, resulted in the isolation and destruction of the plague. In this village, the inhabitants took it upon themselves to isolate the first family struck by the plague, and thus no one else in the village became ill.

They managed to stop the plague from spreading and then wiped it out altogether only after executing the sanitary measures – ceasing all burial rituals and customs, providing doctor supervision, and strictly forbidding traffic across cordon lines. In that way, they prevented the plague from spreading deeper into the region of the Habsburg Monarchy, which would have undoubtedly resulted in much higher mortality. The prevention of the plague outbreak continued in Serbia in the following decades, which had a massive impact on the health situation in the Habsburg Monarchy. Most of the dead in Serbia have been thoroughly investigated, especially during outbreaks of plague in 1831, 1836, and 1837. Medical doctor Carlo Nagy from the Austrian Zemun quarantine, helped Serbian doctors detect the disease [37]. In the summer of 1837, several cases of plague were detected in Jagodina, Paraćin, and Ražanj [38]. The Serbian medical service was determined to stop the disease. State Commissioner for Plague Control Avram Petronijević reported on September 1837 that 120 persons, the infected ones and those who were in contact with them, were held in prison [39]. Sanitary control was performed on the roads as well. Roads leading to infected settlements were closed with military guards. In infected settlements, the houses were cleaned, and the clothes of the infected were burned. Three houses in Valjevo were impossible to clean, so it was ordered to burn them [40]. After

all these medical measures, the number of those infected was declining, and the health situation improved.

According to the aforementioned, the following conclusions can be made: the first group of villages, where the inhabitants did not abide by the sanitary measures, was hit the hardest by the plague; in the second group of villages, where the inhabitants abided by the sanitary measures, partially or completely, the effects of the plague were much weaker. The greatest number of deaths occurred in the villages where the inhabitants did not abide by the sanitary measures from the very beginning, in other words, in the villages where burial rituals took precedence. A few decades later, in Serbia, medical measures and awareness of inhabitants were on a higher level which helped decrease the pressure on the southern borders of the Habsburg Monarchy.

Conclusion

The outbreak of the plague in the southern region of the Habsburg Monarchy in 1795 and 1796 provoked fear in the entire country and chaos among the inhabitants of Srem, where the epidemic had spread. It was demonstrated that in the first phase of the disease, the sanitary measures, including the overall health legislation, were powerless and that superstitions, religious rituals, and folk customs concerning burial practices had a much stronger influence. As a result, in some towns, with Irig being the largest, over half of the population succumbed to the disease. The spread of the epidemic was stopped and finally eradicated only after the military and secular authorities joined forces in the battle against the infection. Isolating the infected individuals, which violated the standard norms of behavior from the point of view of the patriarchal population, was the only way to stop the disease from spreading deeper into the Monarchy and causing catastrophic human losses, as in the case of the epidemic in the 1840s. Thus, more rigorous control was gradually imposed, and the towns in the southern region of the Monarchy, where the regulations were met with better reception and the folk customs repressed, had a significantly lower number of deaths. The better health situation was helped by excellent quarantine service in Serbia and medical cooperation between these two countries. Lethality, which was always high in all instances of plague epidemics, proved to be so in the southern region of the Habsburg Monarchy as well. Still, the epidemic was limited to towns along the border, and it did not have greater repercussions as far as the state was concerned, and this was the greatest benefit of the implemented sanitary measures.

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Received on February 25, 2022
Revised on April 13, 2022
Accepted on April 14, 2022
Online First April 2022