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SLOVENIAN INFLUENCE IN EARLY 18th CENTURY INOCULATIONS

SLOVENSKI UTJECAJ NA CIJEPLJENJA POČETKOM 18. STOLJEĆA

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SUMMARY

In 1715, two Slovenian physicians, Johann Baptist Werloschnig de Perenberg and Antonius Loigk, published an extensive volume on the last plague epidemic in Central Europe. Hidden within its pages is a description of smallpox inoculation, which predates any record of this procedure in Europe by several years. The procedure was personally witnessed by Loigk in Vienna in or before 1714. Very little is currently known about the context of this event. We do not know how many inoculators there were, how many patients were treated and, crucially, how the procedure was received by the medical establishment in Austria. All these pieces of information would be necessary to understand the impact of this discovery on early 18th-century Austrian (and, by extension, Eastern European) society. In order to sketch out the possible connections, we will focus on a reconstruction of the intellectual network of both Slovenians as it appears in the academic literature of the time. We hope that these links may reveal something about a group of physicians who may have had early knowledge about this important anti-epidemic measure.

***Keywords**: smallpox, inoculation, variolation, Slovenia, early modern period*

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Introduction

At the beginning of the 18th century, smallpox was a substantial epidemiological burden to the European population, causing an estimated 400,000 deaths per year with a case-fatality rate, which is believed to range anywhere between 7–45% (Fenner et al., 1988, pp. 245–276; Glynn & Glynn, 2004, p. 4, 63, 68. Hauerkamp, 1985; Mackenbach, 2020, pp. 103–104, 140–142). Although contracting the virus provided lifelong immunity, thus attacking each victim only once, surviving the encounter was often not without consequences. Some individuals were affected only cosmetically, with facial scarification or loss of hair, while others suffered from debilitating disabilities, including limited mobility or blindness. The number of these unlucky survivors is now impossible to assess.

For centuries, medical practitioners, both lay and learned, provided very little recourse to the sick, who were forced to patiently suffer through the ordeal (Williams, 2010, pp. 20–24). Attempts to mitigate the accompanying symptoms likely had little effect, and some may have even exacerbated them. For a disease with such great morbidity, likely approaching 100%, there was practically no prevention available. However, records from various regions across Europe show that, particularly among the lower classes, people tried to reduce the risk of severe cases or death by pre-emptively infecting children at a relatively young age in rituals often called "buying the pustules". During the second half of the 17th century, a similar crude method of regulated exposure was also recommended by some physicians (Černý, 2022).

The situation began to improve in the second decade of the 18th century when Europeans learned about inoculation, a preventative measure already in use among certain ethnic groups in the Ottoman Empire (Eriksen, 2020; Grant, 2018). This method, also known as variolation, engrafting, insertion, translation, etc., predated the better-known vaccination by several decades. Although both procedures had the identical objective of protecting the individual against the severe form of smallpox, their *modus operandi* was actually quite different. Vaccination was based on the cross-immunity caused by two closely related species of the virus, cowpox and smallpox, where the former led to only mild symptoms and also provided long-term immunity against the latter. For a recent discussion on the history of vaccination in Central Europe, see a dedicated volume compiled by Dietrich-Daum, Hilber, Lobenwein, and Watzka in 2021. Variolation, on the other hand, used the same deadly smallpox virus, which was, however, administered through shallow skin cuts, thus resulting in a less dangerous form of the disease.

Early inoculation was nevertheless a perilous endeavour that could still turn into the dreaded confluent form with fatal consequences. On top of this, there was a practical problem given by the fact that the virus could be stored only for a very limited period of time. Therefore, patients could be variolated only when an ongoing epidemic already existed in the area. This turned each variolation into a race against time as to whether the first contact with the virus would be mediated through the inoculator or in a natural way (smallpox was primarily an airborne disease).

In this sense, variolation was an intermediate step between deliberate infections in the 17th century and the substantially safer vaccination discovered at the end of the 18th century. Despite all the shortcomings associated with the procedure, it had the potential to significantly reduce the number of deaths caused each year by smallpox, and, as such, it did attract a considerable amount of interest. There has been a great deal of literature published on the process of the transfer of knowledge related to variolation from the East to the European academic circles, starting with a classical monograph of Genevieve Miller, which is still worth reading (Miller, 1957) and her paper on the role of lady Mary Wortley Montagu (Miller, 1981). Among modern publications, a monograph by Alicia Grant and a paper by Anne Eriksen are particularly important additions to the subject, and these works also provide a thorough summary of the pertinent literature (Barker & Chalus, 2005, pp. 19, 92; Eriksen, 2020; Grant, 2018). We will, therefore, not revisit this topic in detail but provide only a brief summary.

It has been speculated that the variolation might have been initially used around the turn of the century among the Greek minority in the Ottoman Empire. In subsequent years, visitors from the West, such as merchants, medical staff, and diplomats, started to take notice. Between 1714 and 1716, the discovery began to propagate in writing, primarily through the summaries compiled by two physicians of Greek origin Emmanuel Timonis (1669–1720) and Jacob Pylarini (1659–1718) published in Britain, Venice, and Germany (Poulakou-Rebelakou & Lascaratos, 2003; Pylarini, 1715, 1716–1717; Timonis, 1714-1716).[1] The procedure was also referenced in 1715 by the surgeon Peter Kennedy (dates of life unknown), who did not witness it personally but was informed by Timonis (Kennedy, 1715; Wilson, 1999, p. 68).

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[1] Pylarini's paper in the Philosophical Transactions was published in Issue no. 347, printed in 1716 or 1717. Most issues had a short note on the publication date and place at the end of the last paper. This note is missing in numbers 347 and 348, but the previous issue (346) was published in 1716 (see page 388) and the following issue (349) in 1717 (see page 504).

At that time, some members of the Western diplomatic staff had their children inoculated, including Lady Mary Wortley Montagu (1689–1762), wife of the British ambassador to the Ottomans, who wrote her now famous description of variolation in a letter to her friend Sarah Chiswell (Wortley Montagu, 1970). Although this particular source probably had no effect on the reception of variolation in Europe because it was made public only three decades later, Lady Mary stated that it would be her patriotic duty to introduce this beneficial custom to her homeland, which she did in quite spectacular fashion in the spring of 1721, when she had her daughter inoculated in London. The procedure, performed by surgeon Charles Maitland (who died in 1748) and supervised by four distinguished physicians, took place under the close scrutiny of the British public, bringing variolation to the centre stage of contemporary medical debates.

Until recently, this was considered the earliest documented variolation outside the Ottoman Empire. Only a few months later, during the Summer of 1721, Jan Adam Reiman (1690–1770), a graduate from Leiden University and a city physician in Prešov, Upper Hungary (now in Slovakia), also had his daughter variolated. This is, therefore, an established history of the first European variolations—a procedure brought from the East to the West by members of the educated, well-travelled elites, who came across a medical discovery, realised its potential, and took the bold step of putting it to use for the benefit of their compatriots. The recent discovery of the description of an even earlier inoculation performed in Vienna in or before 1714, however, sheds a rather different light on the process of transferring knowledge about the procedure.

The Viennese case

We have already discussed the Viennese variolation in detail elsewhere.Therefore, we will only briefly state the relevant facts (Černý, 2020, 2023b). It is recorded in print titled *Historia pestis* (History of Plague), which was compiled in the aftermath of the last major Central European plague epidemic (roughly 1707–1715) by two Austrian physicians of Slovenian origin Johann Baptist Werloschnig de Perenberg (1670?–1750) and Antonius Loigk (also spelt Lojk, *1679) (Pintar, 2023a, 2023c). The book saw the light of day for the first time in 1715 and was re-issued a year later under a slightly modified title (Werloschnig & Loigk 1715, 1716).[2] It is

[2] The second edition has an extra Greek word (Loimographia) at the beginning of the title and two brief additions: an unpaginated list of physicians who died during the last plague epidemic and the errata for the first edition. Apart from that, both editions are identical, including the passage about inoculation.

a remarkable collection of papers written partially by the two editors but also by other physicians from cities affected by the epidemic, who sent their reports on the current situation, considerations of epidemic diseases, or recommended remedies. In total, there are ten parts dealing with the epidemics in the Austrian cities of Wells and Vienna, Regensburg in Germany, Prague in Bohemia, and Wrocław in Poland.

Although it deals nearly exclusively with the topic of plague, there is a passage written by Loigk that discusses the effects of an infectious disease on the human body. The passage is part of Loigk's "Epistolary Discourse", an extended treatise on epidemic diseases in four parts spanning over 150 pages (Werloschnig & Loigk, 1715, pp. 341–497). The last letter, dedicated to the prevention and cure of the plague, proposes that there are two forms of cure – expelling the plague from the victim's body and destroying the plague itself. While explaining the former, Loigk drew an analogy with smallpox, claiming that the skin afflictions during the bout of the disease represent a process of cleansing when the noxious matter is expelled from the body. The Slovenian physician understood ulceration during smallpox as an example of "healing by nature, the greatest artisan, which cures through the most perfect purification of diseases" (Werloschnig & Loigk, 1715, p. 456).

This passage suggests that the natural course of the disease is also its best cure. Antonius Loigk then supported his theory by comparing the cure recommended by academic medicine with that of peasants, who let smallpox usually develop without providing any specific drugs or, if they did prescribe anything, they did not follow other tenets of scholarly medicine: bed rest and a strict diet. Thus, they would "happily achieve health while eating cabbage" (Werloschnig & Loigk, 1715, p. 457). The rich and the noble, in contrast, who presumably followed all the appropriate scholarly advice, frequently did not survive. In cases of smallpox, Loigk concluded, taking no medicine was often the best strategy (Werloschnig & Loigk, 1715, p. 457).

His therapeutic nihilism allowed for only one exception – inoculation, which he referred to as the cure through the smallpox ferment. Loigk noted that he himself observed an Arabic healer who employed shallow skin cuts on the forehead and hands into which he introduced a small amount of pus taken from the ulcers of someone with a benign case of the disease. The procedure led to mild inflammation called "Blatter-Peltzen" by Loigk, which "cured" the smallpox (Werloschnig & Loigk, 1715, p. 458).

The report does not provide the time and place of the inoculation, but a date is given at the end of Loigk's *Epistolary Discourse*–February 1714. The Arabic healer

had reportedly arrived several years earlier, and inoculations had, therefore, been taking place in Austria for some time. Furthermore, inoculations likely took place in Vienna, where Loigk was located in the later stage of his career. This is supported by a remark that he had observed "a young noble" being given the treatment, which is more likely to have happened in the Imperial capital.

The earliest depiction of inoculation recorded by the Slovenian physician in 1714 is quite important for our understanding of the history of early modern medicine as it brings up two relevant points. Firstly, it shifts the earliest use of variolation from Western Europe, which is traditionally understood at that time as being at the forefront of scientific development. The concept of the "scientific revolution" of the 17th century, associated particularly with the English milieu, casts a long shadow over the conventional concepts of the European history of medicine.

Secondly, the depiction of the procedure makes it clear that the inoculator was not a physician but rather an "Arabic" migrant from Constantinople who was "mimicking" the Greek method of smallpox prevention. Loigk, therefore, framed the whole enterprise as functional but outside the scope of ordinary academic medicine. This also subverts the traditional narrative of the history of epidemiology because it takes away the agency from educated, well-travelled, upper-class individuals, who were historically thought to have been the active element for spreading the progressive methods of disease prevention among the population.

However, a key element for understanding this new narrative is the question of impact: How important was this on the greater scale of things? Apart from the individuals directly involved in the story, the inoculator, the young noble, probably his parents, and the observing physician, who else in Austria and surrounding countries at the beginning of the 18th century could have known about this preventative measure recently brought from abroad? The healer and his contacts will likely remain forever obscure, as these individuals rarely left written records, but we can try to gauge what was or could have been the uptake among members of Central European Academia. In order to do this, we need to reconstruct Loigk's contacts within the contemporary Republic of Letters.

The slovenian connections

So far, we have been able to find only a single work that cited the inoculation report itself. It is a paper written a couple of years later by Jan Adam Reiman and published in the Wrocławian journal with the rather long title *Sammlung von Natur- und Medicin- wie auch hierzu gehörigen Kunst- und Literatur-Geschicht-*

en (Reiman, 1718). Reiman and the readership of the Sammlung were, therefore, the first group of individuals who either knew or had an opportunity to familiarise themselves with the procedure. Indeed, as noted above, when Reiman had a chance to act on this newly acquired knowledge, he inoculated his daughter in the Summer of 1721.

Who were the readers of the *Sammlung*? Unfortunately, we have very little information here.The journal is occasionally used as a source of information, particularly about early weather observations, but historians do not seem to tackle the question of its significance and readership in either a local or international context (Brázdil et al., 2008; Brzezowski, 2009; Przybylak & Pospieszyńska, 2010).

Leaving the only citation of the inoculation report aside, we can also broaden our search and take a closer look at the individuals who were connected with the publication of Werloschnig's and Loigk's *Historia Pestis*. It contains ten parts; three were written by the editors, and the rest were sent by various Central European physicians, who presumably might then have read the publication, including the passage on inoculation. We will skip the editors for now and focus on the other contributors.

The first among them was Johann Gereon Schimperich (life data unknown), a physician serving in a temporary plague lazaretto established by the government of Upper Austria for the Traun district (*Traun-Viertel*). There is very little we can glean from the sources about his life or career. He probably survived the dangerous duty of plague physician because he is not listed among those physicians who died during the epidemic and were added to the second edition of *Historia Pestis* (Werloschnig & Loigk, 1716).[3] He is not mentioned in the Acts of Medical Faculty of the University of Vienna. Therefore, it is likely that he graduated from a different institution (Senfelder, 1912).

The second corresponding physician was Sebastian Christian Fuchs of Löwenwalt (d. 1725), a professor at the Prague Medical Faculty, who wrote a report about the plague in Bohemia while on the run from the epidemic-stricken capital (Černý, 2018, pp. 101–102; Hlaváčková & Svobodný, 1988, pp. 66–67; Werloschnig & Loigk, 1715, pp. 61–71). With Fuchs, the potential readership of news about inoculation expanded into the medical milieu of Prague with its ancient faculty of medicine, which at that time was undergoing something of a renaissance. It was moving away from traditional Galenic medicine and searching for new ide-

[3] An unpaginated list of physicians who perished in the epidemic is inserted in the 1716 edition before the errata and after a salutation written by the dean of the Viennese Medical Faculty, Pius Nicolaus Garelli.

as, particularly Cartesian physiology, with its concept of the human body as a "*machina pneumatico-hydraulica*" (Černý, 2023a). In terms of medical theories, Fuchs' alma mater drew inspiration from other medical faculties in the Habsburg dominion – Vienna and Innsbruck. However, a surviving reading list for students, written at the end of the 17th century by Prague professor Johann Franz Löw von Erlsfeld (1648–1725), contains over 350 authorities—most of them early modern writers—suggesting that the faculty cast its nets much farther than that (Černý, 2023a; Löw, 1693).

Two names of contributors to *Historia pestis* are connected with the city of Regensburg in Bavaria. Johann Adam Göritz (1681–1734) added some personal information at the end of his report, noting that he became personally acquainted with Werloschnig while both had studied together in Jena several years earlier (Werloschnig & Loigk, 1715, pp. 72–75). Later, he graduated from there under Georg Wolfgang Wedel (1645–1721) with a dissertation on testicular tumours. Shortly after his contribution to *Historia Pestis*, Göritz became a member of Leopoldina, the German Academic Society founded in 1651. Göritz's link to Wedel is important because the Jena professor was quite an influential figure in Central European Baroque medicine; his writings were among the most frequently recommended by the Prague reading list (Černý & Divišová, 2023).

The second physician writing about the epidemic in Regensburg was Georg Eric Thill (Werloschnig & Loigk, 1715, pp. 76–80). Similarly to Schimperich's case, we do not have any additional information with the exception of the fact that he was a "*physicus ordinarius and senior*", suggesting that among the city physicians he had, at that time, the longest professional career. Despite the lack of information, Göritz and Thill represent an important connection to the Bavarian medical community and also a link to the Jena Medical Faculty.

The fifth foreign contributor points towards another Central European centre of learning. Johann Kanold (1679–1729) was born in Wrocław (Breslau) and studied medicine in Halle under Georg Ernst Stahl (1659–1734), where he also graduated with a dissertation on abortion and dead foetuses (Hirsch, 1882). Kanold spent his life in Wrocław as a respected physician and scholar due to his role as the editor of the Wrocławian *Sammlung*. In accordance with contemporary medical theories, Kanold was interested in the relationship between local climate and epidemic diseases, and the journal partially served as a publication platform for regular weather reports from various regions.

For *Historia Pestis*, Kanold wrote a brief report about the anti-plague remedies used in his home town during the epidemic (Werloschnig & Loigk, 1715, pp.

81–93). More importantly, though, he also later cited Werloschnig and Loigk's book in his own text on plague published in *Sammlung* (volume dated to Autumn 1718 but published in 1720) (Kanold, 1720). While Kanold was not interested in variolation per se, he had clearly read the passage in question because he cited a piece of information from a page immediately after the reference to smallpox (Werloschnig & Loigk, 1715, p. 459; Kanold, 1720, p. 1829).[4] After Göritz, Kanold is also the second person connecting this intellectual network to the Leopoldina society, which underscores the importance of the German Academy for sharing medical knowledge across early modern Europe. Regrettably, as with several other links mentioned in this paper, the influence of Kanold contacts remains rather obscure. For example, we do not know how much the members of academic communities at the Habsburg medical faculties (Innsbruck, Prague, Vienna) engaged with Kanold's publication project. There is only a single reference to Kanold in the Acts of the Vienna Medical Faculty, which suggests that Kanold wrote to the faculty members about the anti-plague measures in 1710 (Senfelder, 1912, p. 307). Later in the century, Kanold's text on the plague, including the citation of Loigk, was re-published by another Wrocławian physician, Johann Christian Kundmann (1684–1751). However, it remains unclear what impact this edition had, and the text was clearly provided in the context of a discussion about the plague, not smallpox (Kundmann, 1737, col. 1198).[5]

The last contributor was Johann Christoph Ausfeld (life data unknown), who provided an extensive review of the plague in Vienna, comparing it with the previous epidemic in Hungary, which he had personally witnessed. This text is unusual because it is written in German, while the rest of the book is in Latin. His German, however, is sprinkled with copious Latin words and phrases, so he did not choose the language because he was unfamiliar with the academic *lingua franca*. The Viennese *Acta* recorded in 1712 a "*formula of curing the plague, which someone called Ausfeld used to use, and who also later presented this method to the faculty*."

It seems that in May 1712, Johann Christoph Ausfeld sent his notes on the Viennese plague to the government, which forwarded the text to the faculty. In this text, Ausfeld claimed that the current wave of infections in Vienna was identical to the plague raging a few years ago in Hungary. He also argued against the speculations that the Viennese cases might be caused by Venereal diseases, as some had reportedly suggested (Senfelder, 1912, p. 232). The *Acta* records the first few paragraphs of Ausfeld's memorandum to the government, and it seems that it is

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4 Note that *Sammlung* has continuous pagination, hence the high page number.

5 Note that this book does not have pagination. Instead, it counts columns (with two columns per page).

a Latin translation of the passage later published by Werloschnig and Loigk in *Historia Pestis* (Senfelder, 1912, p. 290).

Initially, the medical faculty wrote a rather indignant reply where they acknowledged the contagious nature of the epidemic but refused to accept that it was the same plague as the Hungarian one, arguing that Ausfeld had not seen Viennese patients personally (Senfelder, 1912, pp. 291–297). This turned out to be quite a short-sighted position as the 1713 plague epidemic was right around the corner (Senfelder, 1912, pp. 320–321). Unfortunately, apart from this correspondence with the medical faculty in Vienna, the figure of Johann Christoph Ausfeld remains rather obscure; we have found only a single mention in a recent Hungarian study (Kerekes, 2017–2021, p. 393). The only piece of information we have is again included in his own text, where Ausfeld noted that, when writing this report, he had already been a physician for four decades. He also signed the letter as a "doctor of medicine", so presumably, he was an academically educated physician from Hungary (Werloschnig & Loigk, 1715, p. 95).

Let us now focus on the editors of *Historia Pestis*—the fact that they were both Slovenian is likely not a coincidence. As far as we know, Slovenian historians of medicine have not yet reported on the role of Johann Baptist Werloschnig de Perenberg and Antonius Loigk in relation to inoculation. A general history of Slovenian medicine by prominent historian Zvonka Zupanič Slavec mentions Werloschnig's participation in the *Historia Pestis*, noting that this text provided an "*epidemiological, clinical, and patho-anatomical description of the plague with rich casuistics*" but no additional details were given (Zupanič Slavec, 2017, pp. 69, 97, 100).[6] Recently, Katarina Keber contributed with a great discussion about early variolations in the region, but she was also unaware of the fact that Werloschnig and Loigk played such an important role in the introduction of the procedure (Keber, 2023).

Biographic information on both has already been summarised by Ivan Pintar. Johann Baptist Werloschnig de Perenberg (Ivan Krstnik Brložnik in Slovenian) was born in the town of Mozirje in the northern part of the country. He studied in Graz, although Pintar also tentatively mentions the Viennese faculty. However, if Werloschnig had indeed been there, he did not take any exams, because he was not mentioned in the Acts of the Vienna Medical Faculty (Senfelder, 1912). Werloschnig worked as a physician in Graz, Linz, Freistadt, and later Ried. During his stay in Linz, he was elevated to a knighthood with the predicate "de Perenberg", which might have happened in relation to his appointment as physician to the Estates of Upper Austria. He also referred to himself as a "professor", although it is

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6 Translated from Slovenian text to English by the author.

not clear at which medical faculty he lectured. He was a member of two scientific societies: the German Leopoldina and also the Slovenian *Academia Operosorum*.

Apart from *Historia Pestis*, Johann Baptist Werloschnig wrote a very interesting book arguing against the abuse of a widespread custom of so-called "Spring and Autumn purifications" (Werloschnig, 1713a). These procedures, which usually involved bloodletting, diet, and the ingestion of purgatives and vomitives, were quite popular among the lay public, as they were considered a powerful preventative measure. Other works included a dissertation on plague and a German description of the newly discovered healing waters in the Bohemian estate Omlenice (Werloschnig, 1713b; Werloschnig, 1706; Mareš, 2001–2023).[7]

Another pertinent detail for our topic is the fact that since childhood, Werloschnig was friends with Slovenian physician and scientist Marko Gerbec (1658–1718) (Pintar, 2023b). Gerbec was born in Šentvid pri Stični in Carniola (now in Slovenia), graduated with a degree in philosophy from the University of Ljubljana, and studied medicine in Vienna, Padua, and Bologna. He wrote several books on his own medical observations and contributed with papers published in the journal of the German Leopoldina, of which he was also a member. Importantly, Gerbec founded a scientific society in Ljubljana (*Academia Operosorum*) as well as the earliest medical society in Slovenian lands, the Confraternity of St Cosmas and Damian (Zupanič Slavec & Neudauer, 2015, p. 856). He was also a member of the Carniolan *Societas Unitorum* (Piry, 2023, p. 24). This connection to Gerbec, therefore, brings us back to Werloschnig's homeland.

At the beginning of the 18th century, when the Ljubljana Academy published its rules and catalogue of members, there were 23 individuals who were mostly theologians and jurists, but four–Georg Sigismund Pogatschnig, J. B. Werloschnig, Johann Caspar Corusi, and M. Gerbec–were physicians (Author unknown, 1701). The Carniolan Society published a list of members in 1706, with at least two physicians among them (Johann Baptist Pettermann, Johann Caspar Corusi) (Fereri Klun, 1852, pp. 25–29). The connection with Gerbec and the local societies, therefore, provides a link to the Slovenian academic community.

Biographic data on Antonius Loigk (Anton Lojk, born in1679) is much more sparse (Pintar, 2023c). The primary source here is the Acts of the Vienna Medical Faculty, where Loigk appeared for the first time in 1700 as a student of medicine. The steps necessary to achieve a doctoral degree in Vienna were rather complicated, and Loigk, therefore, first asked for permission to hold a public disputation

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[7] Omlenice in South Bohemia is only about 30 km away from Austrian Freistadt, where Werloschnig was located at that time.

necessary for passing a bachelor's degree in medicine, which took place on 30 July 1700 (Senfelder, 1912, p. 161). In October of the same year, Loigk received financial support (S*tipendium Emericanum*), and later, he passed the exam and graduated on 6 December 1700, with a baccalaureate in medicine (Senfelder, 1912, pp. 162–163). The following year, Loigk asked for another disputation and, in September, for the so-called "rigorosum" exam (Senfelder, 1912, pp. 167–168). During the exam in October, Loigk reportedly exceeded all the fellow students and was, therefore, assigned first place. After the exam, students graduated with a doctorate in medicine (Senfelder, 1912, p. 169).

Following graduation, Loigk disappeared from our sources for several years, presumably serving as a military physician in Hungary, but he later returned to Vienna. In 1715, during the term in office of Dean Pius Nicolaus Garelli (1675–1739), the faculty began working on a new version of statutes. The old version was medieval and was no longer sufficient for an early modern institution of medical learning. The faculty, therefore, created a commission which supervised work on the modernised statutes with six members, including Loigk (Senfelder, 1912, p. 368). The following year, we were briefly informed that Loigk became ill, recovered, and participated in activities of the Viennese College of Physicians (Senfelder, 1912, pp. 379–380). Finally, in 1719, he became a member of the commission overseeing the infirmary in the local poor house (Senfelder, 1912, p. 418).

There is a large gap in Loigk's biography between 1700 and 1715. It would be interesting to learn more about the period when he served in Hungary. He styled himself in the *Historia Pestis* as a physician in the army of the "three Emperors", which provides us with a clue because he must have started his service before the ascension of Joseph I (1705) and remained in the service until 1711, when Joseph I died, thus spanning the reigns of Leopold I, Joseph I, and Charles VI. However, in the later stages of his career, he moved to Vienna and became a member of the Viennese medical circles. Considering his membership in various committees, it is likely that he had achieved a certain level of prestige. The Viennese Collegium Medicum would, therefore, be the last connection that should be considered in research on the possible impact of early variolation.

Conclusions

The inoculation began to spread from the Greek minorities in the Ottoman empire shortly after it was discovered through to the Habsburg-Ottoman frontier in 1714 or earlier. Rather than mediated through the Western medical staff, merchants, or diplomats, it now seems clear that the earliest procedures were per-

formed by an immigrant who brought this medical practice from the East to Central Europe. While we are unable to tell whether this particular instance was an exception or part of a regular occurrence, it seems obvious that the communities living along the ever-shifting border between the Habsburg and Ottomans were not entirely isolated.

Several groups, like the Jewish or Armenian merchants, had stakes in the Muslim as well as the Christian part of the Balkans; they might, therefore, have served not only as the brokers of goods but also of ideas and concepts transmitted through the restless frontier. One of these ideas was the "Greek custom" of inoculation introduced to Vienna. While it is probably impossible to track this cross-border communication in detail, we may attempt to figure out what happened after the procedure was noticed by Viennese scholars. An examination of the sources related to these individuals shows several possible avenues for further research.

The most promising of these would probably be the Wrocławian lead related to the community of contributors and readers around Kanold's journal. We know that one of them – Jan Adam Reiman – applied the knowledge from Vienna to inoculate his own daughter. Johann Kanold himself very likely read the passage about inoculation as he referenced an adjacent passage. A thorough reading of the rest of the journal may help us to better understand this network of individuals. Authors who contributed to *Historia Pestis* might also have become aware of the procedure. This link points towards physicians in Regensburg (Bavaria), Austria, Bohemia, and Silesia.

The biographies of the editors of *Historia Pestis* reveal additional possibilities, including a link to the academic milieux in Jena and Vienna. The Slovenian connection is also worth consideration—Werloschnig and Loigk likely cooperated because they were both successful compatriots building careers outside their motherland. Finally, the importance of scientific societies should also be examined. Several individuals were connected through the German Leopoldina, but there was also the Slovenian *Academia Operosorum* and Carniolan *Societas Unitorum*. All these links reveal the complex nature of the network of scholars living and working in the Central and East European region during the early vaccination period.

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SAŽETAK

Godine 1715. dva su slovenska liječnika, Johann Baptist Werlosching de Perenberg i Antonius Loigk, objavila opsežan svezak o posljednjoj epidemiji kuge u srednjoj Europi. U svesku je, bez isticanja, pronađen opis cijepljenja protiv malih boginja koji je nekoliko godina stariji od svih zapisa o tom postupku u Europi. Loigk je osobno svjedočio postupku u Beču 1714. ili prije. O kontekstu ovog događaja trenutačno se malo zna. Ne znamo koliko je bilo inokulatora, koliko je pacijenata liječeno i, što je ključno, kako su medicinski krugovi u Austriji prihvatili postupak. Svi su ti podatci potrebni za razumijevanje utjecaja ovog otkrića na austrijsko (i, šire, istočnoeuropsko) društvo s početka 18. stoljeća. Da bismo razmotrili moguće poveznice, usredotočit ćemo se na rekonstrukciju intelektualne mreže obaju Slovenaca kako se pojavljuje u tadašnjoj akademskoj literaturi. Nadamo se da te poveznice mogu otkriti nešto o skupini liječnika koji su možda prije nego ostali bili upoznati s ovom važnom protuepidemijskom mjerom.

***Ključne riječi**: male boginje (ospice), inokulacija, variolacija, Slovenija, rani novi vijek*