References, Influences, and Views on Inoculation Debates on David Schultz's *An Account of Inoculation*

A Preliminary Study[1]

Elina Maaniitty

In this article, I focus on David Schultz's *An Account of Inoculation* and aim to analyse it within its context, by mapping the authors and texts referenced in it and concentrating particularly on British influences. I also analyse how Schultz makes use of these references in his arguments for smallpox inoculation, how he sees their importance, credibility and persuasiveness, and how he comments on them.

Since the number of references that Schultz makes both to existing literature and personal encounters is very high, I have chosen to limit my scope in this article to preliminary findings. Schultz's text, its background and its scientific framework as well as its effects on Swedish medical literature, medical education and smallpox prevention require further study.

Introduction

In 1754, a young Swedish physician ventured to London. David Schultz (1732–1823) had been sent to England to learn about smallpox inoculation, and the journey was backed by significant medical and governmental authorities. The costs were covered by the Swedish Health Commission (*Sundhetskommissionen*) and Schultz was provided with recommendation letters by professor Nils Rosén (1706–1773, later Rosén von Rosenstein) and archiater Abraham Bäck (1713–1795).[2]

David Schultz was the son of Jakob Schultz, a regiment surgeon of German origin practising in Sweden. Relying on his father's relatives for accommodation, Schultz had been able to relocate to Königsberg for education when he was thirteen years old. Two years later, in 1747, he had started to

[1] This work was written as part of the project *Agents of Enlightenment: Changing the Minds in Eighteenth-Century Northern Europe*, funded by the Academy of Finland, 2017-2021, under grants number 307668 and 326253.

[2] Sjögren, Iréne, *Nils Rosén von Rosenstein. Mannen som förlängde människolivet*. Carlssons Bokförlag, Stockholm, 2006. p. 46–47. Åman, Anders, "David Schulzenheim, von" in *Svenskt biografisk lexikon*. Available on the website of the Swedish National Archive, https://sok.riksarkivet.se/Sbl/Mobil/Artikel/6411.

study medicine at the local university and defended a medical dissertation in 1750, after which he returned to Sweden and continued his studies in Uppsala. As a brilliant pupil of Rosén and Carl Linnaeus (1707–1778), Schultz received his doctorate in 1754. During his studies in Königsberg, Schultz was noted as having special interest in anatomy; in Uppsala on the other hand, he started to focus more on paediatrics, likely due to Rosén's influence. Immediately after finishing his studies he was sent to England for a year, apparently on Rosén's and Bäck's initiative.[3] Bäck himself had spent three months in England a decade earlier, in 1742, meeting several British colleagues in London and Oxford.[4] The contacts that he had made during this visit are likely to have helped him to arrange Schultz's journey.

Smallpox, *Tabellverket*, and the motives behind Schultz's journey

Sending a 22-year-old physician to England for a year was a costly and, likely, somewhat risky investment. It was far from unique, as several young Swedish scholars of the time were sent to other countries to study specific areas of interest or to participate in long, hazardous expeditions. Schultz's journey was thus part of a larger modus operandi of Swedish scientific circles and should be analysed not as an individual incident, but in relation both to the old tradition of study trips and the adventurous, ambitious explorations of the so-called Linnaeus' disciples.[5] It is, however, important to note the specific interests and aspirations behind Schultz's journey and the subsequent publication of *An Account of Inoculation*.

During the 1750s, smallpox was becoming a topic of increasing importance in scientific and public discussions in Sweden. The disease was a significant cause of death among the population. It had become endemic in most parts of the kingdom, causing recurring outbreaks with intervals of around five years and taking a heavy toll on small children. This was an ongoing affliction, to the extent that, according to Peter Sköld, not a year passed between 1750 and 1800 without smallpox

[3] Sjögren, Iréne, *Nils Rosén von Rosenstein. Mannen som förlängde människolivet*. Carlssons Bokförlag, Stockholm, 2006. p. 46–47. Åman, Anders, "David Schulzenheim, von" in *Svenskt biografisk lexikon*. Available on the website of the Swedish National Archive, https://sok.riksarkivet.se/Sbl/Mobil/Artikel/6411.
[4] Rydberg, Sven, *Svenska studieresor till England under Frihetstiden*. Lychnos-bibliotek, Studier och källskrifter utgivna av Lärdomshistoriska Samfundet 12. Almqvist & Wiksells Boktryckeri, Uppsala, 1951. p. 233.
[5] For comprehensive information on such journeys, see *Ibidem* as well as Hodacs, Hanna & Nyberg, Kenneth, *Naturalhistoria på resande fot. Om att forska, undervisa och göra karriär i 1700-talets Sverige*. Nordic Academic Press, Lund, 2007.

epidemics in Sweden.[6] The disease caused severe fear amongst the people and worried the authorities; these concerns were accelerated by the first population statistics collected by *Tabellverket*, the national population statistical office that was established in 1749. From then onwards, the government required all parishes to keep annual records on baptisms, marriages and burials, and to report these figures to *Tabellverket* in Stockholm. While such records had been kept with varying precision at least since the mid-seventeenth century, they now had to be made much more rigorously. Causes of death, for instance, had to be determined and included in burial records. The first records collected in this manner highlighted the high infant and child mortality and the significant role of smallpox in it. In result of the increasing scientific and political interest in population statistics, smallpox and inoculation became matters of great importance.[7]

Against this background, it is not surprising that the Health Commission was willing to use its resources to support Schultz's journey to England financially. Measures to combat smallpox mortality were direly needed, yet the knowledge on inoculation, which was gaining increasing recognition as an essential innovation, was severely lacking in Sweden. The first scientific text on the topic in Swedish had been published by Herman Dietrich Spöring (1701–1747) as early as in 1737,[8] but back then, its publication received little attention. Rosén, who was primarily interested in paediatrics, wrote on inoculation in short informational pieces that he published as series in popular almanacs from 1753 onwards.[9] However, no inoculations were carried out in Sweden until 1754, when Johan Haartman (1725–1787) performed one in Åbo and Samuel Aurivillius (1721–1767) another one in Uppsala.[10] In his book, Schultz mentions an inoculation performed in Uppsala "under the inspection of Mr. Aurivillii the Body Surgeon".[11]

David Schultz's *Berättelse om Koppors Ympande* was published in 1756, soon after the author had returned to Sweden. The book is a comprehensive and ambitious work, containing practical descriptions on how to perform an inoculation properly as well as a compilation of rhetorical, moral, religious and pragmatic arguments that could be used in debates with those who opposed the

---

[6] Sköld, Peter, *The Two Faces of Smallpox. A Disease and its Prevention in Eighteenth- and Nineteenth-Century Sweden*. Umeå University, Umeå, 1996. p. 52.
[7] On *Tabellverket*, Lindroth, Sten, *Svensk Lärdomshistoria III. Frihetstiden*. Norstedts, Stockholm, 1978. p. 453.
[8] Spöring, Herman Dietrich, *Inoculatio Variolarum Eller Kort Beskrifning om sättet att Ympa Koppor på Menniskior. I anseende til des nytta*, Joh. Kiämpe, Kongl. Acad. Boktr. Åbo, 1737.
[9] Örneholm, Urban, *Four Eighteenth-century Medical Dissertations under the Presidency of Nils Rosén*. Uppsala Universitet, Uppsala, 2003. p. 15.
[10] *Ibidem*, p. 139.
[11] Schultz, David, *An Account of Inoculation*. London, 1758. p. 81.

practice. The English version, *An Account of Inoculation*, was published in 1758, translated by Schultz himself.

The British context

In England, inoculations had been practised already since the early 1720s. This interest was largely sparked by Lady Mary Wortley Montagu, who came into contact with the procedure in Constantinople and afterwards helped to make it more popular among the British nobility. However, inoculations were not widespread in England until the 1750s and 1760s, and even then the practice encountered fierce opposition, particularly among clergymen. Its popularity also varied considerably by region, as inoculation was generally more widely practised in rural villages and small towns than in large cities.[12]

Schultz arrived in the middle of these controversies. Judging by his text, he quickly orientated himself according to the ideas and opinions of his British colleagues, showing great respect to their works, as well as to the personal guidance and mentorship some of them had offered him. In *An Account of Inoculation* he also carefully dissects the arguments of ”the Enemies of Inoculation” following both the views and the choices of words that can be found in British texts in defence of inoculation.

On the title page of the English translation of his book Schultz announces that he ”attended the Small-Pox Hospital in London near a Twelvemonth”. It seems that he spent most of his time in London observing physicians and patients both in the hospital and the Inoculation House. The Smallpox Hospital had been established a decade earlier, in 1746, as a charitable institution to provide inoculations, free of charge, as well as to offer treatment for those who had contracted smallpox. The Inoculation House, while being part of the same institution, was located far from the hospital, to prevent the natural spread of smallpox among those who wished to be inoculated. All patients with smallpox symptoms, whether they had contracted the disease naturally or via inoculation, were, however, treated in the Smallpox Hospital. It was not a small institution; between 1746 and 1752, a total of 1,352 patients received care for natural smallpox, and between 1751 and

[12] Davenport, Romola J., Boulton, Jeremy, Schwarz, Leonard, ”Urban inoculation and the decline of smallpox mortality in eighteenth-century cities – a reply to Razzell”. In *The Economic History Review*, 69, 1 (2016), John Wiley & Sons Ltd., p. 188–214. p. 189–190.

1755, nearly 600 inoculations were performed at the Inoculation House.[13] Such an environment provided Schultz with a multitude of case histories and numerous possibilities for interesting observations.

General characteristics of *An Account of Inoculation*

An Account of Inoculation is, in a very clear sense, a commissioned work. The Swedish original functioned as a written proof to the Health Commission, in order to show them that Schultz had not let down the expectations of his commissioners and patrons. Furthermore, and more importantly, it would serve as a comprehensive and versatile manual for inoculators in Sweden, providing not only practical guidance, but also advice and resources on how to act when encountering opponents of inoculation. The English translation, on the other hand, likely served as a report of Schultz's learning to his hosts, teachers and colleagues in London, whilst also gaining recognition for Swedish physicians and writers, such as Rosén, outside Sweden's borders.

The dedication of the text sheds light on Schultz's aspirations and the background of the journey. The author dedicated *An Account of Inoculation* eloquently to the Health Commission, emphasising his efforts to gather all possible knowledge on the matter during his journey, theoretical as well as practical, and to advance the adoption of inoculations in Sweden:

> May it please your Lordship, and you Honourable Gentlemen appointed by his Majesty's Royal Commission to superintend the Health of his Subjects.
>
> I have the Honour to present an Account of the present State of Inoculation, as it is practised in England, as my Duty requires, to this Honourable Commission; if it is composed in a manner worthy of your Approbation, I shall have the Satisfaction of knowing that I have not attempted only, but performed, what my Situation and Obligations required. As it is, I have the Comfort of reflecting that I have omitted nothing in my Power, to make myself Master of this Point, have read whatever has been published either for or against Inoculation, attended diligently such Gentlemen as were most eminent for Practice in London, and the Patients in the Hospital, for this Disease, by Inoculation, and in the Natural Way, observed the Progress of the Distemper, and the Method of treating it throughout, with all possible Attention and Application.
>
> Such is the Treatise I have the Honour to lay before you, and if from its Contents it shall appear, that my Endeavours have a Tendency to promote the Views of this Royal Commission for the public Safety and Service, then I hope to have the Honour of your Protection, and to have it thereby in my Power to promote a Practice that may preserve the Lives of many.[14]

[13] Rusnock, Andrea A., *Vital Accounts. Quantifying Health and Population in Eighteenth-Century England and France*. Cambridge University Press, Cambridge, 2002. p. 94.
[14] Schultz, 1758. Dedication.

The book, counting 119 pages in Swedish and 139 in English, is a lengthy treatise that showcases both Schultz's extensive reading and his interest in practical observations in the Smallpox Hospital and the Inoculation House. He had been allowed to observe his British colleagues, such as Edward Archer (1718–1789), when dealing with their patients, and throughout the book he describes their work and the discussions he had with them. It appears that Archer, who served at the Smallpox Hospital for over 40 years since 1747[15], was of particular importance to Schultz. Schultz notes, for example, that ”Doctor Archer ventured to continue inoculating all Seasons last Year, in the Hospital, and I was an occular Witnes to it”. He refers to several discussions which they had together and mentions that he received a letter from him recently.[16]

Indirectly, Schultz reveals the trust placed in a colleague's name and word. Throughout the text, he references case histories, writings and letters simply by mentioning the name of the physician or surgeon who has told him about a patient or published a treatise. Sometimes a chain of several people is identified; a medical practitioner has described a case to a colleague, who then has communicated it directly to Schultz, told it to someone Schultz knows, or published it. Such accounts are not challenged or put in doubt. A similar kind of respect is also expressed explicitly, as was customary in scientific texts of the time. Characterisations such as ”the learned doctor Jurin” or ”the experienced Doctor Sydenham” are included frequently.

Similarly, Schultz informs his readers of the views and opinions of others, especially when it comes to the moral aspects of inoculation and the controversies around it. The ”friends” and ”enemies” of inoculation are a central categorisation in the book. Schultz describes and comments on the arguments of both sides at length, devoting an entire separate section of the book to this debate. Calling someone an enemy of inoculation is a clear rhetorical tactic and an example of how Schultz presents to the reader the persons he refers to. More or less implicitly, he points to the views of the opponents of inoculation as being outdated and diminishing in importance, e.g. when he characterises La Faye as being ”the last Enemy to inoculation in England”.[17] In reality, the opposition remained staunch for decades to come. In the nineteenth century, the Jennerian

[15] Payne, Joseph Frank, ”Archer, Edward”. In *Dictionary of National Biography, 1885–1900, Volume 2*. Available on https://en.wikisource.org/wiki/Archer,_Edward_(DNB00).
[16] Schultz, 1758. p. 25 and further.
[17] Schultz, 1758. p. 129.

vaccinations inherited, to a large extent, the same enmity and accusations that had first been directed against inoculation.

Schultz's views on the opponents of inoculation

When recounting the views of those who opposed inoculation, Schultz makes a clear difference between two kinds of opposition: the first one, often religiously motivated, he considers simply ignorant; the second one consisted of more subtle critique that focused on possible risks. The latter was usually expressed by medical professionals and was thus more worrisome. In the beginning of his book, Schultz recognises inoculation as a procedure that was not without problems:

> Inoculation has been by some praised to that Degree, that they have found themselves not able to make good or maintain, in the Course of Practice, all they had asserted in its Favour. By others again it has been too much condemned from manifest Obstinacy or Ignorance.
>
> The Enemies to Inoculation ground their Objections in the few Accidents which have happened, and the Friends thereto by that Means have learnt to be more cautious. By nice and careful Observations on the Small Pox, both in the Natural Way and by Inoculation, we are now better able to judge, whether a Person is likely to have it favourable or not.[18]

This is a thought-out way to address the opposition and doubts expressed by those who argued that the risks of inoculation were greater than its advantages. In several cases throughout the book, Schultz presents the arguments of such opponents in detail. In reply to ”the enemies of inoculation” basing their arguments on fatalities that had occurred due to inoculation, Schultz points out that the inoculations in question had not been carried out properly or that these particular patients had not been sufficiently cared for after the inoculation. He uses a lot of statistical materials in this respect, noting that since the 1720s inoculation techniques had improved and that more knowledge and experience had been obtained on how to prepare the patients in the best way and to carry out the procedure. Statistics are also used as a simple argument: according to his sources, the number of deaths caused by inoculation had always been much lower than what was caused by natural smallpox, and moreover, thanks to the aforementioned improvements the number of fatalities had

[18] Schultz, 1758. p. 1–2.

considerably decreased further.[19] As a result of such statistical proof being available, Schultz claims that amongst physicians inoculation ”has not had any Opposers for some Years”.[20]

Despite these general reassurances, some more specific concerns voiced by medical professionals are answered in the text. These are usually countered by blaming malpractice as the culprit or simply by explaining that the risk is not scientifically credible, e.g. with regard to the risk of spreading other diseases along with smallpox via inoculation.[21]

Some arguments from the opponents are considered much less worthy to refute. Schultz does, however, include examples of these in his book, likely trying to prove his point that much of the opposition was grounded on ignorance. The clergyman Edmund Massey (1690–1765), for instance, attempted to show the viciousness and sinfulness of inoculation by claiming that the biblical Job had been inoculated with smallpox by his enemies.[22]

The geographical and temporal distribution of Schultz's reference literature

In *An Account of Inoculation* Schultz references a wide range of texts and authors, out of which I have identified a total of 107 authors and 112 texts. In table 1 I have arranged them according to their geographical and temporal distribution and in the appendix they are listed alphabetically.

Table 1. The geographical and temporal distribution of texts and authors referenced in *An Account of Inoculation*.

	Before 500	501–1000	1001–1500	1501–1600	1601–1650	1651–1700	1701–1720	1721–1730	1731–1740	1741–1750	1751–1756	16th or 17th c.	17th c. unclear	17th or 18th c.	18th c. unclear	Total
British			2			2	2	12	3	7	14		1		7	50 44,6 %
French						1		1			4				3	9 8 %
German						3			2	1	1	1			1	9 8 %
Dutch					1	2	1							2	1	7 6,3 %
Genevan											4				2	6 5,4 %
Swedish											3				1	4 3,4 %

[19] Comparisons between the fatalities associated with inoculation and natural smallpox mortality: Ibidem, 1758. p. 106.
[20] *Ibidem*. p. 102.
[21] *Ibidem*. p. 54–55.
[22] *Ibidem*. p. 104.

Greek	2							1								3 2,7 %
Italian				1			1								1	3 2,7 %
Swiss				1				1			1					3 2,7 %
Irish											1			1		2 1,8 %
North American								2								2 1,8 %
Persian		1	1													2 1,8 %
Arab			1													1 0,9 %
Danish													1			1 0,9 %
Roman	1															1 0,9 %
Unknown				1		1	1			1	5					9 8 %
Total	3 2,7 %	1 0,9 %	4 3,6 %	3 2,7 %	1 0,9 %	9 8 %	5 4,5 %	17 15,2 %	5 4,5 %	9 8 %	33 29,7 %	1 0,9 %	2 1,8 %	3 2,7 %	16 14,3 %	112 100 %

Note: Geographical distribution according to the author's country of origin. Temporal distribution according to the year of publication when a specific text is referenced; otherwise, according to the author's lifetime. If several specific texts of an author have been referenced, they have been included in the table individually.

Occasionally, Schultz references several texts from the same authors. Unfortunately I did not manage to identify all of them. In such situations, only the identified texts have been included in the table. Schultz tends to give very brief references, mostly including only the family name or pen name of the author, and an abbreviation of the title of the text in question or the title of a compilation in which a certain text has appeared. Sometimes no specific text is mentioned. However, also these cases are included in my analysis because Schultz clearly points out that he is referencing a written text, not a personal encounter.

In 14 cases I have not been able to find either the text or the author referenced, or there were several possible identities for the authors. These cases are not included in the table or the list of references since it appeared to be impossible to determine them with sufficient accuracy.

Of the texts and authors that have been identified, a significant majority of 44,6 % are British. This allows us rather convincingly to conclude that Schultz either read most of his referenced material in England and wrote *An Account of Inoculation* there, or that he acquired a considerable collection of texts from England and brought it to Sweden upon his return.

In the dedication of his book, Schultz states that he has ”read whatever has been published either for or against Inoculation”. He may have spent hours upon hours in libraries, probably also borrowing books and asking reading recommendations from his local colleagues. As *An Account of*

Inoculation would develop into a central book on the subject in Sweden, Schultz's journey and his reliance on mainly British sources may have had an enduring effect not only on Swedish scientific discussions on smallpox, but also on Swedish medical science in a broader sense.

The other references cover a wide range, both in terms of geography and language as well as temporally, although those other than British, French, or German are relatively low in number and several categories consist of only one author or one text. In nine cases it has not been possible to identify the country of origin reliably, although in the majority the names point to Britain. Similarly, many referenced texts that have been written during the eighteenth century seem to have been parts of the discussions of either the 1720s or the 1750s, but for the purposes of this article it remained impossible to date them accurately. Therefore, the percentages of British references and of texts written during the 1720s or 1750s are most probably even higher than mentioned in the table.

Temporally, the distribution shows a heavy emphasis on the 1720s and 1750s, with 15,2 % and 29,7 % of the texts having been published during these decades, respectively. Thus, 44,9 % of the texts were published in either the 1720s or the first half of the 1750s, as Schultz's account itself was published no later than in 1756. This is to be explained rather easily since inoculation first entered the European, and particularly the English and French, scientific and public discourse in the early 1720s. The 1750s experienced another wave of passionate discussion and debates on the matter, since inoculations were practised more widely in several countries. It is worth mentioning that Schultz was able to include several very recent texts in his book, some of them even from 1756, the year of publication of the Swedish original *Berättelse om Koppors Ympande*.

The most frequently cited text in the book is *The Analysis of Inoculation*, written by James Kirkpatrick (circa 1690–1702, died 1770). Kirkpatrick, originally Kilpatrick, was a physician of Irish origin who came into contact with inoculation while he was living in South Carolina. He returned to Europe in 1742 and worked in London.[23] The writings of the English physician Richard Mead (1673–1754) are also referenced with great frequency, *De Variolis et Morbillis Liber* in particular, as well as those of James Jurin (1684–1750), e.g. *An Account of the Success of Inoculating the Small-Pox*, a series of meticulous records published between 1723 and 1727.

[23] McCandless, Peter, "Kilpatrick (Kirkpatrick), James". In *South Carolina Encyclopedia*, available on http://www.scencyclopedia.org/sce/entries/kilpatrick-kirkpatrick-james/.

Numerous references are also made to Thomas Sydenham (1624–1689), a famous English physician with an enduring fame as one of the country's most important medical scientists.[24]

It is remarkable that the number of Swedish references is rather low. Of particular interest is the complete lack of Spöring's *Inoculatio Variolarum*. The text seems to have had no major influence when it was published; Schultz's omission of it, whether deliberate or not, suggests that *Inoculatio Variolarum* remained largely forgotten or ignored even when the interest in inoculation grew in Sweden.

The Swedish authors and texts that Schultz does reference are all very recent, being people and works that he was personally acquainted with. Rosén is mentioned frequently, usually in a pragmatic context rather than as an author. Schultz refers to his lectures, to case histories described by him and sometimes to his texts. Two of the other Swedish authors mentioned by Schultz are his fellow students under Rosén and the texts referred to are academic dissertations defended by them in Uppsala. *De variolis praecavendis* was defended by Roland Martin (1726–1788) in 1751, *De Variolis Curandis* by Peter Jonas Bergius (1730–1790) in 1754.[25] The fourth Swedish text included in Schultz's book is Linnaeus's *Species Plantarum* (1753). It must be noted that while the amount of Swedish literature in the references is low, Swedish medical professionals are very often mentioned in terms of personal encounters and discussions.

Surgeons and clergymen in Schultz's references

Surgeons are frequently referred to, and no particular distinction is made between them and physicians. While the distinction, and often rivalry, between physicians and surgeons was commonplace in eighteenth-century Europe, Schultz seems to have considered surgeons and their writings no less important than those of physicians. As a surgeon's son, Schultz may have possessed a less confrontational perspective than some of his colleagues. More importantly, inoculation was by definition a practice in which surgeons had a vital role. They carried out inoculations alongside physicians, and, as is proven by Schultz's references, wrote on the matter extensively. The discussions referenced by Schultz also show that physicians and surgeons exchanged opinions, experiences and

[24] See for example Porter, Roy, *Disease, medicine and society in England, 1550–1860.* Second edition. Cambridge University Press, Cambridge 1995. p. 27.
[25] For more infomartion on these dissertations, see Örneholm, 2003.

case histories similarly as physicians did amongst themselves. Thus, while inoculation seems to have been a field that provoked debates between the two groups, it also caused physicians and surgeons to see each other as co-operators, if not even colleagues, and to work together towards a shared aspiration. Of course, it may have been that physicians relied on surgeons reluctantly. The participation of surgeons may have been seen as not ideal but necessary, since the number of physicians was not sufficient to carry out extensive inoculations. The discussions and exchanges mirrored in *An Account of Inoculation*, however, suggest a much warmer form of co-operation, in which genuine collegial respect was present.

The role of the clergy in the discussions on inoculation is much more ambivalent. As mentioned before, much of the most passionate opposition to the practice was expressed on religious grounds, usually by clergymen. Schultz gives various examples of this, but at the same time he relies heavily on the authority of other clergymen in his attempt to present inoculation as religiously acceptable, even favourable.[26] This was crucial, as popular opposition against inoculation was often religiously motivated; physicians simply could not take the risk of appearing indifferent to religious sentiments. While Schultz usually simply sides with the views of inoculation-friendly clergymen when in his comments on religious opposition, he does also make three direct references to the Bible, viz. to the Book of Proverbs, the Gospel of Luke, and the Epistle to the Romans. He makes these references in order to show that the Bible can be interpreted as encouraging people to cure others actively and to prevent misfortune, instead of passively accepting anything, good or evil, that God might choose to send upon them.[27]

Conclusions

An Account of Inoculation references a wide collection of British works on the same topic, which is hardly surprising considering that Schultz likely intended his book to be not only an informative manual, but also a testimony of what he had learned, observed and, indeed, read, during his time in London. The geographical and temporal distribution of the texts and authors that Schultz refers to points heavily to British texts, as well as to those written in either the 1720s or the 1750s, both of which were times of heated debates around smallpox inoculation. Nearly half of all identified

[26] Schultz, 1758. p. 103 and elsewhere.
[27] *Ibidem*. p. 105–106.

references are to British authors; similarly, nearly half of the texts referenced were published during the aforementioned two decades.

In his comments on these debates and on those who opposed the practice, Schultz follows the opinions of his British colleagues, often directly citing them. He uses different argumentative tactics against different ”enemies of Inoculation”, dedicating more space and effort to counter the claims that he considers to be more persuasive. These claims were typically expressed by other medical professionals and thus particularly disadvantageous to the practice of inoculation.

An Account of Inoculation likely served several purposes. The Swedish original acted both as a handbook for Swedish inoculators and as a report of the success of Schultz's journey. The English translation, on the other hand, served as a proof of Schultz's diligence and learning as an observant visitor and reader to his British hosts and colleagues. The translation may also have been intended to help to gain further recognition for other Swedish medical writings, especially those of Nils Rosén.

After the publication of Schultz's account, as well as Rosén's famous book on paediatrics,[28] inoculation was slowly adopted in Sweden.[29] However, the demographic results of inoculation efforts are generally considered to have been modest, due to a lack of personnel as well as popular opposition to inoculations.

Until his death in 1823, David Schultz divided his time between the medical profession, administrative and societal duties and scientific interests. He served as the head physician of the Inoculation House in Stockholm between 1765 and 1778, after which he occupied a number of positions, including that of the intendent of the General Maternity Hospital in Stockholm and that of an archiater.[30] During the early nineteenth century, he was able to witness the successes of Jennerian vaccination in Sweden.

Viitteet, vaikutteet ja näkemykset inokulaatiota käsittelevistä kiistoista David Schultzin teoksessa *An Account of Inoculation*

[28] Rosén, Nils, *Underrättelser om Barn-Sjukdomar Och deras Bote-Medel*. Lars Salvius, Stockholm, 1764.
[29] Örneholm 2003, p. 139.
[30] Åman, Anders.

Tiivistelmä

Nuori ruotsalaislääkäri David Schultz (1732–1823, aateloituna Schultz von Schulzenheim) lähetettiin vuonna 1754 Lontooseen tutustumaan rokonistutukseen sekä käytännön työtä seuraamalla että aihetta käsittelevän kirjallisuuden kautta. Matkan taustalla olivat professorit Nils Rosén (1706–1773, aateloituna Rosén von Rosenstein) ja arkkiatri Abraham Bäck (1713–1795). Rahoitus matkalle saatiin Terveyskomissiolta (*Sundhetskommissionen*). Tarkoituksena oli hankkia Ruotsiin riittävästi osaamista, jotta rokonistutukset voitaisiin aloittaa; säännölliset isorokkoepidemiat olivat merkittävä syy korkeaan lapsikuolleisuuteen. Taulustolaitoksen vuonna 1749 tapahtuneen perustamisen ja ensimmäisten kattavien väestötilastojen laatimisen myötä erityisesti lapsikuolleisuus oli noussut suureksi huolenaiheeksi, ja sen vähentämiseksi oltiin valmiita käyttämään taloudellisia resursseja.

Schultz vietti Lontoossa vuoden, jonka aikana hän seurasi paikallisten kollegoidensa työskentelyä isorokkopotilaiden ja inokuloitavien parissa ja perehtyi inokuulatiota käsitteleviin teksteihin ja keskusteluihin. Pian matkan jälkeen, vuonna 1756, ilmestyi teos *Berättelse om Koppors Ympande*, jossa Schultz pyrki sekä antamaan tarkkoja käytännön ohjeita rokonistutuksen suorittamiseen että neuvomaan, kuinka tulisi toimia inokulaation vastustajia kohdatessa. Teos on varustettu runsailla kirjallisuusviitteillä, joista valtaosa on brittiläisiä. Ajallisesti suurin osa teksteistä sijoittuu 1720-luvulle ja 1750-luvun alkuun, kahteen vuosikymmeneen, joina inokulaatiota koskeva keskustelu oli Iso-Britanniassa erityisen voimakasta.

Schultzin teoksella ja sen vuonna 1758 ilmestyneellä käännöksellä *An Account of Inoculation* oli useita tehtäviä, jotka vaikuttivat siihen, miten teksti on rakennettu ja mitä siihen on sisällytetty. Näistä ilmeisin oli toimiminen käsikirjana ruotsalaisille lääkäreille ja muille inokulaatioita suorittaville. Tämän lisäksi teoksen tehtävänä oli todennäköisesti myös osoittaa oppimatkan tukijoille ja rahoittajille, että Schultz oli onnistunut tavoitteessaan; teos toimi siis raporttina hänen työstään Englannissa. Lisäksi englanninkielinen käännös lienee toiminut vastaavanlaisena raporttina Schultzin brittiläisille kollegoille, jotka olivat antaneet hänelle mahdollisuuden seurata työtään. Käännöksellä on voitu myös tavoitella laajempaa yleisöä ja tunnettuutta siinä mainituille ruotsalaisille teksteille, erityisesti Rosénin töille.

Tämä artikkeli käsittelee Schultzin teoksen viitekirjallisuutta ja tämän maantieteellistä ja ajallista jakaantumista sekä brittiläisten vaikutteiden merkittävyyttä ja Schultzin suhtautumista inokulaatiota

käsittelevään keskusteluun. Artikkeliin on liitetty lista kaikista niistä teoksista ja kirjoittajista, jotka on tätä artikkelia kirjoitettaessa pystytty identifioimaan Schultzin tekstistä.

Key words: smallpox, inoculation, eighteenth century, David Schultz, England

Bibliography

Davenport, Romola J., Boulton, Jeremy, Schwarz, Leonard, ”Urban inoculation and the decline of smallpox mortality in eighteenth-century cities – a reply to Razzell”. In *The Economic History Review*, 69, 1 (2016), John Wiley & Sons Ltd., p. 188–214.

Hodacs, Hanna & Nyberg, Kenneth, *Naturalhistoria på resande fot. Om att forska, undervisa och göra karriär i 1700-talets Sverige*. Nordic Academic Press, Lund, 2007.

McCandless, Peter, ”Kilpatrick (Kirkpatrick), James”. In *South Carolina Encyclopedia,* available on http://www.scencyclopedia.org/sce/entries/kilpatrick-kirkpatrick-james/.

Lindroth, Sten, *Svensk Lärdomshistoria III. Frihetstiden*. Norstedts, Stockholm, 1978.

Payne, Joseph Frank, ”Archer, Edward”. In *Dictionary of National Biography, 1885–1900, Volume 2.* Available on https://en.wikisource.org/wiki/Archer,_Edward_(DNB00).

Porter, Roy, *Disease, medicine and society in England, 1550–1860*. Second edition. Cambridge University Press, Cambridge 1995.

Rosén, Nils, *Underrättelser om Barn-Sjukdomar Och deras Bote-Medel*. Lars Salvius, Stockholm, 1764.

Rusnock, Andrea A., *Vital Accounts. Quantifying Health and Population in Eighteenth-Century England and France*. Cambridge University Press, Cambridge, 2002.

Rydberg, Sven, *Svenska studieresor till England under Frihetstiden*. Lychnos-bibliotek, Studier och källskrifter utgivna av Lärdomshistoriska Samfundet 12. Almqvist & Wiksells Boktryckeri, Uppsala, 1951.

Schultz, David, *An Account of Inoculation*. London, 1758.

Sjögren, Iréne, *Nils Rosén von Rosenstein. Mannen som förlängde människolivet*. Carlssons Bokförlag, Stockholm, 2006.

Sköld, Peter, *The Two Faces of Smallpox. A Disease and its Prevention in Eighteenth- and Nineteenth-Century Sweden*. Umeå University, Umeå, 1996.

Spöring, Herman Dietrich, *Inoculatio Variolarum Eller Kort Beskrifning om sättet att Ympa Koppor på Menniskior. I anseende til des nytta*. Joh. Kiämpe, Kongl. Acad. Boktr. Åbo, 1737.

Åman, Anders, ”David Schulzenheim, von” in *Svenskt biografisk lexikon*. Available on the website of the Swedish National Archive, https://sok.riksarkivet.se/Sbl/Mobil/Artikel/6411.

Örneholm, Urban, *Four Eighteenth-century Medical Dissertations under the Presidency of Nils Rosén*. Uppsala Universitet, Uppsala, 2003.

Appendix

List of references in *An Account of Inoculation*

Anonymous author
Some Remarks on The Revd. Mr. Delafaye's Vindication of his Sermon against Inoculation. In a Letter to a Friend. By a regular Physician. London, 1745.

Apperley, Thomas, English physician.
Observations in Physick, both Rational and Practical. With a Treatise of the Small-Pox. London, 1731.

Arbuthnot, John (1667–1735), Scottish physician.
See **Maitland**.

Archer, Edward (1718–1789), English physician, worked in the Smallpox Hospital and Inoculation House from 1747.

Aurelianus, Caelius (5th century AD), Roman physician.
De morbis acutis et chronicis.

Aven Zoar (Ibn Zuhr) (1094–1162), Arab physician in Al-Andalus.

Avivenna (Ibn Sina) (circa 980–1037), Persian physician.
Canon Medicinae, Latin translation of *Al-Qanun fi-l-tibb*, 1025.

Bartholin, Thomas (1616–1680), Danish physician.

Bergius, Peter Jonas (1730–1790), Swedish physician.
(Dissertatio Medica) De Variolis Curandis. Uppsala, 1754.

Berkeley, George (1685–1753), Irish philosopher.

Blackmore, Sir Richard (1654–1729), English physician and poet.
A Treatise upon the Small-Pox, in Two Parts. London, 1723.

Blankaart, Steven (1650–1704), Dutch physician and iatrochemist.
Neuscheinende Praxis Der Medicine. Hannover, 1689.

Boerhaave, Herman (1668–1738), Dutch physician.
Aphorismi de cognoscendis et curandis morbis. Leiden, 1709.

Bohn, Johannes (1640–1718), German physician.
Dissertatio de Mercurio dulci.

Bolaine, Noah, surgeon.
A Letter to the Rev. Mr. Delafaye, in Answer to his Sermon, Lately Publish'd, Intitled, Inoculation an Indefensible Practice. 1753.

Borel, Pierre (circa 1620–1671), French physician.
Historiarium et observationum medico-physicarum centuria IV. 1653.

Botallo/Botalli, Leonardo (1530–1591), Italian physician.

Boylston, Zabdiel (1679–1766), Boston physician.
Historical Account of the Small-Pox Inoculated in New England. London, 1726.

Brooke(s), Richard (died 1763), British surgeon.
A letter from Mr. Rich. Brooke, Surgeon, to James Parsons, M. D. Secretary to the Royal Society for foreign correspondence, concerning inoculation. Philosophical Transactions 1752, 47. LXXVI.

Burges, James (1687–1771), British medical professional.
An Account of the Preparation and Management necessary to Inoculation. London, 1754.

Butini, Jean Antoine (1723–1810), Genevan physician.
Traité de la petite vérole Communiquée par l'inoculation. Paris, 1752.

Cantwell, Andrew (died 1764), Irish professor in France.
Dissertation sur l'inoculation, pour servir de réponse à celle de M. de la Condamine. Paris, 1755.
Lettre de M. Cantwel à M. Raulin.

Chais, Charles-Pierre (1701–1785/86), Genevan clergyman.
Essai apologétique sur l'Inoculation. 1755.

Cleghorn, George (1716–1789), Scottish physician.
Observations on the Epidemical Diseases in Minorca from the year 1744 to 1749. 1751.

Clinch, William, British physician.
An Historical Essay on the Rise and Progress of the Small-Pox. To Which is added, a Short Appendix, to Prove, that Inoculation Is No Security from Natural Small-Pox. London, 1725.

Cramer, Jean-Antoine (1707–1775) and **Joly, Gaspard** (1718–?), Genevan physicians.
Joly published *Mémoire sur l'inoculation, fait de concert avec M. Cramer le Docteur*, year unknown, and in an 1771 issue of *Journal Helvétique* they together published *Lettre sur l'inoculation de la petite vérole*". Since Schultz references them together, they must have written something on the matter before 1756.

d'Entrecolles, François Xavier (1664–1741), French Jesuit who worked in China.

Amico, Diomede, (unknown; active 1596), medical author.
Tractatus de variolis, morbillis & scoptulis, in quo agitur etiam de natura papularum. In *Tractatus tres exactissimi Diomedes Amici*. Venice, 1599.

Dwight, Samuel (circa 1669–1737), British physician.
De variolis et morbillis. In *De vomitione, ejusque excessu curando; nec non de catharticis medicamentis*. London, 1722.

Ettmüller, Michael (1644–1683), German physician.
Opera omnia theoretica et practica, In quibus universa Praxis medica. Frankfurt am Main, 1688.

Fabry, Wilhelm (1560–1634), German surgeon.

Flemyng, Malcom (circa 1700-1746), Scottish physiologist.
Proposal For the Improvement of The Practice of Medicine. Illustrated by an Example relating to the Small-Pox. Hull, 1748.

Franciscus Sylvius (born Franz de la Boë) (1614–1672), Dutch physician.
The work referenced is most likely *Praxeos medicae idea nova*. Leiden, 1667.

Frewen, Thomas (1704–1791), English physician.
The Practice and Theory of Inoculation. With an Account of its Success in a Letter to a Friend, London 1749

Freind, John (1675–1728), English physician.
The History of Physic, Vol. I. London, 1725.

Fuller, Thomas (1654–1734), English physician.
Exanthematologia. London, 1730.
A letter to Sir Hans Sloane.

Galen (circa 129–circa 210), Greek physician.
Commentaries on the books of Hippocrates, unsure which commentaries.

Gaubius, Hieronymus David (1705–1780), German physician who worked mostly in Leiden.
De inenting der kinderpokjes gedaen, en ter voller herstellinge toe behandelt. In *Verhandelingen Hollandsche Maatschappij de Weetenschappen (H.M.W.)*, 1755.

Gessner, Conrad (1516–1565), Swiss physician.
Mentioned as having followed Avicenna's opinion.

Helvetius (Schweitzer, Johann Friedrich) (1630–1709), Dutch physician.
Mentioned as having followed Avicenna's opinion.

Gilbertus Anglicus (circa 1180–circa 1250), English physician.

Guyot, Dan. (1704–1780), Genevan surgeon.
Mémoire historique sur l'inoculation de la petite vérole in *Les Mémoires de l'Académie Royale de chirurgie*. 1752.

Hadow, Jacques, physician.
Letters written by Hadow are mentioned in several occasions. One of them has been printed in *Recueil périodique d'observations de médecine* in 1755.

Hahn, Johann Gottfried (1694–1753), German physician.
Variol. antiquit. nunc primum e graecis erutae. Brieg (Brzeg), 1733.

Hawkins, Sir Caesar (1711–1786), English surgeon.
Wrote in *Journal Britannique* in 1755.

Herbert, Henricus Nicolaus.
Dissertatio inauguralis medica de cassavae, amarae, Surinamensis, radice... Marburg, 1753.

Hillary, William (1697–1763), English physician.
A practical essay on the small-pox. London, 1740.

Hippocrates (circa 460–circa 370 BC), Greek physician.

Hodges, Nathaniel (1629–1688), English physician.
Loimologia. London, 1672.

Hoffmann, Friedrich (1660–1742), German physician.
Medica rationalis systematica. Halle, 1718–1740.

Hosty, Ambrose, French physician.
Wrote a report on inoculation in *Journal de Médecine* in 1755.

Huxham, John, (1692–1768), English physician.
A short account of the anomalous epidemic small-pox, beginning at Plymouth in August 1724, and continuing to the month of June 1725. In *Philosophical Transactions, 1724¸ 33 (390)*.
An Essay on Fevers And their Various Kinds. London, 1750.
Also a text published in *Journal Oeconomique* in 1755.

John of Gaddesden (circa 1280–1361), English physician.

Jüngken, Johann Helfrich (1648–1726), German physician.
Praxis Medica. Frankfurt am Main, 1689.

Jurin, James (1684–1750), English physician.
An Account of the Success of Inoculating the Small-Pox, an annual series, 1723–1727.
Letter to Doctor Caleb Cotesworth, London 1723.

Kilpatrick (Kirkpatrick), James (circa 1690–1702, died 1770), British physician.
The Analysis of Inoculation. London, 1754.

La Condamine, Charles Marie de (1701–1774), French scientist.
A discourse on inoculation, read before the Royal Academy of Sciences at Paris, the 24th of April 1754. Translated by doctor M. Maty. London, 1755. (The Swedish translation is also referenced.)
Lettre de M. de la Condamine à M. l'Abbé Trublet dans l'Annéé Lit. Tom VI.

La Faye, Theodore de (1703/4–1772), British clergyman.
Inoculation an indefensible practice. London, 1753.
A vindication of a sermon, entitled, inoculation an indefensible practice. London, 1754.

La Mettrie, Julien Offray de (1709–1751), French physician.

Langrish, Browne (died 1759), English physician.
Mentioned as having given an account in *A Sermon preached before the Duke of* Marlborough, *&c. by Isaac* Lord Bishop of *Worcester*, London 1752.

La Vigne Frecheville, Claude de (1695–1758), French physician.
Quaestio Medica: An variolas Inoculare nefas preside Claudio de la Vigne de Frescheville proponebat Parisiis, Anno 1723, Ludovicus du Vrae. Most likely included in *Quaestio medica, quodlibetariis disputationibus manè discutienda in Scholis Medicorum, die jovis 30 decembris 1723*. Paris, 1723.

La Virotte, Louis-Anne (1725–1759), French physician.
Schultz references his text published in *Journal des Sçavans* (later *Journal des Savants*) in 1755.

Le Camus, Antoine (1722–1772), French physician.
Schultz references his text published in *Journal Œconomique* in 1755.

Le Duc, Antoine, Greek student of medicine.
De Byzantina Variolarum Insitione. Leiden 1722.

Linnaeus, Carl (1707–1778), Swedish botanist and physician.
Species Plantarum. Stockholm, 1753.

Lobb, Theophilus (1678–1763), English physician.
A Treatise of the Small-pox. London, 1731.

Maddox, Isaac (1697–1759), English clergyman, Bishop of Worcester.
He wrote *A sermon preached for the Hospital for the Small-pox, and for Inoculation* in 1752 and served as the President of the Smallpox Hospital.

Maitland, Charles (1668–1748), Scottish surgeon who learned inoculation while working at the British Embassy in Constantinople; performed the first inoculations in England.
Mr. Maitland's account of inoculating the small pox: vindicated, from Dr. Wagstaffe's misrepresentations of that practice; with some remarks on Mr. Massey's sermon. The second edition. To which is added, his first account of inoculating the small pox. London, 1722. Written by **Arbuthnot, John** (1667–1735), Scottish physician.

Martin, Roland (1726–1788), Swedish physician.
Dissertatio medica, de variolis praecavendis. Uppsala, 1751.

Massey, Edmund (1690–1765), English clergyman.
A Sermon Against the Dangerous and Sinful Practice of Inoculation. London, 1722.

Massey, Isaac, British apothecary.
A Short and Plain Account of Inoculation with Some Remarks… London, 1722.

Mather, Cotton (1663–1728), New England clergyman.
Schultz references one of his letters to Jurin.

Maty, Matthew (1718–1776), Dutch physician who worked in England.
Schultz refences several of his texts printed in *Journal Britannique*.

Mead, Richard (1673–1754), English physician.
A Mechanical Account of Poisons In Several Essays. London, 1702.
De Variolis et Morbillis Liber. London, 1747.
Schultz also references a letter by Mead.

Middleton, David (1703–1785), English surgeon.
Schultz references his text published in *Journal Britannique*.

Monro, Alexander (1697–1767), British physician.
Medical Essays and Observations. Edinburgh, 1732–1744.

Morton, Richard (1637–1698), English physician.
Pyretologia. London, 1692.
Schultz also refences his text on smallpox, likely a part of another one of his books.

Nettleton, Thomas (1683–1742), English physician.
Schultz references his published letter to Jurin.

Hayter, Thomas (1702–1762), English clergyman, Bishop of Norwich.
Schultz references his sermon from 1756.

Pechlin, Johann Nikolaus (1646–1706), German/Dutch physician.
Observationum physico-medicarum libri III. Hamburg, 1691.

Peverini, Domenico, Italian physician.
Mentioned in relation to an Italian translation of a text written by La Condamine.

Pott, Percivall (1714–1788), English surgeon.

Pringle, John (1707–1782), British physician.
Experiments on Septic and Antiseptic Substances, with Remarks relating to their Use in the Theory of Medicine. In *Philosophical Transactions*, 1750.

Pylarini, Giacomo (1659–1718), Italian physician.
Nova et tuta variolas excitandi per transplantationem methodus. Venice, 1715.

Ranby, John (1703–1773), English surgeon.

Reiske, Johann Jakob (1716–1774), German physician.
Schultz references a disputation published in Leiden in 1746.

Rhazes (al-Rāzī) (854–925), Persian physician.
Schultz references several parts of his writings, translated by Mead.

Ridley, Humphrey (1653–1708), English physician.
Observationes Medico-Practicae et Physiologicae. 1703.

Rosén (von Rosenstein), Nils (1706–1773), Swedish physician.
Schultz references various writings published in *Vetenskapsakademien*'s publications and popular calendars.

Russell, Richard (1687–1759), English physician.
De tabe Glandulari. 1750.

Ruysch, Frederik (1638–1731), Dutch anatomist and botanist.

Scheuchzer, Johann Caspar (1702–1729), Swiss physician.
Continued Jurin's accounts on inoculations for the years 1727 and 1728.
An account of the success of inoculating the small-pox in Great Britain, for the years 1727 and 1728. London, 1729.

Sloane, Sir Hans (1660–1753), Irish/British physician.

Smellie, William (1697–1763), Scottish physician and obstetrician.
A Collection of Cases and Observations in Midwifery. London, 1754.

Sydenham, Thomas (1624–1689), English physician.
Schultz references various writings, including letters.

Taylor, Robert.
Oratio Harveiana at the Royal College of Physicians of London, on smallpox inoculation. London, 1755.

Thompson, Thomas.
An Enquiry into the Origin, Nature, and Cure of the Small Pox. London, 1752.

Timoni, Emmanuel (1670–1718), physician.
Schultz references a letter to doctor Woodward.

Tissot, Samuel Auguste André David (1728–1797), Swiss physician.
L'Inoculation justifiée. Lausanne, 1754.

Tronchin, Théodore (1709–1781), Genevan physician.
Essay apologetique sur la methode de communiquer la petite verole. In *Hollandsche Maatschappij der Weetenschappen (H.M.W.)*. 1754.

Van Diemerbroeck, Isbrand (1609–1674), Dutch physician.
De peste. 1646.

Van Juchem, Christianus Hendricus.
Dissertatio Medica Inauguralis, de Variolis, atque Actione Miasmatis Variolosi. Leiden, 1755.

Wagstaffe, William (1685–1725), English physician.
A Letter showing the Danger and Uncertainty of inoculating the Small Pox. 1722.

Werlhof, Paul Gottlieb (1699–1767), German physician.
Disquisitio de Variol & Antrach. Hannover, 1735.

Weszpremi, Stephano (1723–1799).
Tentamen de inoculanda peste. London, 1755.

Wintringham, Clifton (junior) (1710–1794) or possibly **(senior)** (baptised 1689–1748), English physician.
Mentioned as having followed Avicenna's opinion.