

F.-X. D'Entrecolles S. J. and Chinese Medicine

A Jesuit's Insights in the French Controversy Surrounding Smallpox Inoculation

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*I wish, my Reverend Father, this research could be of any use;
that is the only aim I had in mind when I imposed on myself this duty:
I would be content if any benefit might be obtained from it¹.*

INTRODUCTION

In 1726, François-Xavier D'Entrecolles² (1654-1730), one of the members of the French Jesuit Mission in China³, wrote a letter to Jean Baptiste Du Halde (1674-1743), superior of the Paris Mission, in which he commented in depth on the Chinese practice of inoculation. His letter was not, however, a mere description of what he saw, but reflected in different

ways how D'Entrecolles viewed Chinese culture in general, and Chinese medicine in particular.

Besides, his point of view inevitably meant that D'Entrecolles was participating in the European controversy on smallpox inoculation, which he was very much aware of. As a Jesuit, he stood in a particular position: he was a member of the Catholic Church, which firmly rejected the practice of inoculation, but he supported the practice. At the beginning of his letter, D'Entrecolles specially quoted an article written by the French doctor Jean Delacoste, published in *Mémoires de Trévoux* in 1724⁴. Delacoste discussed the practice of inoculation and, according to D'Entrecolles, he was aware of the resemblances between it and Chinese medical procedures. D'Entrecolles wrote about this

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similarity as well as about the importance of developing Chinese theories to enrich European medical knowledge.

Thus, the letter from D'Entrecolles must be analyzed and appreciated in the three aspects it covered: Medicine, Philosophy and Religion. These are the three aspects of a debate dealing with the practice of inoculation in which the French Jesuit strongly defended this practice.

PHYSICIANS, *PHILOSOPHES*, THE CHURCH: THE FRENCH CONTROVERSY ON SMALLPOX INOCULATION

Edward Jenner's discovery of the smallpox vaccine in 1796 represented a landmark in Enlightenment medicine⁵. Variolation or smallpox inoculation must be acknowledged as its immediate predecessor. This practice was adopted in Europe at the beginning of the 18th century, thanks firstly to Lady Mary Wortley Montagu (1689-1762)⁶, wife of the British Consul to the Ottoman Empire, who had witnessed in 1718 an application of this technique in Istanbul. Inoculation, which was accepted differently by European countries, represented a response to the smallpox epidemic that devastated Europe throughout that century. Its distant origins lay in the inoculation techniques developed from the 10th century in East Asian countries where this disease had been known since the 1st century BC⁷.

In France, cradle of the European Enlightenment, views on inoculation were diverse, even though this practice was *a priori* characteristically embodied in Enlightenment ideas of disease prevention and control by human action. The debate comprised three main fronts: physicians, *philosophes* and the Church.

PHYSICIANS AND *PHILOSOPHES*: ADVOCATES OR ENEMIES OF INOCULATION?

The successful inoculation of the English princess executed in London in 1722 was very closely followed by the two most important French scientific publications of that period: the *Mémoires de Trévoux* edited by the Society of Jesus and the *Journal des Savants* edited by the Académie des Sciences⁸. Subsequently, the French royal physician, Claude Jean Baptiste Dodart (1664-1730), started to explore the possibilities of beginning the practice in France. For this, he first

consulted Omer Joly de Fleury (1715-1810), bishop of Fréjus and later the Cardinal preceptor of the young king Louis XV (1710-1774) in order to obtain their opinions about its religious and civil legality⁹. Afterwards he consulted Dr. Jean Delacoste who had published an article about inoculation and had contacted Sir Hans Sloane (1660-1753), one of the doctors responsible for the inoculations in Newgate in 1721¹⁰. He asked Sloane for his help in convincing French doctors to adopt the new practice. In his article published in *Mémoires de Trévoux*, Delacoste defended the inoculation practice. He did this even though his ideas were paradoxically disapproved by the *Journal des Savants*, which argued on a religious basis that inoculation was "against God's plans"¹¹.

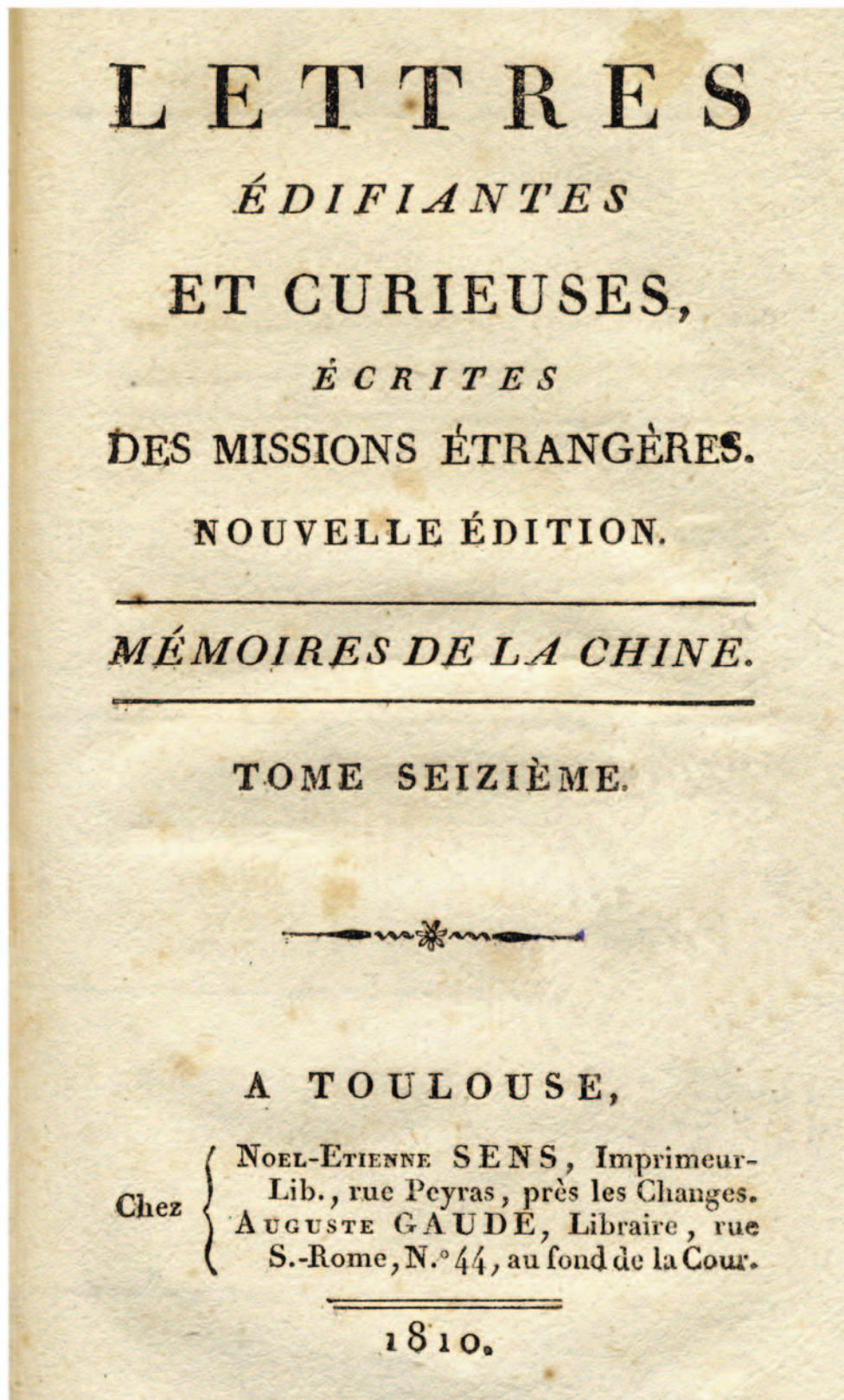
At the time, the Paris School of Medicine was not merely a teaching body, but it also supervised forensic measures, water supply, legal questions, etc. The school was composed of an elite professional group in highly privileged positions, accessible only to the upper social classes. This "Medical state" was an adversary to the royal physicians and it refused all medical ideas brought from England¹². This situation was the result of an internal controversy between "old" and "new" medical ideas where conservatism was the prominent ideology¹³.

The Paris School of Medicine regarded inoculation as an expensive unknown foreign practice. The key argument claimed that the practice itself could be the source of an epidemic outbreak since the disease was being inoculated. By contrast, the School of Medicine of Montpellier, vanguard of French medicine, discussed the practice. In a dissertation presented by Boyer in 1717, he described the "Oriental" method of inoculation. As far as we know, this was the first mention of the practice to be found in France¹⁴.

Inoculation was supported also by the *philosophes*, among them Voltaire (1694-1778). He considered the different arguments and started a crusade in favour of the practice. Voltaire, in the chapter "Sur l'insertion de la petite vérole" of his *Lettres Philosophiques*, written probably in 1731, made the first reference to the practice in a literary work in France, but it seemed to have produced little effect. For the next thirty years almost nothing else was written about it¹⁵.

It was not until October 1754 that the *Journal des Savants* published an article defending the inoculation practice¹⁶. Changes in favour of

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Front cover of *Lettres édifiantes et curieuses des missions étrangères*, Toulouse, 1810.

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inoculation, however, were mainly brought about by two *mémoires* read before the Académie des Sciences by Charles-Marie de la Condamine (1701-1774). In these treatises, he emphasized the success of inoculation elsewhere in Europe and complained that France was far behind other countries in this respect. This argument was continued in April 1760 when Daniel Bernoulli (1700-1782) presented the first mathematical theory about the spreading of a contagious disease to Académie des Sciences. He concluded that in two years universal inoculation had increased the life expectancy of newborns¹⁷.

Angelo Gatti (1730-1798), an Italian doctor who actively participated in the French debate, called into question the *philosophes'* former arguments in favour of inoculation. In his work *Réflexions sur les préjugés qui s'opposent au progrès et à la perfection de la inoculation* (1764), he shifted the debate to an anthropological level by analysing medical risk, not through mathematical calculations, but through the influence of individual subjectivity. In his opinion, the perceived risk of death arising from inoculation had psychologically paralyzing effects closely related to feelings of self-protection. He claimed that no one would like to be the one person out of two hundred at risk (This was the estimated mortality rate for inoculation)¹⁸.

The debates intensified over time. During the Paris smallpox epidemic in the winter of 1762, the city Parliament banned the practice as the epidemic coincided with an inoculation campaign. In the Paris School of Medicine, a twelve-member committee was appointed to make a ruling on inoculation. Six doctors were in favour of tolerating inoculation outside large cities until more information could be collected about it. The other six were strongly opposed to allowing it. These two groups presented different reports to the School of Medicine¹⁹. Among the critics was Guillaume-Joseph de L'Espine (1725-1792), who set himself up as the leader, and defended his group's opinions in a speech lasting for over two hours. He enumerated the arguments of inoculation supporters, one by one, and then refuted them all. The strongest point in his argument was that inoculation might result in death, and therefore should be avoided²⁰.

In order to reply to De L'Espine's arguments, Antoine Petit (1722-1794) carried out a comparative analysis the following week in which he assessed the security and efficiency of inoculation. He asserted that

inoculation should be accepted due to its success at preventing the disease, highlighting that those who had been inoculated were suffering from a less severe attack of smallpox than those who had suffered natural contagion. Based on Bernoulli's statistical deductions, Petit added that inoculation could lead to economic improvement as it would help curb depopulation. Demographic power was considered essential to France's economic power²¹. Petit also suggested a new point of view regarding inoculation based on individual freedom: the patient and his family should have the last word about the practice, instead of decisions being made only by doctors.

Concerning this last issue, doctors joined together to support the *philosophes* in their task of educating people by providing them with all the necessary information for decision-making. Between 1760 and 1775, countless publications regarding inoculation and smallpox came out to show the current situation at the time²². But in spite of all the talk and debates, the French medical community made no substantial progress towards accepting inoculation. Indeed prophylactic practice would not be thoroughly accepted until Edward Jenner's discovery of a smallpox vaccine at the end of the 18th century²³.

THE CHURCH AS PROTAGONIST: D'ENTRECOLLES' VIEW OF CHINESE SMALLPOX INOCULATION

From the outset, medical proponents of inoculation had been careful to avoid the theological aspects of the controversy. This was because the School of Theology still had the power to examine the orthodoxy of all new medical theories²⁴. In 1763, the general advocate of the King in Parliament, Omer Joly de Fleury, issued a *requisitoire* ordering the schools of Medicine and Theology to examine the question of whether inoculation was harmful or useful to the human race, whether it was contrary to religion and whether it should be permitted, forbidden or tolerated²⁵. The *requisitoire* of Omer de Fleury raised a storm of criticism in France. The incident was considered beyond a mere debate about the social efficiency of smallpox inoculation. It involved a question relating to the movement of Progress, namely, whether the Church, represented by the School of Theology, should have the right to legislate in a matter which should be exclusively scientific.

6 *Lettres édifiantes*

Coste, dans laquelle il parle de l'insertion ou inoculation de la petite vérole ; & je me suis souvenu d'avoir lu quelque chose d'approchant dans un livre Chinois. C'est ce qui m'a déterminé à en transcrire le texte, & à chercher ailleurs des particularités capables de contenter les personnes curieuses sur une opération, dont la nouveauté a frappé les esprits, & partagé les sentimens.

On ne sera pas peu surpris de voir qu'une méthode à peu près semblable à celle qui est venue de Constantinople en Angleterre, soit en usage depuis un siècle à la Chine. Comme il ne m'appartient pas de prendre parti pour ou contre les partisans de l'insertion de la petite vérole, je citerai indifféremment les auteurs Chinois qui la décrivent, & ceux qui la défendent.

Le nom Chinois qu'on donne ici à cette méthode, seroit traduit en François peu fidèlement par ces termes d'insertion ou d'inoculation. Pour parler exactement, il faut la nommer semence de la petite vérole, ou bien manière de la semer, *schung tseu*, dit-on *schung seac, tseu* la vérole. Ce dernier mot, sans aucune différence pour la prononciation, signifie *pois à manger* : le caractère est aussi le

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Another debate ran between the *philosophes* and the Church. There were two main lines of argument: those focused on the efficiency of the practice, and those dealing with its moral justification. For the first argument, the *philosophes* found a rational way to defend their opinion using statistics. It was then the question of moral justification which produced the most significant arguments in the debate. The Church defended a morality which was absolute, based upon the immediate relation between the soul and God and sacrificing individual welfare to those immutable laws of dogma on which individual spiritual salvation rests; The *philosophes* supported the view that the temporal happiness of the individual, and consequently of society, was the main aim of social endeavour. Religious arguments were centred on two points: inoculation was contrary to law, and it was contrary to God's will. The *philosophes* feared that the public airing of the religious question would harm their cause, though their fear proved ungrounded, as there was never a public pronouncement on the subject from the Sorbonne.

Finally, in reaction to the Protestants move away from the Catholic Church, there were deeply conservative thoughts about inoculation, because it challenged the nature of human beings and Divine Providence²⁶. In sum, the Catholic Church reasserted itself in its absolute rejection of inoculation. Among the Catholics, Jesuit publications, such as the *Mémoires de Trévoux*, actively participated in this controversy²⁷. By contrast, most Protestants supported inoculation by defending the idea that smallpox was an "inner seed" and that inoculation would only help to develop an illness that was already inside the human being. This opinion, apart from relying on the Protestant concept of predestination, was also based on the consideration of the grace of God, which every recipient should possess²⁸.

This was the medical, intellectual and religious context surrounding the reception of D'Entrecolles' letter. Its relevance is exemplified by Voltaire as a source for his paper *On inoculation*, published first in English in 1733, and one year later in French in his *Lettres Philosophiques*²⁹. In it, he used apologetics to defend the technique. D'Entrecolles' letter was also used in philological debates and most importantly as a reference for the article "Inoculation" in Denis Diderot's (1713-1784) *Encyclopédie* (1751-1772)³⁰.

D'Entrecolles' letter stands out as a bridge between the two general factions of supporters and

detractors of inoculation. A "Jesuit's Insights" provides an eloquent testimony of the sensitivities and cross-cultural dialogues concerning smallpox inoculation, with China playing a central role in the story. It is a testimony that exemplifies once more how the Jesuits pursuit of Science had its own character beyond the ideology of the Catholic Church. It is a step further towards the notion that the "coherence of the Society's overseas science depended upon Jesuits ability to retain the traditional meaning of *scientia* as "knowledge of God" and intertwine it with the emerging meaning of *scientia* as "knowledge of nature".³¹

D'Entrecolles' views, when confronting the actual practice of inoculation in China, show surprise at the quality and quantity of information provided to him by Imperial Palace physicians. His research, which was influenced by a previously formed intellectual schema, soon identified the strong resemblance of inoculation in China with those procedures he read about in France. D'Entrecolles noticed the sophistication of doctrines and techniques existing in China, a complexity towards which he showed a special sensitivity arising from a true appreciation of its worth. This led him to give credit to what he saw and read and consequently to transcribe and translate it.

The first aspect valued by the Jesuit was the antiquity of the practice of inoculation, which implied the existence of a long tradition behind its basis:

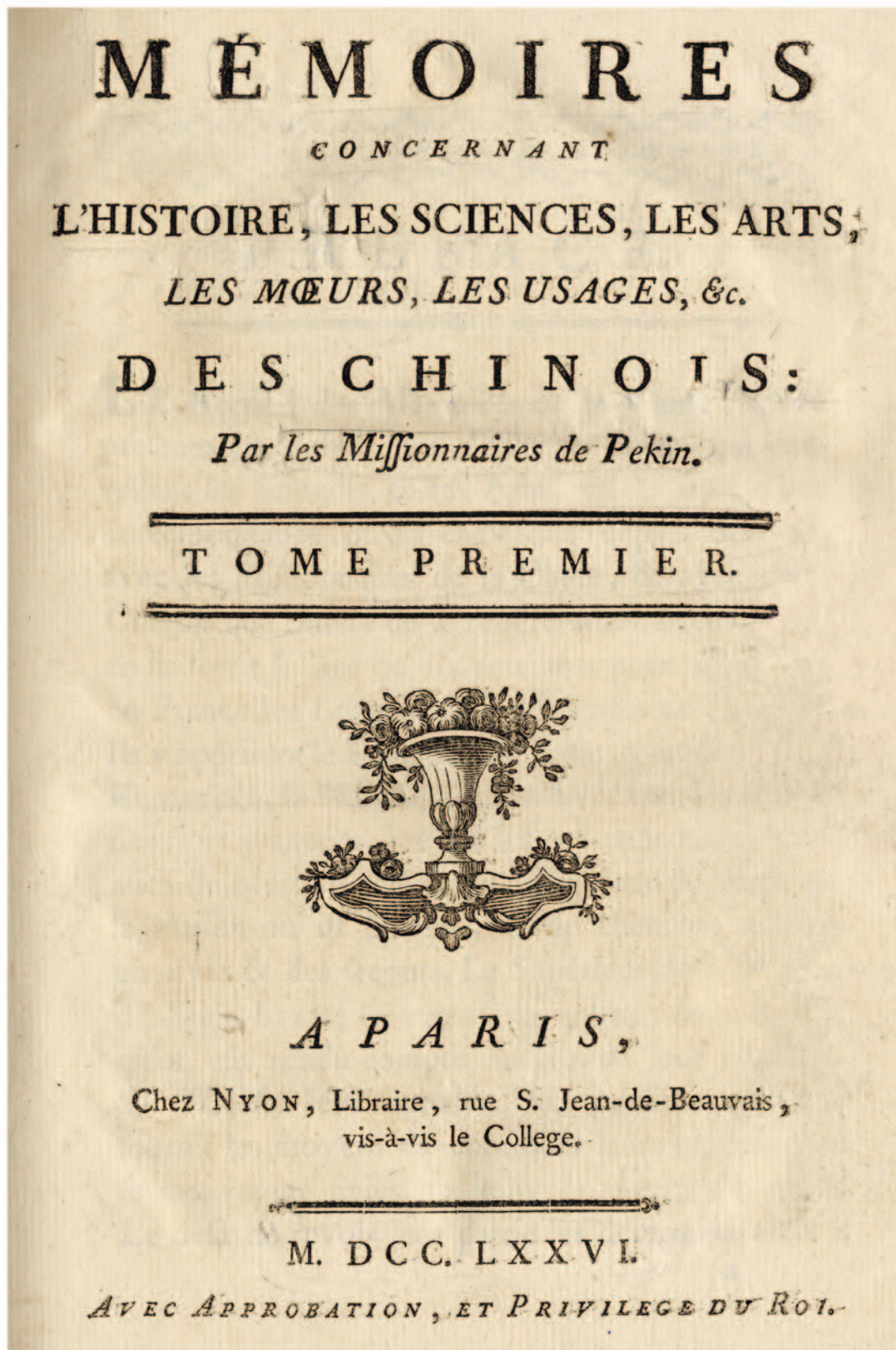
"Whatever it be, a hundred years of use give this method the right of a considerable antiquity over injection, which has been in vogue in Constantinople only from the 17th century on".³²

D'Entrecolles pointed out the rationality of the knowledge and practices he encountered. In this sense, regarding the mechanics of the practice, D'Entrecolles appreciated its "natural" character:

"I guess that [Physicians] noticed that one of the main diagnostic features of smallpox is the violent itch children feel in their nose and therefore it was considered that the place where the disease began was to be well suited for inoculation."³³

D'Entrecolles was surprised by the theoretical diversity regarding inoculation that existed in China. He found a plurality of opinions that reminded him of the debate that was now emerging in France. He observed that not all physicians supported the practice. For example, he translated a text attributed to a Ming

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Front cover of *Mémoires concernant l'histoire, les sciences, les arts, les mœurs, les usages, etc. des Chinois par les Missionnaires de Pékin*, Paris, 1776.

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Dynasty physician, who considered inoculation as an avoidable risk:

“In spite of all, supporters of this invention talk wonders about it; they insist that sooner or later, smallpox is unavoidable. I accept it; but let it come naturally.”³⁴

This doctor also offered two therapeutic alternatives to inoculation, one based on moral considerations and linked to Buddhist theories of retribution that perceived children avoiding the disease by depending on moral adherence to their parents. On the other hand, a medical alternative would be diaphoresis, a technique to favour the evacuation of poison³⁵.

D’Entrecolles’ view was drawn also from his amazement at the sophistication of the procedures employed in China, such as the three recipes given to him by Imperial Palace physicians. The Jesuit described their contents at length in what is the most important part of the letter and stands out as one of its main theoretical contributions to the practice of inoculation in France.

As an example, D’Entrecolles transcribes how an inoculum should be prepared:

“When a child is found, between one and seven years of age, who suffered from smallpox without any sign of malignity, who was previously inoculated and did not present any symptoms for thirteen or fourteen days, flakes having dropped, then these are gathered and put into a China vase whose open end should be closed with wax. In this way, they will keep their virtue”.³⁶

D’Entrecolles defended the effectiveness of inoculation in an extensive treatise that explained the precise quotation of these three recipes. On the other hand he also discounted the poor development of anatomical knowledge in China. He argued that his descriptions of inoculation should be valued in spite of not knowing why they worked:

“The economy of the human body depends on an infinity of imperceptible forces with a thousand paths that one discovers in astonishment. By reading the first two volumes written by the illustrious Leipzig academics I have realised that many things that we render impossible exist in fact.”³⁷

D’Entrecolles’ defence of inoculation is based on two elements. First, his “perspective” was the “passive”

element of his defence. He shows this in the detailed descriptions of his letters that present the contents as valid for the readers. This is what we have just explained. Second, the “active” element of his defence was a “perspective of dialogue” through which D’Entrecolles interacts with what he encounters, making arguments for and against, questioning himself, and always from his Jesuit mentality.

His reading of the three aforementioned recipes reflects the previous medical schema that the Jesuits had acquired in the West, which had elements of the Hippocratic-Galenic doctrine supported by the Catholic Church and orthodox medicine of the period combined with iatrochemical, iatromechanical and Sydenhamian terminology taken from these vanguard medical streams and irregularly shared by the former³⁸. D’Entrecolles defended the advantages of Chinese inoculation by renaming and explaining them from both classical and modern concepts and at the same time he innovated by presenting *per se* the scientific novelty of inoculation.

When D’Entrecolles finished his exposition of every recipe, he proceeded to a defence of certain aspects of it. In the first particular recipe, he legitimised musk as a vehicle for the inoculum through an iatrochemical explanation:

“Musk is apparently used as a vehicle [for the inoculum]; being quite spirited, the morbid seeds with which it dissolves become more tempered.”³⁹

With regard to the second recipe, the Jesuit developed a Sydenhamian argument when describing the “seasonal diseases” in order to legitimise the prohibition of summer as a period for inoculation, then connecting aspects of macrocosms seasons with microcosms temperaments.

D’Entrecolles highlighted the importance given to attenuation in the recipe, establishing a parallel between Western iatromechanical and iatrochemical physiology related to the digestion of food and the different and “necessary” phases before reaching the stomach:

“Similar to what happens when food reaches the stomach before the first digestion has occurred in the mouth by crushing and dissolution by saliva. Therefore, these acids, which return to the blood and do not come out of it but partially, cause strange perturbations”.⁴⁰

In terms of the third recipe, D’Entrecolles defended the practice of inoculation by comparing it

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with the English technique. He criticised the latter for being too aggressive, explaining why the Chinese path of application would be not only “softer”, but also more logical.

Based on the knowledge added from the Chinese texts, to his previous ideas on inoculation, he questioned and answered himself. He used Hippocratic-Galenic terminology with some iatrochemical elements to explain that the supposed action of the inoculum is to keep the receptor protected:

“Would it be possible that this ferment is not, at last, either attenuated or dissipated after ardent fevers and violent crises which have had to renovate humours, acids and blood corruption and all the principles of life and health, from which arises a new temperament? I could not find any Chinese text that helped me explain this doubt.”⁴¹

The final part of D’Entrecolles’ analysis of the third recipe was drawn from the moral, nearly “religious”, perspective from which some Chinese physicians observed smallpox. D’Entrecolles echoed here the discourse of religion in China towards health and illness and how prevention, understood in moral terms, could result in the increased efficacy of any

therapeutic procedure. Despite the coincidences of this discourse running parallel to the Christian mentality, D’Entrecolles pointed out this discourse in the Chinese physician who was, at the same time, responsible for the third and most complex pro-inoculation recipe. Another example that describes the paradoxical attitude of the Jesuits towards Science in general and of D’Entrecolles towards Medicine in particular:

“Though Heaven has fixed the course of our life, we can, however, contribute to its conservation. The practice of virtue is a means that depends on ourselves; because Hoangtien, “Supreme Heaven”, is not partial and never acts by a blind affect. Only virtue moves it and makes us win its favour. Virtue practised is like the language of Heaven ensuring us protection. In this way, the great art of preserving health consists mainly in being virtuous. The other rules and methods are accessory, they only accompany and help this capital fact”.⁴² **RC**

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NOTES

- 1 Y. M. Querbeuf (ed.), *Lettres édifiantes et curieuses écrites des missions étrangères*, 26 vols., Paris: J. G. Mériot le Jeune, 1780-1783, vol. 21, p. 41.
- 2 A monograph on François-Xavier D’Entrecolles can be found in Y. de Thomaz de Boissière (1982), *François-Xavier D’Entrecolles et l’apport de la Chine à l’Europe du XVIII^e siècle*. Paris: Les Belles Lettres. There we can find his relation to medical ideas.
- 3 In 1688 six French Jesuits, known as the “King’s Mathematicians”, arrived in China. Two of them, Jean Francois Gerbillon (1662-1730) and Joachim Bouvet (1656-1707), quickly became teachers of the Emperor Kangxi (1662-1723). In 1693, Jean de Fontaney (1656-1710) and Claude de Visdelou (1652-1737) went to the Emperor’s court in order to treat his fevers with quinine. Both acts increased the reputation of Jesuits in the eyes of the Court and of the Emperor, who decided, in 1693, to send Bouvet to France to recruit more “scientific” missionaries. It was then when D’Entrecolles, together with eleven more Jesuits, arrived in China and settled in the Court of Kangxi. N. Standaert (2002), *Handbook of Christianity in China*. Leiden: Brill, p. 314.
- 4 Y. M. Querbeuf, *op. cit.*, p. 5.
- 5 During the 18th century, smallpox accounted for 15 to 20 % of deaths in most European countries. 80% of these deaths were children under the age of ten. Similar percentages would exist in North Africa, Australia and Asia. K. F. C. Kiple (1992), *The Cambridge World History of Human Disease*. Cambridge: Cambridge University Press, p. 1010.
- 6 Lady Mary Wortley Montagu suffered from a smallpox that disfigured her face. Her brother died as a result of the same disease. While in Istanbul, she observed the inoculations practiced on children by the elderly women in town. Apparently, those inoculations had no side effects. In 1718, Lady Montagu’s son was inoculated by Charles Maitland, the Embassy Surgeon, and in 1721, the same doctors also inoculated her daughter in London, the first inoculation in England. Lady Montagu’s example encouraged the aristocracy to inoculate their children. (2003) *Encyclopaedia of Enlightenment*. Ed. A. C. Kors, Oxford: Oxford University Press, p. 261.
- 7 In the case of China, dissemination of smallpox was dated as far back as the 4th century. This disease was known as the “one hundred disease” because of the high percentage of people affected by it. Ch.-F. Chang (1996), *Aspects of smallpox and its significance in Chinese History*. Univ. of London. Thesis. Chapter. 3. sec 1. To know more about the Chinese practice of inoculation, consultation of the aforementioned thesis elaborated from Chinese original sources is recommended, as well as the chapter *The origins of immunology*. J. G. Needham, L. Wei-Djen (2000), *Science and Civilization in China*. Vol VI. Cambridge: Cambridge University Press.

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- 8 J. Roger (1993), *Les Sciences de la vie dans la pensée française au XVIII^e siècle*. Paris: Albin Michel. pp. 179-182. The *Journal des Savants*, published by the Académie des Sciences, set up itself as the voice of "Scientific thought" in France. This publication followed Cartesian requirements of a "New Science", and gradually made letters from provincial readers, doctors or surgeons disappear from its pages. Such letters, although containing some useful information, were deemed as "fantastic thought" against what they considered "scientific thought". The *Mémoires de Trévoux* was a publication produced by the Society of Jesus between 1701-1767 and became itself the only opponent. Through these two publications, every step that the British court took concerning inoculation was brought to France across the Channel.
- 9 G. Miller (1957), *The Adoption of Inoculation for Smallpox in England and France*. Philadelphia: University of Pennsylvania Press, p. 181.
- 10 In Newgate Prison, on August 9, 1721, three condemned women and another three condemned men were offered to be inoculated voluntarily instead of being executed. Voltaire incisively affirmed that those condemned people managed to save their lives twice. P. Darmon (1989), *La variole, les nobles et les princes*. Paris, Editions Complexe. The Chinese inoculation practice was used on one of the women and she was the only one to die. It is said that this is one of the main reasons why Chinese inoculation was rejected in England and France. P. Razzel (1977), *The Conquest of Smallpox: The Impact of Inoculation on Smallpox Mortality in Eighteenth Century Britain*. X. Caliban Books, p. 167.
- 11 Paul Delaunay, *Le monde médical parisien au dix-huitième siècle* (Paris, 1906), p. 281. Quoted in A. A. Rusnock (2002), *Vital Accounts. Quantifying Health and Population in Eighteenth-Century England and France*. Cambridge: Cambridge University Press, p. 73. Despite this, the *Journal des Savants* generally defended smallpox inoculation. Other publications which advocated this practice were the *Journal encyclopédique* and the *Gazette littéraire*. A. H. Rowbotham (1935), *The Philosophes and the Propaganda of Smallpox in Eighteenth Century France*. London: Cambridge University Press, p. 281.
- 12 Voltaire as advocate of inoculation practice argued: "In Paris we will be against this healthy discovery, as we were writing during twenty years against Newton's experiments; all of this prove that England is in advance of us". J.-F. Raymond (1982), *Querelle de l'inoculation*. Paris: Librairie Philosophique J. Vrin, pp. 86-87.
- 13 During those days physicians from the School of Medicine treated smallpox through bloodletting. The precepts of Hippocratic medicine were still recommended by physicians such as Tronchin or Philippe Hequet. G. Miller, *op. cit.*, p.191.
- 14 A. H. Rowbotham (1935), p. 266. During the Enlightenment, the School of Montpellier led to the new medical ideas of Vitalism, which covered a different field from that of the Hippocratic-Galenic doctrines.
- 15 In this article, Voltaire describes the English inoculation method. But at that time although the *philosophes'* decision had far-reaching implications in terms of adopting the practice of inoculation, comparable to that of the Royal Society in England, their influence on the medical community and in society at large was not as strong as that of the English academicians. This could be one of the reasons why it took so long to begin practising inoculation. A. A. Rusnock, *op. cit.*, pp. 90-91.
- 16 "Il semble que le temps soit encore arrivé où la vérité commence à se faire voir à travers les erreurs et les préjugés" [It seems that the truth finally came through mistakes and prejudices], *Journal des Savants*, Oct. 1752, p. 432 quoted in A. H. Rowbotham (1935), p. 267.
- 17 This would be a great benefit when we come to compare it with the risk of death: it would mean only one out of two hundred, compared to the high mortality of smallpox in France. Even so, the practice of inoculation was rejected, to Bernoulli's and the rest of *philosophes'* great surprise. A. A. Rusnock, *op. cit.*, pp. 81-87.
- 18 D. R. Hopkins (2003), *The Greatest Killer. Smallpox in History*. Chicago: University of Chicago Press, pp. 160-161.
- 19 G. Miller (1957), *op. cit.*, pp. 234-235
- 20 P. Darmon (1982), *La longue traque de la variole. Les pionniers de la médecine préventive*. Paris: Librairie Académique Perrin, p. 104
- 21 On account of this, reduction of mortality would be transformed from one out of seven to one out of two hundred, an obvious demographic advance. G. Miller (1957), *op. cit.*, p. 236
- 22 Physicians cited successful inoculations of celebrities— foremost among them the inoculation of the children of the Duc d'Orléans in 1756—and even of their own children. While emphasizing the safety, reliability, and peace of mind provided by inoculation, physicians empathized with the agonizing decision facing potential inoculees. The death of Louis XV in 1774 from smallpox without being inoculated was a crucial point in favour of the practice. A. Rusnock (2002), p. 90.
- 23 S. Watts (1999), *Epidemics and History. Disease, power and Imperialism*. London: Yale University Press, pp. 114-121.
- 24 Raymond, *op. cit.*, pp. 84-85.
- 25 *Journal des Savants*, mai 1761, I:276. Quoted in Rowbotham, *op. cit.*, p. 2.
- 26 M. Ramsey (2002), *Professional and Popular Medicine in France 1770-1830*. Cambridge: Cambridge University Press, p. 282. Razzel, *op. cit.*, p. 42.
- 27 Dr. Astruc, enemy of inoculation, author of *Doutes sur l'inoculation*, was considered the mouthpiece of the Jesuits. Rowbotham, *op. cit.*, p. 281.
- 28 Hopkins, *op. cit.*, pp. 49-50. Facing the unknown physiology of inoculation a number of theories were formulated. The "innate seed" theory was one of the most successful ones during the 18th century, though refuted by the Catholic Church. Raymond, *op. cit.*, p. 66.
- 29 A. Rusnock, *op. cit.*, p. 75. This article is included in the chapter "Sur l'insertion de la petite vérole".
- 30 I. Vissière et J. L. Vissière (2001), *Lettres édifiantes et curieuses des jésuites de Chine 1702-1776*. Paris: Desjonquères, p. 20.
- 31 Quoted by Steven J. Harris, S. J., "Jesuit Scientific Activity in the Overseas Missions, 1540-1773". *Isis*, 2005, 96:71-79.
- 32 Y. M. Querbeuf, *op. cit.*, p. 6.
- 33 *Ibid.*, p. 7.
- 34 *Ibid.*, p. 8.
- 35 *Ibidem*.
- 36 *Ibid.*, p. 13.
- 37 *Ibid.*, p. 25
- 38 For a brief overview of eighteenth century medicine, see W. F. Bynum, R. Porter, (eds.) (1993), *Companion Encyclopedia of the History of Medicine*. London-New York: Routledge.
- 39 *Ibid.*, p. 15.
- 40 *Ibid.*, p. 19.
- 41 *Ibid.*, p. 34.
- 42 *Ibid.*, p. 36.