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The Hidden History of a Famous Drug: Tracing the Medical and Public Acculturation of Peruvian Bark in Early Modern Western Europe (c. 1650–1720)

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ABSTRACT

The history of the introduction of exotic therapeutic drugs in early modern Europe is usually rife with legend and obscurity and Peruvian bark is a case in point. The famous antimalarial drug entered the European medical market around 1640, yet it took decades before the bark was firmly established in pharmaceutical practice. This article argues that the history of Peruvian bark can only be understood as the interplay of its trajectories in science, commerce, and society. Modern research has mostly focused on the first of these, largely due to the abundance of medico-historical data. While appreciating these findings, this article proposes to integrate the medical trajectory in a richer narrative, by drawing particular attention to the acculturation of the bark in commerce and society. Although the evidence we have for these two trajectories is still sketchy and disproportionate, it can nevertheless help us to make sense of sources that have not yet been an obvious focus of research. Starting from an apparently isolated occurrence of the drug in a letter, this article focuses on Paris as the location where medical and public appreciation of the bark took shape, by exploring several contexts of knowledge circulation and medical practice there. These contexts provide a new window on the early circulation of knowledge of the bark, at a time when its eventual acceptance was by no means certain.

KEYWORDS: Peruvian bark, fever, malaria, drug trajectory, circulation of knowledge, Huygens, Paris, Jesuits

INTRODUCTION: CHRISTIAAN HUYGENS'S ENCOUNTER WITH AN EXOTIC REMEDY

On November 13, 1663, the Dutch scientist Christiaan Huygens (1629–95) wrote to his brother Constantijn (1628–97) about his worries concerning their brother Lodewijk (1631–99), who was stricken with fever:

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> I pity our feverish brother [*le frere febricitant*], because once I have had a taste of it [i.e. fever] as well. Still, he can invest his hope in Kin kina, of which we have seen a good effect in Signora Anna recently.[1]

The fragment will not surprise historians of medicine: fever was a common disease in the early modern period, and Peruvian bark had been known for over twenty years when the letter was written. What is striking is that most modern readers with a basic understanding of medical history are likely to interpret "fever" as malaria and "kin kina" as quinine. And indeed, it may very well be that both identifications are as close as we can get in terms of a medico-historical interpretation of the events described. However, both malaria and quinine are notions that were unknown in the early modern world. Therefore, identifying instances such as these in historical sources by using modern constructs of diseases and remedies will always retain a flavor of anachronism.[2] In the context of the seventeenth century, what we would now identify as malaria was one of many illnesses that fell under the umbrella term "fevers." Generally regarded as a disposition involving an abundance of bodily heat, associated with the heart, fever was thought of as the disease itself rather than a symptom. Following classical examples (mainly Galen and Hippocrates), distinctions were made according to the intensity of heat in the body and the interval between paroxysms. Accordingly, decisions of therapy were made on the basis of intensity and duration of the fever. The absence of a static theory for fevers made itself felt when the traditional Galenic framework was challenged by new approaches to medicine, notably Cartesian mechanism and the growing importance of new remedies, including Peruvian bark and chemical preparations.[3] However, fever was not the only ambiguous category. The nature of Peruvian bark was also far from evident around the middle of the seventeenth century. Botanical ambiguity, therapeutic and linguistic confusion with other drug components, nontransparent supply lines, and adulterations all played a role in the shady early days of Peruvian bark on the European medical market. Since no European botanist would study a *Cinchona* tree (which yields the quinine-containing bark) prior to 1737, there is virtually no way of telling what kind of bark European physicians administered to their patients in the late seventeenth century.

With so little concrete evidence to go on for both fever and Peruvian bark, a medico-historical analysis of sources like Huygens's letter will not tell the whole

1 Christiaan Huygens to Constantijn Huygens Jr. (November 30, 1663), in the ePistolarium. Most letters used for this article can be found in the ePistolarium, developed within the CKCC Project at Huygens ING in The Hague (http://ckcc.huygens.knaw.nl/epistolarium/). The English translation of all quotes in this article was made by the authors.

2 The notion of diseases as constructs with limited historical value is discussed, for instance, by R. A. Aranowitz, *Making Sense of Illness: Science, Society, and Disease* (Cambridge: Cambridge University Press, 1998).

3 See Don G. Bates, "Thomas Willis and the Fevers Literature of the Seventeenth Century," in *Theories of fever from Antiquity to the Enlightenment*, ed. W. F. Bynum and V. Nutton, Medical history, Supplement 1 (London: Wellcome Institute for the History of Medicine, 1981), 45–70. Bates distinguishes two "schools" of fever theory that developed in the seventeenth century: a neoclassical approach that embraced mechanistic philosophy and a spiritual approach that followed in the footsteps of Paracelsus.

story. Therefore, this article argues that understanding the eventual success of Peruvian bark on the European, medical market cannot be understood with reference to science and medicine alone. It will do so by evaluating several sources that increase our understanding of two other fundamental pillars: commerce and society. The introduction of new remedies, in the past as well as nowadays, is a process involving a number of trajectories.[4] These relate to scientific research, trials, and debate; to matters of exchange, such as the availability of raw materials, price issues, and marketing strategies; and to public issues of health and the awareness and acculturation of new remedies. This triangular notion is vital for understanding the global exchange of knowledge and goods, as emphasized by Harold Cook.[5] By including more testimony from commerce and society, we will show that the process of knowledge formation and circulation appears deceptively self-evident. The number of contexts associated with the bark is manifold: decades elapsed before it was accepted as a preferred remedy against fevers by European society at large. In the process, the understanding of both fevers and Peruvian bark underwent significant changes.

To completely reconstruct Peruvian bark's trajectories requires understanding of the process of acculturation in the late seventeenth century: first, the bark's introduction on the medical market; then, a period of trial and error to establish a substantial "critical mass" of knowledge and experience; and finally, its consolidation and codification in the medical and pharmaceutical canon. Modern literature has generally focused on either the first or the third stage. Myth-busting medical historians have tackled the riddling history of Peruvian bark's transatlantic crossing, seemingly contented that once the bark reached European soil, it simply spread throughout the continent.[6] More recently, comprehensive studies like the ones by Jarcho and Maehle have included evidence on commercial and cultural aspects, but these works still focus mainly on scientific experiments that were carried out in an academic setting, once the bark had already shaken off its initial novelty.[7]

4 The notion of trajectories in the history of therapeutic drugs follows the interpretation of Toine Pieters, *Historische Trajecten in de Farmacie: Medicijnen Tussen Confectie en Maatwerk* (Inaugural lecture; Hilversum: Verloren, 2004); cf. Stephen Snelders, Charles Kaplan, and Toine Pieters, "On Cannabis, Chloral Hydrate, and Career Cycles of Psychotropic Drugs in Medicine," *Bull. Hist. Med.*, 2006, *80*, 95–114.

5 Harold J. Cook, *Matters of Exchange: Commerce, Medicine, and Science in the Dutch Golden Age* (New Haven: Yale University Press, 2007).

6 A. W. Haggis, "Fundamental Errors in the Early History of Cinchona," *Bull. Hist. Med.*, 1941, *10(3)*, 417–59; *10(4)*, 568–92; Jaime Jaramillo-Arango, "A Critical Review of the Basic Facts in the History of Cinchona," *J. Linn. Soc. Lond., Bot.*, 1949, *533(52)*, 272–309; Francisco Guerra, "The Introduction of Cinchona in the Treatment of Malaria," *J. Trop. Med. Hyg.*, 1977, *80(6)*, 112–18; *80(7)*, 135–40; Jos. Rompel SJ, "Kritische Studien zur Ältesten Geschichte der Chinarinde," in *XIV. Jahresbericht des Öffentlichen Privatgymnasiums an der Stella Matutina zu Feldkirch* (Feldkirch: Privatgymnasium an der Stella Matutina, 1905).

7 Saul Jarcho, *Quinine's Predecessor: Francesco Torti and the Early History of Cinchona* (Baltimore and London: Johns Hopkins University Press, 1993); Andreas-Holger Maehle, *Drugs on Trial: Experimental Pharmacology and Therapeutic Innovation in the Eighteenth Century*. Clio medica 53 (Amsterdam and Atlanta: Rodopi, 1999). The book by M. L. Duran-Reynals, *The Fever Bark Tree* (New York: Garden City, 1946), pays more attention to the sociocultural history of Peruvian bark; two significant studies from a journalist perspective were written by Mark Honigsbaum, *The Fever Trail: In Search of the Cure for Malaria* (New York: Farrar, Straus & Giroux, 2002); and Fiammetta Rocco, *The Miraculous Fever-Tree: Malaria and the Quest for a Cure That Changed the World* (New York: HarperCollins Publishers, 2003).

Letters like the one by Christiaan Huygens do not lend themselves to such a medical analysis. They do, however, provide a window on the historical landscape by giving glimpses of all three trajectories. Huygens's letter gives no information about the precise nature of fever, nor about any remedies that may have been applied, but it demonstrates the contemporary understanding of the close relation between fever and bark. Likewise, the letter contains the assumption that Peruvian bark could somewhere be purchased, and that people might have been willing to do so. In other words, the three dimensions of science, commerce, and society are all represented in the letter. This multifunctionality makes letters like Huygens's invaluable for historical research. It was written at a time when knowledge about the bark's appearance and properties, and experience with its medicinal uses, were only rudimentary, making this a seminal stage for the drug's acculturation. This stage occurred mostly "under the radar," so each trajectory's successful outcome was by no means as certain as scholars of the bark's introduction or codification would have us believe. The eventual adoption of the bark in pharmaceutical practice was the result of this intermediate stage. This cannot be credited exclusively to scientific innovation. The hidden history of Peruvian bark is as much a history of commercial opportunities and cultural susceptibility.

We will start by discussing the general challenges involved when encountering fever and Peruvian bark in early modern sources, and how modern scientific literature has addressed these topics. Subsequently, we will show how these familiar approaches provide insufficient points of reference for analyzing the conception of Peruvian bark and fever in letters like the one written by Huygens. Next, we will move on to the medical world of late, seventeenth-century Paris, using the correspondence we have analyzed to get a grip on the interaction of science, commerce, and culture at the royal court of Louis XIV. Finally, three personae are introduced to illustrate some of the contexts in which fever and Peruvian bark figured prominently, exhibiting the diversity of discourses on the contested remedy. In this way, the lasting appearance of Peruvian bark on the medical market is shown to have been the result of commercial and sociocultural activities as much as medical debates and trials.

AMBIGUITIES OF FEVER AND BARK IN EUROPEAN SCIENCE AND SOCIETY

To make sense of instances of Peruvian bark and fever, like the one we encountered above, some introductory remarks on the historical relation between the two are helpful. The most common misconceptions in this history are that Peruvian bark can be equated with quinine, and fever with malaria. Both assumptions emanate from medical historiography, which has tried to trace the concepts of quinine and malaria in an era when those words were not yet in use. Quinine, the most important antimalarial alkaloid found in the bark of *Cinchona* species, was discovered and named by Pelletier and Caventou in 1820. Malaria was originally an Italian term to describe the miasma or "bad air" (*mal' aria*, *malaria*, or *male d'aria*) that was thought to cause certain types of fever. As such, malaria is known to have existed at least since the early

seventeenth century.[8] Only in the nineteenth century, however, was the term used for the specific disease we know today.[9] Therefore, caution is required when encountering fever or bark in early modern sources. Although debates on fevers were comprehensive, the following section only highlights the features that are relevant to understand the interaction of fever and Peruvian bark in the early modern period.[10]

Whereas quinine and malaria are relatively clear-cut concepts in modern medicine, Peruvian bark and fever were terms with multiple meanings in the past. "Fever" referred to a range of conditions with shared symptoms. Although most textbooks on medicine devoted systematic attention to fevers, a uniform nosological classification was never arrived at. The clearest visual representation was made by the Italian physician Francesco Torti (1658–1741), whose "*lignum febrium*" presented the interrelation of about one hundred types of fever in a tree structure (see figure 1). Besides the general dichotomy of benign and malignant varieties—recognizable by their bright or dark shading—Torti mainly distinguished the branches of malignant fever common in his time. Most fevers were either types of intermittent fever (*febris intermittens*), where bouts of fever (paroxysms) alternate with periods of remission at regular intervals; or types of continuous fever (*febris continua*), where paroxysms occur uninterrupted on successive days. Intermittent and continuous fevers were further subdivided according to the duration of the interval, i.e., whether the symptoms of day 1 recurred on day 2 (*febris quotidiana*), 3 (*tertiana*), or 4 (*quartana*).[11] Intermittent fevers of these varieties have traditionally been associated with malaria, especially tertian and quartan fever, and these terms have been part of discourses on malaria ever since Torti's days. Jarcho, for instance, tied tertian and quartan varieties of malaria to specific *Plasmodium* parasites that produce various kinds of malaria.[12]

However, fever theory was not static. Especially the gradual acceptance of Harveian circulation and Cartesian corpuscularism were important additions to fever theory, because obstructions of blood around the heart were a common theme in debates on the causes of fever. We say additions, because it should be emphasized, first, that changes in fever theory were effects of these more general shifts in medical theory, rather than their causes.[13] Secondly, despite the growing importance of new concepts in medicine, fever theory always retained a flavor of Galenic humoralism even with staunch protagonists of iatrochemistry like Thomas Willis (1621–75), because of the assumption that fever was an internally caused indisposition of the body.[14]

8 Jarcho, *Quinine's Predecessor*, 188–91.

9 Henry Alan Skinner, *The Origin of Medical Terms*, 2nd ed. (New York: Hafner Publishing Company, 1970), 261–62.

10 The most elaborate modern interpretations of premodern fever theory are provided by Bynum and Nutton, *Theories of Fever*, and Jarcho, *Quinine's Predecessor*, 217–61.

11 Francesco Torti, *Therapeutice specialis Ad Febres quasdam Perniciosas, inopinatò, ac repentè lethales, una verò China China, peculiari Methodo ministrata, sanabiles* (Mutinae: Typis Bartholomaei Soliani, 1712). The image of the "fever tree" is facing page 666 (see figure 1). Torti's notion of fevers is the focus of Jarcho's study, *Quinine's Predecessor*, esp. Chapter 9.

12 For example, in Jarcho, *Quinine's Predecessor*, xv.

13 Bates, "Thomas Willis," 69.

14 Ibid., 50–52; Jarcho, *Quinine's Predecessor*, 227.

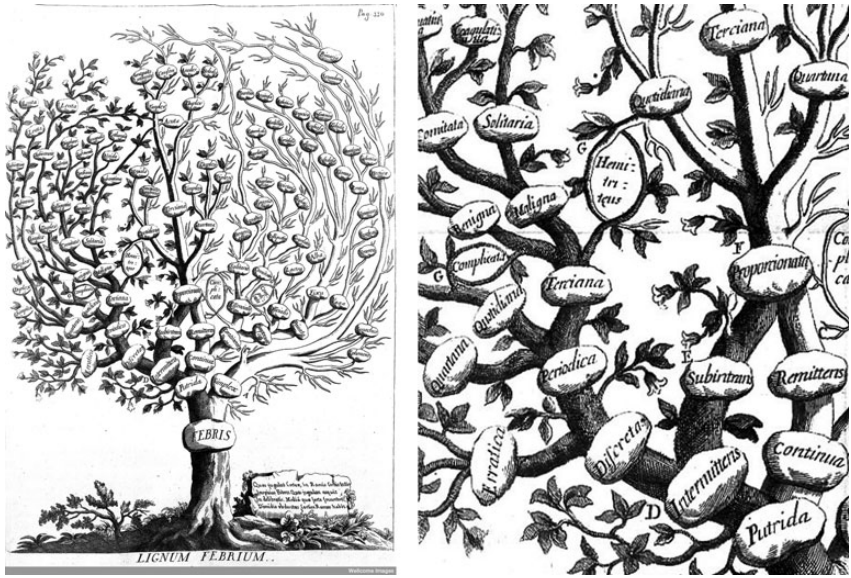

Fig. 1. On the left, Torti's depiction of the various types of fever, from his Therapeutice specialis (1712). On the right, a part of the image, showing the various types of intermittent and continuous fever. (See footnote 11)

Descartes, although he never mentioned Peruvian bark, argued that the obstruction of blood that causes fever can be removed by a range of remedies. For Descartes's adherents, this implied that Peruvian bark could be a possible remedy, perhaps even the first choice, but certainly not the only candidate.[15]

Many authors preferred a more concise classification of fevers, but still ended up with so many particularities that simplicity was hard to find. Examples are Lorenzo Bellini (1643–1704) in Italy, Richard Morton (1637–98) in England,[16] and Willem van Ranouw (1673–1724) in the Netherlands. Especially Van Ranouw, a physician from Amsterdam, draws our attention to the difficulties of fever interpretation. His work, a series of articles in Dutch about Peruvian bark and its relation to fever, intertwined the author's veneration for ancient and contemporary authorities with a good deal of personal observation.[17] Like Torti, Van Ranouw distinguished only two main

15 Jarcho, *Quinine's Predecessor*, 228–31.

16 See Jarcho, *Quinine's Predecessor*, 247–51 (for Bellini), and 254–57 (for Morton).

17 [Willem van Ranouw], "Vierde Verhandeling van de byzondere Natuurlyke Historischryvers, en in dezelve de Natuurlyke Historie van de Kina-Kina," *Kabinet der Natuurlyke Historien, Wetenschappen, Konsten en Handwerken*, 1722, *6*, 92–176. Parts 5 and 6 have similar titles: "Vyfde Verhandeling," *Kabinet*, 1722, *6*, 279–380; and "Zesde Verhandeling," *Kabinet*, 1722, *6*, 470–563. For Van Ranouw himself, see H. Beukers, "De Tijdschriften van Willem van Ranouw," *Ned. Tijdschr. Geneeskd.*, 1981, *125(40)*, 1613–17; and C. C. Delprat, "De Geschiedenis der Nederlandsche Geneeskundige Tijdschriften van 1680 tot 1857," *Ned. Tijdschr. Geneeskd.*, 1927, *71*, 3–116, 15–26. Earlier Dutch authors on fever are discussed in Johanna Geyer-Kordesch, "Fevers and Other Fundamentals: Dutch and German Medical Explanations c. 1680–1730," in Bynum and Nutton, *Theories of Fever*, 99–120.

categories: intermittent fevers (*afgaande koortsen*) and remittent fevers (*wederkomende koortsen*).[18] Unlike Torti, however, Van Ranouw insisted that these two categories should be the focus of debate: he argued that previous authors had made too specific distinctions. For students, fevers would all seem distinct, whereas in fact, many share common symptoms that require similar treatment.[19] Furthermore, while Van Ranouw distinguished the types that were commonly recognized in his time (mainly quotidian, tertian, and quartan fever), his argument also reveals a linguistic peculiarity. One set of Dutch terminology for fevers followed their Latin and English counterparts (e.g., *kwartein* for quartan fever), but the most common names in Dutch were based on the duration of a set of symptoms, not on the day of their recurrence. Hence, quotidian, tertian, and quartan fevers were called *alledaagse* (every day), *anderendaagse* (every other day), and *derdendaagse koorts* (every third day fever), respectively.[20] Thus, a *febris tertiana* could easily be confused with a *derdendaagse koorts*. Adding to the confusion, the term *vierdendaagse koorts* (fourth day fever) was used in nonmedical sources, sometimes to indicate a tertian, but also with the intention of suggesting medical competence on the part of the author.[21] According to Van Ranouw, however, fevers with symptoms of more than three days should generally be understood as combinations of two or more fevers.[22] In other words, it is difficult to ascertain if authors were aware of the medical implications of mentioning a specific fever type. Moreover, "fever" was often not accompanied by a prefix, thus suggesting that the medical niceties of the disease were not particularly important for the nonspecialist.

The earliest debate about Peruvian bark's properties in the 1640s fused with a debate about the proper treatment of tertian fever, indicating the close relation between fever and bark from the very beginning. The story of Peruvian bark's introduction is well known and can be found in all relevant secondary literature: it is sufficient to note here that the fiercest episode in the debate took place after the failed treatment of the Archduke of the Netherlands, Leopold Wilhelm of Austria (1614–62), with Peruvian bark, in 1652. In the aftermath of these debates, two books were published by Roland Sturm and Sebastiano Bado, which caused the first "breakthrough" in the bark's appreciation by science and society, respectively. Sturm, a physician from Delft, wrote his book at the request of the Spanish ambassador in The Hague, who had received samples of bark from the Archduke in 1652.[23] At first,

18 For Torti, remittent fevers were the malignant subdivision of continuous fevers, above the level of quotidian, tertian, and quartan fevers. The difference is explained by the fact that Torti also acknowledged a branch of benign continuous fevers.

19 Van Ranouw, "Vyfde Verhandeling," 284.

20 Van Ranouw, "Vyfde Verhandeling," 287–92.

21 In early-modern Dutch newspapers (searchable via http://www.delpher.nl/nl/kranten), many advertisements for remedies against fevers can be found, including against *vierdendaagse koorts*. The *vierdendaagse koorts* in a poem by Constantijn Huygens Sr., "Aan Caspar Barlaeus, medicus, op de vierdendaagse koorts van Hooft," in Constantijn Huygens Sr., *Korenbloemen*, ed. Ton van Strien (Amsterdam: Em. Querido's Uitgeverij, 1996), 23, probably has a literary function.

22 Van Ranouw, "Vyfde Verhandeling," 300–1.

23 Jarcho, *Quinine's Predecessor*, 38–40.

Sturm was reluctant to experiment with the bark, but he altered his views in the wake of a fever epidemic in Delft in 1658. His book did not take a firm stance in favor or against the bark, but rather described several experiments to argue when the bark was useful or not. This opened up the possibility of discussing Peruvian bark without resorting to tradition, emotion, or suspicion, as had happened earlier, but rather to determine which aspects of the remedy were problematic. Differences in varieties, and the problem of dosage, turned out to be the essential topics that required further investigation.[24]

The scientific momentum created by Sturm was complemented in 1663 by Bado's book, which set the stage for the retrospective canonization of the bark's introduction into Europe. Bado, a physician from Genoa, plausibly presented the highly fictionalized story of the Countess of Cinchón, the wife of the Viceroy of Peru, who was presented as the first European to be miraculously cured of fever with the bark. She then freely dispensed the remedy to the poor in Lima and continued this charity upon her return to Europe.[25] This rather manipulative contribution to the debates shows the intersections of science, commerce, and society in the acculturation of the bark. Bado included all three trajectories in his book, understanding that he had to create positive awareness for this exotic remedy not only among his fellow physicians, but among a multitude of European readers, who otherwise might have had reservations.[26]

Despite the positive stimulus provided by these works, medical practitioners could have many reasons to use or not use Peruvian bark: religious convictions, the influence of professional colleagues, personal observation of fever cases, or the changing environment of local epidemicity.[27] Therefore, an altogether changing attitude toward Peruvian bark among medical practitioners cannot be deduced from publications like these alone. The problematic characteristics of fever affected Peruvian bark as soon as the drug was associated with the disease, but mostly on a practical level, not because of theoretical inconsistencies. Questions included: what types of fever should be treated with the bark, at what point during the disease, in what dosage, and with what mode of administration? At the same time, Peruvian bark engendered questions of its own: from which tree(s) was the substance derived (a particularly pressing matter due to the hybrid nature of *Cinchona* species[28]), what were the names and characteristics of each variety, and which type of bark should be used against which type of

24 Roland Sturm, *Febrifugi Peruviani Vindiciarum* (Delphis: Apud Petrum Oosterhout, 1659). The book was simultaneously published in Antwerp, and again in The Hague in 1681. For a discussion of the book's contents, see C. Broeckx, "Notice sur Roland Storms, Docteur en Philosophie et en Médecine," *Annales de la Société de Médecine d'Anvers*, 1855, *16*, 5–24.

25 Sebastiano Bado, *Anastasis corticis Peruviae seu Chinae Chinae defensio* (Genuae: Typis Petri Ioannis Calenzani, 1663). Seven years earlier, Bado had already published a less well-known work: *Cortex Peruvianus redivivus.*

26 This interpretation was most strongly suggested by Fernando I. Ortiz Crespo, "Fragoso, Monardes, and Pre-Chinchonian Knowledge of Cinchona," *Arch. Nat. Hist.*, 1995, *22(2)*, 169–81.

27 Bates, "Thomas Willis," 55–64.

28 Currently, some twenty-five species of *Cinchona* trees are recognized. See Lennart Andersson, "A Revision of the Genus Cinchona (Rubiaceae–Cinchoneae)," *Mem. N. Y. Bot. Gard.*, 1998, *80*, 1–75.

fever? All these issues would be debated until the nineteenth century, and although they were mostly scientific, they also related to commerce and public acceptance.

In commerce and society, the greatest challenge for Peruvian bark's successful acculturation was the cumbersome supply route from Peru to Europe, which was largely controlled by the Jesuits. Their pharmacies in Lima and in Rome, where Cardinal Juan de Lugo (1583–1660) was the central figure, were instrumental in the early global distribution network.[29] Because of the Jesuits' near-monopoly, the bark may have been hard to obtain outside of Rome, even within the confines of the Italian peninsula.[30] Furthermore, a range of names was used to describe the bark: Van Ranouw still mentioned ten distinct names in 1722.[31] The Jesuits' importance was readily apparent here, since a version of "Jesuit's bark" was the common name to refer to Peruvian bark in most European languages.[32] Cook has argued that the availability of the bark improved in the 1670s, when efforts to circumvent the Jesuits proved successful.[33] This had a positive effect on prices as well, as shown by Patrick Wallis.[34] However, the problem of adulteration, evident for Peruvian bark and many other exotic drugs, remained, so commercial interests mainly focused on diminishing the number of intermediaries.[35] Finally, because of the unclear botanical provenance, confusion arose with other drug components, with similar medical properties, geographical origins, or linguistic associations.[36]

HUYGENS LEARNS ABOUT THE BARK: THE INTERPLAY OF DRUG TRAJECTORIES AND THEIR CONSEQUENCES FOR THE INDIVIDUAL PATIENT

The problems pertaining to fever and Peruvian bark affected the medical community in all of Europe. Even Bado's publicity campaign of 1663 was still written by one

29 The works mentioned in fn. 7 all highlight the importance of the Jesuit apothecary shops on both sides of the Atlantic. See also Steven J. Harris, "Confession-Building, Long-Distance Networks, and the Organization of Jesuit Science," *Early Sci. Med.*, 1996, *1(3)*, 287–318; Sabine Anagnostou, *Missionspharmazie: Konzepte, Praxis, Organisation und Wissenschaftliche Ausstrahlung*. Sudhoffs Archiv, Beiheft 60 (Stuttgart: Franz Steiner Verlag, 2011), 343–48; and Luis Martín, *The Intellectual Conquest of Peru: The Jesuit College of San Pablo, 1568–1767* (New York: Fordham University Press, 1968), 97–102.

30 Sheila Barker, "Malaria and the Search for Its Cure in Granducal Tuscany," *Medicea*, 2010, *5*, 54–59, 55.

31 Van Ranouw, "Vierde Verhandeling," 140.

32 Sabine Anagnostou, "Jesuits in Spanish America: Contributions to the Exploration of the American Materia Medica," *Pharm. Hist.*, 2005, *47(1)*, 3–17, 4.

33 Harold J. Cook, "Markets and Cultures: Medical Specifics and the Reconfiguration of the Body in Early Modern Europe," *Trans. R. Hist. Soc.*, 2011, *21*, 123–45, 133.

34 Patrick Wallis, "Exotic Drugs and English Medicine: England's Drug Trade, c. 1550–c. 1800," *Soc. Hist. Med.*, 2012, *25(1)*, 20–46, 36.

35 Samir Boumediene, "L'acclimatation portuaire des savoirs sur le lointain: les drogues exotiques à Séville, Cadix et Livourne (XVIe–XVIIe siècles)," in *Les savoirs-mondes: mobilités et circulation des savoirs depuis le Moyen Âge*, ed. Pilar González Bernaldo and Liliane Hilaire-Peréz (Rennes: Presses Universitaires de Rennes, 2015), 133–45.

36 An example of the first two problems is Peruvian balsam, derived from *Myroxylon* species, see e.g., Maehle, *Drugs on Trial*, 224; the greatest linguistic confusion occurred with the China root; see Anna E. Winterbottom, "Of the China Root: A Case Study of the Early Modern Circulation of Materia Medica," *Soc. Hist. Med.*, 2015, *28(1)*, 22–44.

physician and addressed to another, indicating the close connection between the bark's trajectories in science and society. To what extent are these discussions still relevant if we narrow the scope of research to an individual patient? Do we gain clearer insight into people's experience with Peruvian bark if its use can be related to an actual case? Was it obvious for Christiaan Huygens to use his letter as a way to transfer knowledge about Peruvian bark by linking it to his brother's disease? When Lodewijk Huygens fell ill, he was on his way back from a journey to Paris, to sell pendulum clocks that his brother Christiaan had invented. Suddenly, Lodewijk stopped corresponding with his brothers for more than two weeks, lingering in Middelburg, in the province of Zeeland, to court a lady.[37] It was there that he was stricken with fever. During the following weeks, the Huygens brothers made little comments on Lodewijk's health condition,[38] but finally, on December 28, Christiaan wrote to Lodewijk to congratulate him with his recovery.[39]

As explained in the introduction, it is tempting to regard Lodewijk's fever as an instance of malaria, which would make Christiaan's remark about Peruvian bark all the more obvious. Does it make sense to try and identify the kind of fever that Lodewijk was suffering from? The letters about his condition at the end of 1663 provide no answer to the question. However, in his letter of November 30, Christiaan relates Lodewijk's condition to his own previous experience with fever, which probably relates to an instance of tertian fever in June 1662.[40] Lodewijk himself was similarly struck by successive fevers again in both February and May 1664, the last of which was a tertian fever as well.[41] Therefore, tertian fever is the closest diagnosis we can make.

Because the connection between the historical notion of fever and modern malaria is far from straightforward, we cannot simply equate the two in this case. We need more information to substantiate such a claim, before we can make any inferences about the possible beneficial use of Peruvian bark in Lodewijk's case. First, the circumstances suggest that Lodewijk's fever was the kind of malaria that we know was endemic to Zeeland. Sixty years later, Van Ranouw discussed how tertian fevers were most common in spring and autumn, and were generally associated with swampy areas.[42] The city of Middelburg on the Walcheren peninsula, where Lodewijk had been dwelling, was particularly hazardous in this respect, as is also apparent from the *Chroniik van*

37 Constantijn Huygens Jr. to Christiaan Huygens (September 20, 1663), in the ePistolarium.

38 Constantijn Huygens Jr. to Christiaan Huygens (November 8, 1663), in the ePistolarium; Constantijn Huygens Jr. to Christiaan Huygens (November 22, 1663), in the ePistolarium; from Constantijn Huygens Jr. to Christiaan Huygens (December 6, 1663), in the ePistolarium; from Christiaan Huygens to Lodewijk Huygens (December 15, 1663), in the ePistolarium; Constantijn Huygens Jr. to Christiaan Huygens (December 20, 1663), in the ePistolarium.

39 Christiaan Huygens to Lodewijk Huygens (December 28, 1663), in the ePistolarium.

40 Christiaan Huygens to Robert Moray (June 9, 1662), in the ePistolarium.

41 Constantijn Huygens Jr. to Christiaan Huygens (May 1, 1664), in the ePistolarium.

42 Van Ranouw, "Zesde Verhandeling," 505. No separate studies exist for fevers in Zeeland in the early modern period, although Leonard Jan Bruce-Chwatt and Julian de Zulueta, *The Rise and Fall of Malaria in Europe: A Historico-Epidemiological Study* (Oxford and New York: Oxford University Press, 1980), 106–16, briefly discuss Dutch malaria in this period. Endemic Dutch malaria, and its disappearance, in the nineteenth century have been studied by Huibert Arius Seventer, *The Disappearance of Malaria in the Netherlands* (diss., Amsterdam: Universiteit van Amsterdam, 1969).

Zeelandt (Chronicle of Zeeland), published in 1644.[43] Secondly, because malaria was endemic in brackish provinces like Zeeland, the Dutch may have had a certain immunity to malaria prevalent in their regions.[44] This would explain that Lodewijk was not incapacitated for the entire duration of his disease, and that his health condition was of no great concern to his brothers, who spoke very little about it. Thirdly, because of this immunity, Zeeland fevers were not always fatal when left untreated. It may be that Lodewijk's fever simply vanished, which would make it unnecessary to apply Peruvian bark. Van Ranouw asserted that it would not be beneficial to administer Peruvian bark in all cases, since most autumnal tertian fevers disappeared by themselves. Still, he observed that the bark was helpful in certain tertian fevers, and he administered it himself in several cases.[45]

Where does this leave us if we want to relate Lodewijk's condition to Peruvian bark? Apart from the circumstances outlined above, it is unknown if, how, and by whom Lodewijk's disease was treated in November 1663. When he became sick again in February 1664, there was no suitable remedy, indicating that Peruvian bark had not been administered in November, or to no good effect.[46] The identification of this instance of tertian fever as malaria would surely strengthen the claim that Peruvian bark might have been beneficial, but only the real (i.e., *Cinchona*) bark, unadulterated, in sufficient quantity, and for a sufficient amount of time. All these aspects, however, were still hotly debated at the time. Moreover, there are no indications that apothecaries in The Hague, where Lodewijk was residing during his illness, were already using the bark in 1663.[47] Disappointingly, we should not expect any involvement of the Jesuits, who were such important intermediaries for Peruvian bark in other parts of Europe. There was a community of Jesuits in The Hague in the seventeenth century, as in most Dutch cities,[48] but we do not know about any apothecaries among them, nor can we connect them to the thirty or so apothecaries who were practicing in The Hague around this time.[49] If the Huygens brothers wanted to obtain Peruvian bark, they would have had to look elsewhere—presumably abroad.

43 Marcus Zuerius van Boxhorn, *Chroniik van Zeelandt, eertijdts beschreven door d'Heer Johan Reygersbergen, nu verbetert, ende vermeerdert*, 2 vols. (Tot Middelburch: By Zacharias ende Michiel Roman, 1644), I, 116–17. The author nonetheless felt the need to attenuate the common opinion about the notorious fevers in Zeeland, by emphasizing that, in reality, they were not as bad as everyone seemed to think.

44 J. J. van der Kaaden, "Geschiedenis van de Inheemse Malaria in Nederland," *Infectieziekten Bulletin*, 2003, *14 (11)*, 388–93; Henk Brouwer, "Malaria in Nederland in de Achttiende en Negentiende Eeuw," *Tijdschr. Soc. Gesch.*, 1983, *9(2)*, 140–59.

45 Van Ranouw, "Vyfde Verhandeling," 304–6.

46 Philips Doubleth to Christiaan Huygens (February 28, 1664), in the ePistolarium: "Le frere Louis a repris feu depuis quelques jours au tant presque que jamais, [. . .] mais remede n'ij a."

47 Peruvian bark is absent from the pharmacopoeia of 1659: *Pharmacopoea Hagiensis Communi Collegii Medici ejusdem Loci Opera adornata* (Hagae Comitum: Apud Joannem Tongerloo, 1659), and the next edition (which did include the bark) was only published in 1738.

48 Paul Begheyn SJ, *Gids voor de Geschiedenis van de Jezuïeten in Nederland 1540–1850/A Guide to the History of the Jesuits in the Netherlands 1540–1850* ([Nijmegen]: Valkhof Pers, [Amsterdam]: Nederlands Instituut voor Jezuïeten Studies, [Rome]: Institutum Historicum Societatis Iesu, 2006), 35.

49 The authors are grateful to Peter van den Hooff and Frank Bouman, for providing a list of apothecaries in The Hague around the middle of the seventeenth century. The digital database from which these apothecaries were extracted is currently in progress, and based on A. I. Bierman, M. J. van Lieburg, and

PARIS AS A HUB OF KNOWLEDGE ON PERUVIAN BARK (C. 1650–80)

The case of Lodewijk Huygens is one among many. Early modern Dutch correspondence swarms with references to disease—often fevers—in similar contexts: little or no information on the nature of the disease or treatment, and very brief descriptions of the context in which the disease took place.[50] Still, Christiaan Huygens's reference to kina is a rare encounter with the new drug in an early modern letter, and this certainly has to do with the fact that he was in Paris when he wrote it. Plunging himself in courtly and academic life between October 1663 and May 1664, he encountered all there was to see and hear in terms of novelties. On one occasion, he was at the house of Anna Bergerotti, who was part of a select company of singers that enjoyed great popularity at the royal court during the 1650s and 1660s, where she was commonly known as Signora Anna.[51] It was to her situation that Huygens referred when he suggested that his ill brother might benefit from Peruvian bark, as quoted at the beginning of this article. On November 30, the day he wrote his "bark letter," Huygens witnessed Bergerotti's recovery from fever by means of Peruvian bark. Another account of Bergerotti's recovery, written by Sebastien Chièze (1625–79) on the same day as Huygens's letter, clearly shows the sudden, miraculous impact that Peruvian bark could still have on observers at this time. Recounting his visit to Bergerotti the day before, and unaware that she had taken Peruvian bark, Chièze found her "at nine in the evening eating and drinking, when I believed I would see her trembling with quartan fever."[52] Both Huygens and Chièze immediately correlated the experience to Lodewijk Huygens's illness and suggested the application of the bark in his case.

At first sight, it does not seem strange that both letter writers acknowledged the similarities between the cases of Lodewijk Huygens and Anna Bergerotti, nor that they agreed on the usefulness of Peruvian bark for both. However, at closer inspection, the cases were quite different. As we have seen, Lodewijk Huygens's case was probably an isolated instance of endemic tertian fever that was likely to disappear by itself. Bergerotti's case, however, was a quartan fever (as Chièze indicated) which, moreover,

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D. A. Wittop Koning, *Biografische Index van Nederlandse Apothekers tot 1867* (Rotterdam: Erasmus Publishing, 1992). The original index only mentions one year of residence for each apothecary, which makes it hard to establish a definite list of practitioners active in the exact year 1663. The digital version will connect the names of practitioners to as many archival records as possible.

50 In the ePistolarium (see fn. 1), many instances of fever can be found using search queries like *koorts/coorts/kors/korts* (in Dutch), *fièvre/fièbvre* (French), and *febris/febres* (Latin). Besides this corpus of scholarly correspondence, thousands of letters written by ordinary Dutch people can be found in the archives of the High Court of Admiralty in Kew. A small portion of these letters has been digitized and can be found on either http://brievenalsbuit.inl.nl/ or http://www.gekaaptebrieven.nl/.

51 Even the basic facts about Bergerotti's life are largely unknown, but most can be derived from letters in the correspondence of Constantijn Huygens sr. In Jean Loret's poetic, epistolary journal about French court life, she appears several times, for the first time in May 1655. See Jean Loret, *La Muze Historique ou Recueil des Lettres en Vers*, ed. C.-L. Livet, 4 vols. (Paris: P. Daffis, 1857–78), plus the *Index Alphabétique des Noms* (Paris: Honoré Champion, 1891).

52 University Library, Leiden, Codices Hugeniani 34, letter 41: Sebastien Chièze to Lodewijk Huygens (November 30 [1663]): "[el Quinchina, qui fit hyer des merveilles à la Sig.^{ra} anna que je trouvay] à neuf heures du soir mangeant et beuvant lors que je la croyois voir tremblant sa fievre quartaine."

may have been the "aftershock" of a fever epidemic that swept the French court between March and August 1663. Christiaan Huygens had been in Paris at that time as well, and must have seen the many diseased courtiers and staff members. The most notable victim had been the queen-mother, Anne of Austria, who only recovered with great difficulty.[53] Although we cannot be sure that Anna Bergerotti fell victim to the epidemic in 1663, her illness of 1664 makes this likely, especially because she started drinking tea (another exotic drug that was gaining prominence) as a general health preservative at some point in between, a habit later adopted by Christiaan Huygens.[54] Nevertheless, the difference between the cases of Lodewijk Huygens and Anna Bergerotti, which would be very important from a medical point-of-view, went unnoticed by the two letter writers. What is evident from this case study, then, is that the shades of meaning of a multifaceted concept like fever were of less importance to the average observer. When it came to the personal experience of disease, even an educated mind like Christiaan Huygens did not bother to reflect upon the particularities of different types of fever treatment: he wrote about Peruvian bark simply because he wanted his brother to get better. In other words, the ambiguous nature of fever theory enabled a new, contested remedy to "work its way up" on the medical market and acquire recognition as a useful drug, even without the help of medical practitioners.

A drawback to this interpretation is that we do not know who prescribed or administered the bark to Bergerotti. It is hard to imagine her using the bark without first consulting a medical professional. Her social status would make this unthinkable. Thankfully, we know more about medical personnel in court circles than for any other social environment. The Parisian medical scene has often been portrayed as an environment characterized by enmities: between adherents of traditional medicine and innovative empiricists;[55] between Parisian followers of Galen's teachings and Hippocratic practitioners from Montpellier; by extension, between Catholics from the capital and Protestants for the province (a significant observation in the preamble to the revocation of the Edict of Nantes in 1685[56]); and between the Jesuits and everyone else.[57] The diversity of medical views is reflected in the variety of medical practices found in court circles, but at the same medical practitioners partook in courtly culture, and were concerned about their social standing. Therefore, in the turmoil of medical activity at court there was hope for new remedies and their stakeholders to gain prominence.

53 Loret's account of the epidemic is scattered throughout his *Muze Historique*, IV (33, 41, 45, 48–49, 50, 52, 54–55, 55–56, 60, 61, 69, 72, 88). Stanis Perez, *La Santé de Louis XIV: Une Biohistoire du Roi-Soleil* ([Paris]: Perrin, 2010), 50, identifies the epidemic as measles.

54 Christiaan Huygens to Constantijn Huygens Jr. (November 16, 1663), in the ePistolarium; Christiaan Huygens to Lodewijk Huygens (February 1, 1664), in the ePistolarium.

55 T. W. Keeble, "A Cure for the Ague: The Contribution of Robert Talbor (1642–81)," *J. R. Soc. Med.*, 1997, *90(5)*, 285–90, 285; Jarcho, *Quinine's Predecessor*, 59–60.

56 Laurence Brockliss and Colin Jones, *The Medical World of Early Modern France* (Oxford: Clarendon Press, 1997), 92 and 330–33.

57 For example, Jonathan Wright, *The Jesuits: Missions, Myths and Histories* (London: Harper Perennial, 2005), 134–35 and 147, repeats the familiar theme of general resistance against Jesuit pharmaceutical practices.

Some fifteen years after the Huygens episode, this is precisely what happened to Peruvian bark. The importance of medical practice at court was of course indissolubly connected with care for the King and his relatives. The royal family had a large number of medical staff members who were principally selected for their medical competence, a career path that distinguished them from other courtiers.[58] However, there was ample opportunity for irregular practitioners to gain the King's attention. In the case of Peruvian bark, it was Robert Talbor's (1642–81) secret remedy that caused a break in public awareness around 1680. While it was still unknown that the central ingredient of his remedy was Peruvian bark, Talbor successfully cured Charles II of England in 1679.[59] As a consequence, the King sent him to the court of Louis XIV, where his *remède anglois* caused a significant hype.[60] The successful application of his remedy to the French Dauphin, Dauphine, and several French noblemen meant Talbor's definitive breakthrough as a successful practitioner on both sides of the Channel. Louis XIV's personal physician, Antoine D'Aquin (1629–96, in office from 1672 to 1693), could no longer do without the *remède anglois* after two kings had given their blessing to it. D'Aquin was soon in touch with Talbor about disclosing the secret remedy, so he was probably aware of the inclusion of Peruvian bark as early as 1679.[61] When Louis XIV ordered that the contents of the remedy be published in 1681, the praise was transferred to the central ingredient. However, several prominent physicians had mixed feelings about the bark's sudden popularity. At the instigation of D'Aquin, for instance, the disclosing book deliberately presented the bark as an ordinary herb, not a specific remedy.[62] Likewise, Richard Morton disliked the fact that the bark had now come to be associated with empiricism, at the time still a sobriquet for unsubstantiated medical practices that applied panaceas.[63] Still, high society in Paris soon followed the example of the royal family in its praise of the bark, as it often did with regard to medical novelties.[64]

Yet back in 1663, Peruvian bark was not yet the remedy of choice for malignant fevers that it would become in later decades. Treating a public figure like Anna Bergerotti with the bark would surely have been a precarious undertaking for a practitioner lacking experience with the remedy, and/or lacking the confidence of his patient and the public. Therefore, the person responsible for Bergerotti's treatment must have been a reliable medical practitioner in Paris, who was operating in the same royal and scholarly circles. This is where the Jesuits come into focus again. Their presence in French

58 Leon Bernard, "Medicine at the Court of Louis XIV," *Med. Hist.*, 1962, *6(3)*, 201–13, 202.

59 For Talbor, see Jarcho, *Quinine's Predecessor*, 49 and 64; Keeble, "A Cure for the Ague"; and Rudolph E. Siegel and F. N. L. Poynter, "Robert Talbor, Charles II, and Cinchona: A Contemporary Document," *Med. Hist.*, 1962, *6(1)*, 82–85.

60 Cook, "Markets and Cultures," 134. Based on the fact that Charles II sent Talbor to Paris, Cook seems to assign greater value to London than Paris as a focal point in the bark's acculturation process.

61 S. Perez, "Louis XIV et le Quinquina," *Vesalius*, 2003, *9(2)*, 25–30.

62 The book was written by Nicolas de Blégny, *Remede anglois pour la Guerison des Fievres; publié par Ordre du Roy. Avec les Observations de Monsieur le Premier Medecin de sa la Majesté, sur composition, les vertus, & l'usage de ce Remede* (A Paris: Chez l'Autheur. Et La Veusve d'Antoine Padeloup, 1682).

63 Maehle, *Drugs on Trial*, 237.

64 Brockliss and Jones, *Medical World*, 288–89.

society was much more prominent than it was in the Netherlands or England. Although there may have existed general suspicion of Jesuit activities in French society, Louis XIV publicly supported them. He needed the Jesuits to provide education as a civilizing mechanism for the great number of noblemen attending the court. The king's confessors were Jesuits, as they had been since the days of Henry IV.[65] The students of the most prominent Jesuit school in Paris performed plays and ballets on a regular basis, which were attended by many courtiers and the aristocracy, and the King was often present as well.[66] Still, although they were accepted in court circles, it is unclear to what extent the Jesuits participated in medical and scientific activities. It is generally believed that they were excluded from the Académie Royale des Sciences (founded in 1666) and were personally disliked by its founder Colbert, but the evidence for that is thin.[67] We do not know about any official Jesuit medical practitioners at the court itself.

It would be strange to argue that the acculturation of "Jesuit's bark" took shape in Paris if there were no Jesuits involved. Already in 1653, Guy Patin (1601–72), the influential Parisian gadfly on the medical scene in France (and a vehement opponent of Peruvian bark), maintained that the bark arrived in Paris from Lyon and Italy by way of the Jesuits.[68] Thus, the Jesuits were essential for introducing the remedy into the tense medical environment of Paris, but not at the top level of courtly medical practice. Their apothecary shop in the Rue Saint-Antoine was the center of their distribution activities. The shop was also a cause of concern for local apothecaries, because the Jesuits sold a whole range of medicines, instead of just their own secret remedies, as they did in other places.[69] Apparently, however, this competition did not stop other practitioners from visiting the Jesuits in the Rue Saint-Antoine, and probably with good reason. Proof of their attraction is provided by the manuscript collection (*Portefeuille*) of the court physician Noël Vallant (1632–85), whom we will encounter again later. At one point, we find an account of someone marveling at a batch of newly arrived Peruvian bark in the Jesuits' apothecary shop. The anonymous author was amazed to find that the entire batch was of high quality. Even more stunning was the fact that when the Jesuit apothecary let him chew on a sample, he found that its taste was only slightly bitter, which caused the visitor to doubt the adequacy of his senses, because the bark was known for its bitterness. Others present in the shop shared the experience, however. After happily leaving the shop with half an ounce of

65 Marc Fumaroli, "Between the Rigorist Hammer and the Deist Anvil: The Fate of the Jesuits in Eighteenth-Century France," in *The Jesuits II: Cultures, Sciences, and the Arts, 1540–1775*, ed. John W. O'Malley e.a. (Toronto, Buffalo, and London: University of Toronto Press, 2006), 682–90, 682–84.

66 Robert M. Isherwood, *Music in the Service of the King: France in the Seventeenth Century* (Ithaca and London: Cornell University Press, 1973), 320–24.

67 Florence Hsia, "Jesuits, Jupiter's Satellites, and the Académie Royale des Sciences," in *The Jesuits: Cultures, Sciences, and the Arts, 1540–1775*, ed. John W. O'Malley e.a. (Toronto, Buffalo, and London: University of Toronto Press, 1999), 241–57.

68 Guy Patin to Charles Spon (April 8, 1653), which can be found with the search query "quinquina" on http://www.biusante.parisdescartes.fr/patin/.

69 P.-E. le Maguet, *Le Monde Médical Parisien sous le Grand Roi, Suivi du Portefeuille de Vallant, Conseiller du Roi, Médecin de Son A. R. Mme de Guise et de Mme la Marquise de Sablé* (Paris: A. Maloine, 1899), 532–33n2.

bark, the author urged his readers to drop their reservations against the remedy: "I tell this to show that one should not make a big thing out of what the majority of people says."[70] The event happened on March 20, 1681. Talbor's *arcanum* was not yet generally known to contain Peruvian bark, and apparently, there was still significant prejudice and suspicion about the bark. The incident should, of course, be understood as an isolated experience: the *Cinchona* tree was yet unknown, so the type and quality of bark must have varied over time. Nevertheless, the story is significant from a commercial viewpoint: apparently, Peruvian bark could be purchased in substantial quantities from the Jesuits in Paris.

Another contextualization of the Jesuits' apothecary shop in Paris also points to its strong impact on medical practice in courtly and academic circles. In 1658, a thesis was published at the University of Paris, entitled *An febri quartanae Peruvianus cortex*: whether Peruvian bark is useful in quartan fever. The thesis by Louis Gallais was defended under supervision of Bertin Dieuxivoye, a town physician connected to the university.[71] The thesis was written in favor of the bark, and may have been intended as a reply to another thesis from 1656, defended by François Boujonier, which was firmly opposed to the bark.[72] If so, it is no surprise that Dieuxivoye's opinions met with a negative response from the medical community in Paris.[73] He managed to continue as a successful physician, however, and even became dean of the Faculty of Medicine in 1682. Whether he lived on the same street during all these years is unknown, but in a list of municipal physicians, we find him living in the Rue Saint-Antoine in 1684. In this list of one hundred physicians, five lived on the Rue Saint-Antoine, more than in any other street. This hardly seems a coincidence in light of the Jesuits' presence in the same street. The residential proximity of physicians and Jesuits is of course no guarantee that one made extensive use of the other's services. The list from 1684 describes the physician Michel de la Vigne as living right across the street (*vis-à-vis les Jésuites*).[74] De la Vigne had been part of the evaluating committee of Boujonier's disapproving thesis from 1656. However, the fact that some of the central figures in the earliest debates on Peruvian bark in Paris were still living at walking distance of the Jesuit's apothecary shop almost thirty years later, at least suggests that many more physicians must have known about Peruvian bark at the time.

Could there be reasons why we cannot retrace many more encounters with Peruvian bark? To acquire a higher level of understanding from the same type of sources,

70 Ibid., 532–33: "Je remarque cecy pour monstrer qu'il ne faut pas dire un grand fondement sur ce que la plus part des gens disent."

71 Louis Gallais, *An febri Quartanae Peruvianus cortex?* (Lutetiae: s.n., 1658).

72 François Boujonier, *An febribus intermittentibus inutilis Chinchinae pulvis* (Lutetiae: s.n., 1656), written under supervision of Daniel Arbinet. The importance of the thesis was downplayed by Joseph Rompel SJ, "Der Arzt Baldo und die Chinarinde," *Pharm. Weekbl.*, 1932, *69(16)*, 382–98, 395, but see the article by Delaunay in the footnote below. The relationship between the theses of Boujonier and Gallais remains somewhat of a mystery, because even though both were written around the same time at the Medical Faculty in Paris, their supervising committees included different Faculty members.

73 Jarcho, *Quinine's Predecessor*, 63; Paul Delaunay, "La Fontaine et les Médecins: La Querelle du Quinquina. De Dieuxivoye à Blégny," *Bulletin de la Société Française d'Histoire de la Médecine*, 1904, *3*, 129–52.

74 Le Maguet, *Monde Médical*, 203–7. For no apparent reason, Dieuxivoye appears twice in this list.

the correspondence of Constantijn Huygens Sr. is of great value. As one of the most important political representatives of the Dutch Republic, he corresponded with many high-ranking officials at the French court, including the medical staff. Within this "medical network" (which was largely conveyed from Constantijn to his son Christiaan[75]), we encounter several practitioners that provide a unique insight in the circulation of medical knowledge in the French capital: Antoine Vallot (1594–1671), who preceded D'Aquin as the King's personal physician 1652 until his death, Moyse Charas (1618–98), court apothecary and chemist, and Antoine Menjot (c. 1615–96), another court physician from 1660 onwards.[76] In no way do their medical and sociocultural contexts provide an exhaustive analysis of possible occurrences of Peruvian bark. They do, however, shed a new light on the dynamics of the medical scene in Paris, and how the drug's medical and social trajectories experienced a conversion from resistance to appreciation.

THREE PRACTITIONERS, THREE CONTEXTS: THE DIVERSITY OF DISCOURSE ON PERUVIAN BARK

Given the importance of the court as the driving force for the acceptance of medical novelties, the use of Peruvian bark by the King's personal physician would be the clearest indicator of the drug's appreciation in its medical trajectory. However, before Robert Talbor's ascent on the medical scene, the evidence is circumstantial at best, so Antoine Vallot is a difficult candidate to evaluate. Considering that Peruvian bark was not a well-known remedy during Vallot's term of office, it would be striking to discover that the royal physician used the bark himself. Between the 1650s and 1670s, there were few physicians or illustrious patients who would lend testimony to the bark's efficacy. The failed treatment of Archduke Leopold Wilhelm in 1652 must still have been on many physicians' mind, and the successful treatment of prominent patients in London and Paris only occurred after Vallot had died. In the official account of the King's health issues, the bark is not mentioned before Louis XIV was successfully treated with it in 1686. However, some censorship may be involved here, because the King occasionally read the report himself.[77] In the eighteenth century however, Vallot was thought to have used controversial remedies like Peruvian bark, as well as tartar emetic (*l'émétique*) and laudanum, both of them chemical compounds inherited from Paracelsus' *materia medica*.[78] Vallot's use of these remedies is dubious,

75 E. van Meerkerk, "The Correspondence Network of Christiaan Huygens (1629–1695)," in *Les Grands Intermédiaires Culturels de la République des Lettres: Études de Réseaux de Correspondance du XVIe au XVIIIe Siècles*, ed. Christiane Berkvens-Stevelinck, Hans Bots, and Jens Häseler (Paris: Honoré Champion Éditeur, 2005), 211–28, esp. 222–23.

76 Barend Haeseker, *"Vileine Hippocraten": Geneeskunde in Dichtvorm door Constantijn Huygens (1596–1687)* (Rotterdam: Erasmus Publishing, 2010), 188–90.

77 *Journal de la Santé du Roi Louis XIV de l'Année 1647 à l'Année 1711 Écrit par Vallot, D'Aquin et Fagon, Tous Trois ses Premiers-Médecins, avec Introduction, Notes, Réflexions Critiques et Pièces Justificatives*, ed. and ann. J.-A. le Roi (Paris: Auguste Durand, 1862), 172–73.

78 Jean Astruc, *Mémoires pour Servir a l'Histoire de la Faculté de Medecine de Montpellier* (A Paris: Chez P. G. Cavelier, 1767), 381–82.

however, because the same story circulated about his predecessor, François Vautier, who had already died in 1652, even before the first quarrel about the bark broke out after the unsuccessful treatment of Archduke Leopold Wilhelm.[79] In short, no conclusive evidence exists that ties Vallot to the use of Peruvian bark in court circles.

The same conclusion presents itself for Vallot's successors, due to the fact that their actions were not only scrutinized by the medical community in Paris, but by all of court society. The King's personal physicians were also involved in factional struggles at court, and they were generally criticized and ridiculed for their behavior and methods of treatment.[80] Even after Louis XIV gave his approval to Peruvian bark, none of them dared to publish their views on the bark under their own name. The book that disclosed Talbor's remedy was written by Nicolas de Blégny (1652–1722), who was a medical fortune seeker like Talbor. It was De Blégny who included D'Aquin's experiences with the bark.[81] D'Aquin's successor, Guy-Crescent Fagon (1638–1718, in office between 1693 and 1715), did not have his name printed in his book about the bark, which claimed that the remedy was no longer as popular as it had been in Talbor's days.[82]

The court apothecary Moyse Charas operated in a different context. Having studied in Orange, he was a friend of the Huygens family, and he was certainly involved in treating a tertian fever of Lodewijk Huygens, with Peruvian bark, in 1684.[83] Whether Charas was already as receptive to the new remedy two decades earlier is hard to tell, but he was probably not subject to the same sense of suspicion common to many of his fellow apothecaries in Paris. His scientific interest in new methods of treatment seems to have prevailed over his commercial distrust of Jesuit remedies, and his therapeutic outlook had a significant international orientation. The celebrated royal apothecary was ousted from the French court in 1679 because of his Protestantism and his suspicious experiments on the medicinal properties of viper

79 Louis-Mayeul Chaudon and Antoine-François Delandine, *Dictionnaire Universel Historique, Critique et Bibliographique. Neuvième Édition*, 18 vols. (Paris: De l'Imprimerie de Mame Frères, 1810–12), XVII, 450–51 (Vallot) and 513 (Vautier).

80 Laurence Brockliss, "The Literary Image of the *Médecins du Roi* in the Literature of the Grand Siècle," in *Medicine and the Courts of Europe, 1500–1837*, ed. Vivian Nutton (London and New York: Routledge, 1990), 117–54.

81 See fn. 62.

82 [Guy-Crescent Fagon], *Les admirables Qualitez du Kinkina, confirmées par plusieurs Experiences, et la Maniere de s'en servir dans toutes les fiévres pour toute sorte d'âge, de sexe, & de complexions* (A Paris: Chez Martin Jouvenel, 1689); the book and its subsequent editions are anonymous, but often attributed to Fagon, e.g., by Jarcho, *Quinine's Predecessor*, 71.

83 Christiaan Huygens to Constantijn Huygens Jr. (September 22, 1684), in the ePistolarium. The bark may not have cured Lodewijk indefinitely this time, because he contracted tertian fever several times in the ensuing months. See Christiaan Huygens to Constantijn Huygens Jr. (April 23, 1685), in the ePistolarium. The friendly relationship between Huygens and Charas dated back to the quarrel over the county of Orange, which was occupied by Louis XIV after the death of stadtholder William II in 1650. The Charas family came from Orange, and Constantijn Huygens Sr. was the ambassador of the prince's interests, charged with the negotiations for retaining the county for the Dutch Republic. See Fred W. Felix, "Moyse Charas, Maître Apothicaire et Docteur en Médecine," *Rev. Hist. Pharm.*, 2002, *90(333)*, 63–80, 66–67.

flesh. Charas's expatriation coincided with an invitation from England to treat "a person of quality" in London, which brought him into English court circles.[84]

Charas moved to London around the same time as Talbor moved to Paris, but Charas had already been using his own formula with the bark against quartan fevers since 1677 at the latest.[85] Still, the bark does not appear in his pharmacological masterpiece, *Pharmacopée royale galenique et chymique*, first published in 1676.[86] Only the final edition from 1753 has three recipes that contain the bark.[87] Peruvian bark had evidently not yet found its way to the pharmaceutical literature of the 1670s, except for some pharmacopoeias, but clearly the bark was already in use in court circles.[88] Although Charas was somewhat atypical for a metropolitan apothecary, his example shows that Peruvian bark was also used by apothecaries, despite the sense of hostility toward the Jesuit suppliers. However, whether apothecaries like Charas had any involvement in the actual administration of the bark to court attendants remains inconclusive.

A third context further develops our understanding of the ways in which Peruvian bark became known in the French capital. Antoine Menjot, another court physician, had a particular interest in fevers: he even published a book on malignant fevers that appeared in numerous editions throughout the 1660s. As in the case of Charas's books, however, Menjot's work contained solidified knowledge common to handbooks—not contested medical territory like Peruvian bark.[89] So how can we know if Menjot was involved with the bark at all? The evidence here is indirect. Menjot was a visitor of the *salon* of his niece, Madeleine de Souvré, Marquise de Sablé (1599–1678). The *salon* was mainly known for its debates on moral issues, but the Marquise had a keen interest in medical affairs as well. Menjot was not the only physician in the Marquise's entourage, which included her secretary and personal physician, Noël Vallant, whom we encountered earlier. Vallant and Menjot were probably on good terms, but Vallant was more inclined to favor remedies derived from nonprofessional practitioners than the traditionally minded Menjot.[90] The Marquise herself shared Vallant's

84 Felix, "Moyse Charas," 68, mentions the invitation; Kenneth Dewhurst, *John Locke (1632–1704): Physician and Philosopher: A Medical Biography: With an Edition of the Medical Notes in His Journals* (London: Wellcome Historical Medical Library, 1963), 55, mentions the expulsion. Cf. Elizabeth Lane Furdell, *The Royal Doctors 1485–1714: Medical Personnel at the Tudor and Stuart Courts* (Rochester: University of Rochester Press, 2001), 184.

85 M. Charas, "Nouvelle Preparation de Quinquina & la maniere de s'en servir pour la guérison des fièvres," *Mémoires de l'Académie Royale des Sciences*, 1730, *10*, 92–98. On p. 93, Charas says that he had been using Peruvian bark "depuis plus de quinze ans."

86 Moyse Charas, *Pharmacopée royale galenique et chymique* (A Paris: Chez l'Auteur, 1676).

87 Moyse Charas, *Pharmacopée royale galenique et chymique. Nouvelle Edition* (A Lyon: Chez les Freres Bruyset, 1753), 83 and 142.

88 The London pharmacopoeia, which included Peruvian bark in the 1677 edition, has often been regarded as a crucial step toward acceptance of the remedy. However, the pharmacopoeias of Utrecht (1664) and Brussels (1671) already mentioned the bark.

89 Antoine Menjot, *Febrium malignarum Historia et Curatio* (Parisiis: Apud Gasparum Meturas, 1660). Other editions were published in 1662 and 1665.

90 M. Scholtens, *Antoine Menjot: Docteur en Médecine, Ami de Pascal, Réformé au Temps des Persécutions: Études Historiques et Psychologiques* (Assen: Van Gorcum & Comp./Dr. H.J. Prakke & H.M.G. Prakke, 1968), 39.

curiosity: she was, for instance, very optimistic about a cordial water that she had experienced as an excellent cure for all sorts of fevers.[91]

The importance of *salons* like this for exchanging knowledge in the Republic of Letters can hardly be overestimated. Christiaan Huygens, for instance, was a frequent participant in various *salons* when he was residing in Paris, and he certainly discussed fevers and Peruvian bark on several occasions.[92] In early 1664, for example, we find him partaking in discussions on Willis's views on fermentation of the blood as a cause of fever, in the private academy hosted at the home of Pierre Bourdelot.[93] Sometime afterwards, he was present at Melchisédec Thévenot's *salon*, a direct predecessor of the Académie Royale des Sciences, which would be created in 1666. During the meeting, the astronomer Adrien Auzout (1622–91) discussed possible remedies for quartan fever, without mentioning Peruvian bark as a candidate.[94] When Auzout later visited Ole Borch, a traveling Danish scholar who was also present at the *salon*'s meeting, the astronomer's reasons for his interest in fever treatment became apparent: Auzout had just recovered from a quartan fever, not by way of any remedy he had proposed at the *salon*, but by using Peruvian bark.[95] It is not unthinkable that Huygens himself had suggested the remedy to Auzout, based on his experience with Anna Bergerotti. More important, however, is the observation of two astronomers discussing medical issues, in the *salon*'s open environment of knowledge exchange. The relation between scholarly discussions on fevers and remedies on the one hand, and the personal experience of disease and treatment on the other, points to the fluid transition in these *salons* of medical issues into social ones, and vice versa.

The *salon* of which Menjot was a member also draws our attention to some significant personal relationships. The most frequent visitors came from various backgrounds: university-trained scholars, aristocrats, Protestants (like Menjot and Vallant), Jesuits, Jansenists, even atheists.[96] Their mutual differences did not stop them from participating in the *salon*'s meetings. This shatters the image of Paris as the conservative stronghold of Galenic medicine. The Marquise facilitated a free exchange of ideas and Peruvian bark may have benefited from this. Even though the *salon* was not exclusively devoted to scientific or medical issues, it provided a platform for practitioners like Vallant and Menjot to acquaint themselves with new knowledge of remedies like Peruvian bark. And indeed we find some noteworthy occurrences of the remedy in Vallant's *Portefeuille*. In two places, there are elaborate discussions about the treatment of quartan fever, and Peruvian bark features prominently in them. The sections are dated January 14 and September 26,

91 Ibid., 37. This remark is derived from a *Discours* by the Marquise, written in Vallant's hand with corrections by the Marquise, the full text of which can be found in N. Ivanoff, *La Marquise de Sablé et Son Salon* (diss., Paris: Les Presses Modernes, 1927), 109–20.

92 Harcourt Brown, *Scientific Organizations in Seventeenth Century France, 1620–1680* (Baltimore: Williams & Wilkins Company, 1934).

93 Ole Borch, *Olai Borrichii Itinerarium 1660–1665: The Journal of the Danish Polyhistor Ole Borch*, ed., introd., and index H. D. Schepelern, 4 vols. (Copenhagen: C.A. Reitzels Forlag, and London: E.J. Brill, 1983), III, 223–24.

94 Borch, *Itinerarium*, III, 383.

95 Ibid., III, 404: "Visitavit me Dn. Ausou sanatus à 4tanâ per gannanaperidem seu chinchinam."

96 Scholtens, *Antoine Menjot*, 40–46.

1676, predating Talbor's arrival in Paris and the ensuing hype about the *remède anglois*. They describe in some detail when to use the bark, in what quantity, and with what additional ingredients.[97] What the examples of Huygens and Vallant indicate is that, again, Peruvian bark was already in vogue in Paris well before Talbor's arrival in Paris in 1679. Apparently, new remedies were as much a part of *salon* discussions as anything else.

CONCLUSION: ACCULTURATION PRECEDES CODIFICATION AND UNDERSTANDING

The analysis of various contexts demonstrates the constant interaction of the medical, commercial, and social trajectories of Peruvian bark. For the three individuals discussed above, the interaction with Peruvian bark was wrapped up in the dynamics of court life and scholarly culture in Paris. The circumstances of these practitioners could stimulate or discourage the use of the bark. Vallot would have had to be reticent about his opinions on Peruvian bark, not just because of a possible loss of face in the medical community as a result of his association with a controversial remedy; but moreover to uphold his personal position in the highly competitive setting of French court culture. His successors had to deal with the opposite situation, when the bark enjoyed significant popularity, despite the fact that its properties were still largely shrouded in mystery. Meanwhile, an experimental practitioner like Charas did not wait for anyone's approval of the remedy. He produced his own formula, thereby familiarizing himself with the bark at a stage when public adherence to it could still induce expulsion from the medical community, as Charas himself experienced. Those who were less inclined to favor new remedies, like Menjot, were still likely to encounter Peruvian bark at some point. *Salon* gatherings could be breeding grounds for new knowledge to trickle into the minds of a substantial portion of courtly and scholarly society in Paris, people who came from very different backgrounds. The proximity of these, and many other contexts in the French capital, created an environment where many different people could easily encounter many different novelties, as exemplified by the interaction of physicians and Jesuit apothecaries in a single street. Paradoxically, however, these interactions have not left many traces for the historian. At first sight, a journey along many unsubstantiated interactions of people with Peruvian bark appears like a historical hodgepodge, but at the same time, it is highly plausible that enigmatic encounters like these have made historical personae aware of the growing significance of new medical knowledge.

What is evident is that fever theory was stable by appearance, but dynamic enough to allow new remedies to discover the loopholes in the framework and establish their own unique position. This is what happened to Peruvian bark, which did not fit into a purely Galenic system, but could appeal to those who adhered more to a blend of Galenic and mechanistic medicine. New remedies adapted to a framework that was reinventing itself without doing away with traditional notions altogether.[98] At the

97 Le Maguet, *Monde Médical*, 463–65.

98 As argued by Cook, "Markets and Cultures," for Peruvian bark and other exotic substances. The relation between remedies and changing medical theory has been explored in detail by Saskia Klerk, *Galen*

same time, practical considerations for using Peruvian bark often prevailed over theoretical ones. The personal experience of disease, and hope for a practical applicability of new remedies were common characteristics of medical professionals and their patients alike. Without understanding the therapeutic details of the remedy, and without widely accepted written testimonies of its usefulness, adherents and opponents alike accommodated to a new situation in which the bark could no longer be ignored. Accumulated knowledge and experience alone provided a sense of credibility. It had become unimaginable that the bark would disappear again from the medical market.

What still strikes the modern observer is that the fragmented evidence for the exchange of knowledge and experience about the bark rarely related to two, seemingly obvious, yardsticks for defining "understanding"—the inherent properties of the remedy, and the nature of the disease for which it is prescribed. By means of experiments, medical practitioners tried to define the borders of therapeutic applicability more clearly, but the method of trial and error delayed rather than accelerated the adoption of generally recognized practices in medical and pharmaceutical handbooks. Thus, the codification of knowledge was lagging behind the bark's acculturation. The ground-breaking importance of the real, quinine-containing Peruvian bark on actual malarial fevers could not possibly have been on the early modern mind yet, so we are obliged to satisfy ourselves with the historical traces in a rather diverse collection of sources handed down to us. A major part of the data used for this article is already available on digital platforms, and a domain-specific tool for analyzing associated data on the history of *materia medica* is currently being built (aptly titled Time Capsule).[99] The letter which started this article already contained snippets of the medical, commercial, and social trajectories of Peruvian bark. There is a steadily growing digital corpus of source materials like this awaiting (re-)interpretation. They can provide a new window on the acculturation of many medical novelties in the premodern period, Peruvian bark being one of them.

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Reconsidered: Studying Drug Properties and the Foundations of Medicine in the Dutch Republic ca. 1550–1700 (diss., Utrecht: Faculteit Bètawetenschappen Fisme, 2015).

99 The project's web site is www.timecapsule.nu.