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Tracing tradition. The idea of cancerous contagiousness from Renaissance to Enlightenment

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ABSTRACT

This paper is concerned with landmarks in the history of the idea of cancerous contagiousness from the Renaissance to the Enlightenment. The origins of the idea of cancerous contagiousness is considered on the basis of Galen's distinction between scabies/leprosy, cancer and elephantiasis. Paul of Aegina (seventh century) established the association between these latter diseases. In the fourteenth century, a 'new line of inquiry' developed concerning the transmission of diseases like plague, and G. Fracastoro (1546) applied this approach by stating that putrefaction and inflammation notably produce elephantiasis, which is obviously contagious, as inflammation and heat, without putrefaction, produce cancer. J. Fernel (1548) applied the process of syphilitic contamination to ulcerated cancer, whose vapour 'is widely dispersed' and which 'quickly kills by its malignancy'. G. Cardano (1564) reacted against these views, and declared that cancer was could not be transmitted by contact. But A. Zacuth (1629–1634) and N. Tulp (1652) provided instances of such transmission. D. Sennert, who is often said to have accepted Zacuth's testimony, was doubtful and suggested, rather than contagion, transmission by heredity. This type of explanation was privileged during Classical Age, until experiments on animals or human beings infected by cancerous liquid took place during the Enlightenment in France and England. Pichler (1786) finally recommended forbidding marriage between people suffering from cancer.

KEYWORDS

Cancer; contagion; heredity; early modern times; Antiquity; Enlightenment

In his *History of Oncology*, Prof. D.J.Th. Wagener has written: 'Various theories naming infection as the cause of cancer have appeared in the literature. Amatus Lusitanus (1511–1568) in Lisbon and Daniel Sennert (1572–1637), professor of Medicine at the University of Wittenberg, were the first to claim that cancer was infectious (Ewing, 1919)'.¹ Wagener is here referring to a famous American oncologist, James Stephen Ewing (Pittsburgh, 1866–New York 1943), who has given his name to one of the main types of sarcomas of the bones.²

Amatus Lusitanus (1511–1568), also called Amato Lusitano, in Hebrew Ḥaviv ha-Sephardi, was born in Portugal, graduated at Salamanca, 'acquired the reputation of one of the most skilful physicians of his time' and taught at Ferrara university.³ In 1551, he started publishing his *Curatiumum*

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¹D.J.Th. Wagener, *History of Oncology* (Houten: Springer, 2009), 28. I am deeply grateful to Adams, Emeritus Professor of French Enlightenment Studies, University of Manchester, School of Arts, Languages and Cultures, for having corrected the English version of this article.

²Norman Jaffe, 'Cancer of the Bone and Connective Tissue', in *The American Cancer Society. Cancer Book. Prevention, Detection, Diagnosis, Treatment, Rehabilitation, Cure*, ed. Arthur I. Holleb (New York: Doubleday & Company, 1986), 265–74.

³Eliakim Carmoly, *Histoire des médecins juifs anciens et modernes* (Bruxelles: Société Encyclographique des Sciences Médicales, 1844), I, 163–4.

medicinalium centuria, where he devoted many observations to cancer of the breast – but without any mention of a transmission of the disease.⁴ Amatus has been, with Zacuth Lusitanus, ‘one of the most famous members of the community of converted persons among the Jewish physicians of the sixteenth and seventeenth centuries’.⁵ Abraham Zacuth or Zacuto, born in Lisbon in 1575, is the ‘Lusitanus’ who was ‘the first to claim that cancer was infectious’. After having studied in Salamanca and Coimbra, he was received as doctor in Sigüenza and exercised in Lisbon, before he was obliged to leave his country for Amsterdam, where he died in 1642.⁶ The confusion between the two Portuguese is typical of the twilight that still surrounds paleo-oncology.⁷ The scope of this article is just to indicate major steps and perspectives in the field from the ‘Lusitanus story’.

1. Obscure origins: cancer and elephantiasis

The first book of Zacuth’s *De medicorum principum historia* has a chapter on scrofula where he enumerates various affections which are subject to contagion: ringworm, scabies, elephantiasis, syphilis, impetigo, ‘and many other skin diseases’.⁸ They have in common the exhalation of a ‘slow and perverse vapour’. Yet ‘ulcerated cancer is a disease similar to elephantiasis’. Zacuth relies here upon Paul of Aegina, who, in the seventh century, deals with cancer in two chapters of his *Totius rei medicae libri VII*. Discussing the fatal nature of elephantiasis, Paul starts by referring to Aretaeus of Cappadocia (I-II A.D., perhaps in the time of Nero) and writes in the margin: ‘Cancer is the elephantiasis of one part, elephantiasis is the cancer of the whole body’.⁹ He thus specifies: ‘If cancer, which is so to speak the elephantiasis of one part, is included by Hippocrates himself among the incurable diseases, how could elephantiasis, which is a sort of cancer of the whole body, not be even more incurable?’ In the same book, he adds that cancer ‘commonly appears in every part of the body’, for instance ‘in the eyes and in the uterus’, as well as ‘in many other parts’.¹⁰ But it ‘mostly abounds in the breasts of women because the latter are loose and can quickly become loaded with thicker matter’.

We have here examples of topics that are so common that their variations and transfers are very difficult to trace, from one author to another, and even to distinguish. The relationship between cancer and elephantiasis, especially, is some kind of ‘floating theme’ and writing its history requires us to go back to the most ancient roots of medicine.

M. D. Grmek has related the beginnings of the association between *lépra* and *éléphas* or *elephantiasis*.¹¹ If the words *lépra* and *éléphas* ‘do not occur in a nosological sense until the first century B.C.’,

⁴Amatus Lusitanus, ‘Curatio XXXI. De cancro quodam ulcere, maligno, et doloso, mamillam infestante’, in *Curationum medicinalium centuria prima* (Florence: Cudebat Laurentius Torrentinus, 1551), 189–99; ‘Curatio trigesimasecunda, in qua agitur, de cancro in mamilla’, in *Curationum medicinalium centuriae quatuor* (Venice: Apud Balthesarem Constantinum, 1557), 395–9, etc.

⁵David B. Ruderman, *Jewish Thought and Scientific Discovery in Early Modern Europe* (Detroit: Wayne State University Press, 2001), 307–9.

⁶Carmoly, *op. cit.*, 178–9.

⁷Let us except from this twilight the following authors, since 2000, concerning the paleo-oncology from Renaissance to Enlightenment: Leonard L. Weiss, ‘Metastasis of Cancer: A Conceptual History from Antiquity to the 1990s’, *Cancer and Metastasis Review* 19, no 34 (2000): 193–383; Steven I. Hajdu, ‘A Note from History. The First Printed Case Reports of Cancer’, *Cancer* 116 (March 2010): 2493–8; Steven I. Hajdu, ‘A Note from History. Landmarks in History of Cancer, Part 2’, *Cancer* 117 (June 2011): 2811–20; Jacques Rouëssé, *Une histoire du cancer en Occident. Enseignements et réflexions* (Paris: Springer, 2011); Robert Jütte, *Krankheit und Gesundheit in der Frühen Neuzeit* (Stuttgart: Kohlhammer, 2013), 96–103; Bernard Hoerni and Jacques Rouëssé, *Dictionnaire historique des cancers. D’Hippocrate à nos jours* (Paris: Éd. Frison-Roche, 2014); Guy Faguet, *The Conquest of Cancer. A Distant Goal* (Houten: Springer, 2015); Alanna Skuse, *Constructions of Cancer in Early Modern England. Ravenous Natures* (Houndmills: Palgrave Macmillan, 2015); Michael Stolberg, *A History of Palliative Care, 1500–1970. Concepts, Practices, and Ethical Challenges* (Cham: Springer, 2017). I have dealt with the ‘victus rationes’ in the early modern times literature about cancer: Daniel Droixhe, ‘Towards a History of Prophylaxis and Dietsetics Against Cancer. Some Examples from Renaissance to Enlightenment’, *Jacobs Journal of Food and Nutrition* 6, no 3 (07-05-2019), on line.

⁸Abraham Zacuth, *De medicorum principum historia. Libri sex* (Cologne: Ex officina Johannis Frederici Stam, 1629), 593.

⁹Paul of Aegina, *Totius rei medicae libri VII* (Basel: Per Ioannes Hervagios, 1556), 152–5; Aretaeus of Cappadocia, ‘De elephantiasi’, in *Artis medicae principes. Hippocrates, Aretaeus, Alexander, Aurelianus, Celsus, Rhazeus. Tomus quintus*, ed. Albrecht von Haller (Lausanne: Sumptibus Franc. Grasset et Socior., 1772), 130–7.

¹⁰Paul of Aegina, *Totius rei medicae*, 167–8.

¹¹Mirko D. Grmek, *Diseases in the Ancient Greek World*, trans. Mireille Muellner and Leonard Muellner (Baltimore: The Johns Hopkins University Press, 1989), 168–73. See also Erwin Heinz Ackerknecht, ‘The History of Cancer Therapy’, *Gesnerus* 37, no. 3–4 (1980):

‘they then become current in the first century’ when they started to be confused ‘with other disorders of lesser proportions’ such as eczema, psoriasis, vitiligo ... and cancer. In his *De tumoribus praeter naturam*, Galen (129–216) established the basis of a debate on cancer by means of the following distinction: leprosy and scabies are ‘diseases only of the skin’, while, if ‘they penetrate into the flesh and veins’, they ‘are called cancer and elephantiasis’. Thus, ‘elephantiasis and cancer must be treated the same way’ as they are ‘of the same matter’. In the third century, Alexander of Aphrodisias repeated the association between cancer and elephantiasis, ‘a painful disease and one of those which are almost incurable’, and so to speak contagious, due to the exhalation from the ulcer.¹²

The nosological terminology covered by *elephantiasis* ‘changed in the course of the Middle Ages’, Grmek noticed. ‘*Elephantiasis is what people call leprosy*, says a passage in the *Collectio Salernitana*. “The term *elephantiasis* was not abandoned, but instead, and still worse, it was reused to denote a totally different disease, namely a lymphatic ailment’.¹³

2. The hypothesis of contagiousness: Fracastoro and Fernel (1542–1548)

According to F. W. Giggs, a ‘new line of inquiry, that has no precedent in earlier toxicological work’, developed in the fourteenth century.¹⁴ Plague led to a ‘growing interest in the nature of poison and how it could move around the external environment – especially the transmission of poison from one person to another and from one place to another’. Then, ‘upon the broad conceptual and textual basis provided by their classical and medieval predecessors’, Renaissance medicine built an intense debate ‘to understand the complex relationships between poison, putrefaction, contagion, and disease’.¹⁵

Again, we have to identify who, in this ‘intense debate’, really marked a new step in the conception of cancer in those ‘complex relationships’. We must take into account three factors: the highly developed medical approach to the disease, the extent of its acceptance and the global academic reputation of the physicians involved. These factors lead us to designate two names: Girolamo Fracastoro (1483–1553) and Jean Fernel (1506–1558).

Fracastoro had studied mathematics, philosophy and medicine in Padua, which was ‘Europe’s leading medical faculty’, as V. Nutton has written.¹⁶ Having been a professor of philosophy in Padua, he then went back to his native town, Verona, to practice. The fame he acquired there led him to become the personal physician of pope Paul III and Charles V. Through a syllogistic articulation of the previous arguments about cancer and elephantiasis, he included both diseases in his *De contagionibus, et contagiosis morbis, et eorum curatione libri III* (1546). Chapter 13 first confutes those who ‘have written that elephantiasis and the French disease’ – syphilis, the main object of his work – ‘are the same’.¹⁷ Then, he recalls Galen’s distinction between ‘diseases of the skin’ –

189–97; Spyros Retsas, ‘On the Antiquity of Cancer; from Hippocrates to Galen’, in *Paleo-Oncology. The Antiquity of Cancer*, ed. Spyros Retsas (London: Farrand, 1986), 41–52; Vivian Nutton, *From Democedes to Harvey. Studies in the History of Medicine* (London: Variorum Reprints, 1988); Nutton, *Ancient Medicine*, 2nd ed. (London: Routledge, 2013).

¹²Alexander of Aphrodisias, *Physici et medici graeci minor. T. II*, ed. Julius Ludwig Ideler (Berlin, 1842), 454–5 and 460–1.

¹³On the confusion between cancer and various diseases in early modern times, see Ulrich Pinder, ‘De cancro’, in *Epiphania medicorum* (Nuremberg, 1506), 116v^o–117; Johannes Hornung, ‘Eidem D.D. Sig. Schnitzero, D. Andr. Libavius D.S.’, in *Cista medica* (Nuremberg: Sumpt. Simons Halbmauri, 1626), 115–34; Johannes Hartmann, ‘Cancer’, in *Praxis chymiatia* (Leipzig: Sumptibus Gotofredi Grossii, 1633), 94–8; Theodorus Corbeius, ‘De mammillarum inflammatione, pilari morbo, scirrho, strumis, ulceribus et cancro mammillarum’, in *Pathologia* (Nuremberg: Typis Wolfgangi Endteri, 1647), 313–15.

¹⁴Frederick W. Gibbs, *Poison, Medicine, and Disease in Late Medieval and Early Modern Europe* (Abingdon: Routledge, 2019), 188 sq.

¹⁵On ‘Renaissance medicine’, see Nancy G. Siraisi, *Medieval and Early Renaissance Medicine: An Introduction to Knowledge and Practice* (Chicago: The University of Chicago Press, 1990); Nancy G. Siraisi, *Medicine and the Italian Universities, 1250–1600* (Leiden-Boston-Cologne: Brill, 2001); Nancy G. Siraisi, ‘Medicine and the Renaissance World of Learning’, *Bulletin of the History of Medicine* 78, no. 1 (2004): 1–36; Nancy G. Siraisi, ‘Medicine, 1450–1620, and the History of Science’, *Isis* 103, no. 3 (2012): 491–514; Nancy G. Siraisi, *The Clock and the Mirror. Girolamo Cardano and Renaissance Medicine* (Princeton: Princeton University Press, 2016); Gianna Pomata, ‘Fällen mitteilen. Die *Observationes* in der Medizin der Frühen Neuzeit’, in *Krankheit schreiben. Aufzeichnungsverfahren in Medizin und Literatur*, ed. Yvonne Wübben and Carsten Zelle (Göttingen: Wallstein, 2013), 20–63.

¹⁶Vivian Nutton, *From Democedes to Harvey: Studies in the History of Medicine* (Aldershot: Variorum Reprints, 1988), XIII, 229.

¹⁷Jérôme Fracastor, *Les trois livres de Jérôme Fracastor sur la contagion, les maladies contagieuses et leur traitement*, trans. and ed. Léon Meunier (Paris, 1893), 183–98. See Nutton, *From Democedes to Harvey*, XI, 21–34; Dina Czeresnia, ‘Do contágio à transmissão: uma mudança na estrutura perceptiva de apreensão da epidemia’, *História, ciências, saúde-Manguinhos* 4, no. 1 (1997): 75–

‘psora [or scabies] and leprosy’ – and those ‘that penetrate into flesh and veins’ – ‘cancer and elephantiasis’. He adds another difference between the latter pair: ‘If there is inflammation and putrefaction, malignant elephantiasis occurs, which has a horrible appearance. If there is putrefaction without inflammation, we have psora, leprosy and benign elephantiasis. If there is inflammation and heat without putrefaction, we have what it is called cancer’.¹⁸ Be that as it may, as both are produced by an accumulation of ‘bilious blood’ and ‘black bile’, these diseases are ‘made of the same matter’, and, as elephantiasis is decidedly contagious, cancer is also supposed to ‘contain some contagious germs (*seminaria contagionis*). Gibbs writes that Fracastoro ‘is well known for his belief in the “seeds of disease” that were crucial for the process of contagion’. In the context of this alarming idea, who could doubt that cancer was transmissible?

Jean Fernel had also soon acquired great fame, as a mathematician and physician, so that he was called to the court of France where he treated Henri II, Diane of Poitiers and Catherine de’ Medici. When the latter did not succeed in getting pregnant, she consulted Fracastoro. According to Gibbs, Fracastoro and Fernel developed ‘fundamentally different views’ concerning the transmission of diseases. Fernel published in 1542 his *De naturali parte medicinae* and in 1548 *De abditis rerum causis*, some ‘of the most widely read general works on medicine until well into the seventeenth century’ (N. Siraisi).¹⁹ For him, ‘celestial *spiritus* of divine origin’ carried an ‘innate heat’ so that could occur a ‘disease of the total substance’, that is to say, Siraisi summarises, ‘a disease in which the entire substance and form was corrupted in a way that had nothing to do with temperamental imbalance’. This theory of ‘disease of the total substance’ was related to the fifteenth century epidemics ‘since it served to express the special and total character of ‘new’ diseases, notably the *morbus gallicus*’. The process was extended to the nature of cancer and its contagiousness: in his *Universa medicina*, posthumously published in 1567 and often reedited, Fernel assumed that the ulcerated cancer produces a vapour which ‘scatters far away and on a large space’ so that it ‘quickly kills by its malignancy’.²⁰

3. The antithesis of no-contagiousness: Cardano (1564)

N. Siraisi has written that ‘Cardano was one of Fernel’s earliest admirers, ranking the Frenchman the equal of Vesalius’.²¹ ‘Subsequently, he remembered a friendly encounter with Fernel in Paris as one of the high points of his northern European tour in 1552’. But Girolamo Cardano (1501–1576) firmly disliked the importance given by the Frenchman to ‘the role of demons’, while he was himself a very pious man.²² And, if Fernel claimed to deeply reform Galenism, Cardano stayed faithful to the old theory about the ‘imbalance of temperament’ as a cause of disease. These disagreements perhaps participated to the position that he took concerning cancer.

As the idea of its contagiousness was reaching a point of large consent, Cardano discussed the relationship between heat and putrefaction in his *De venenis* of 1564, where he expressed a fully personal view on the subject.²³ He stressed as a thing simply obvious that a putrid body only spreads contagious vapours when it is ‘hot, humid and extremely dirty’. ‘An animal that is dead cannot be contagious when it is cold’. One must not be afraid of putrefaction, which is ‘active in some bodily extremities, distant from the heart, or in the large internal cavities, such as the belly and intestines, as soon as it is evacuated. Thus ‘the disease may be not only harmful, but fatal’. To assert, as Paul of Aegina says, that elephantiasis seems to be ‘a general carcinoma’ is wrong. ‘Nothing connects cancer

94; Virginia Iommi Echeverria, ‘Girolamo Fracastoro and the Invention of Syphilis’, *História, ciências, saúde-Manguinhos* 17, no. 4 (2010): 877–84.

¹⁸Fracastoro, *Trois livres*, 213.

¹⁹Siraisi, *The Clock*, 158–69; Siraisi, ‘Medicine, 1450–1620’, 497.

²⁰Jean Fernel, *Universa medicina* (Genève, 1604), 628.

²¹Siraisi, *The Clock*, 158.

²²*Ibid.*, 168–9.

²³Girolamo Cardano, *De venenis libri tres* (Padua: Apud Paulum Frambottum bibliopolam, 1653), 24–7.

and elephantiasis', which is, rather, something like the epidemics which occur in India' (*Indica lues*). This non-contagiousness is just 'a fact'. For Cardano, it was not necessary to argue further.

The 1554 edition of his book *De subtilitate* has a section on 'Contagious diseases' where he distinguishes different kinds of transmission – by contact with the skin, by wounds, by vapour and by 'putrefaction of the air'.²⁴ The list of contagious diseases 'is obvious': leprosy, psora, scabies, vitiligo [leucoderma]; ulcers, diseases of the chest, throat and genitals, such as syphilis; pestilent diseases affecting the heart and the brain, and inflammation of the eyes'. There is no mention of 'cancer'.

To what could Cardan's particular position be attributed? We have mentioned his disagreements with Fernel and his ideas on diseases and contagiousness. But other reasons may be put forward. In his *De vita propria liber*, Cardano tries to explain why he was so successful in the treatments that he prescribed, and he attributed his good ideas to 'professional skills in diagnosis', to some 'exceptional intuition or to a personal "system" and methodology of thinking (such as an unfamiliar mixing of *doctrina crassa*, *dilemma*, *tropos*, *amplificatio* and *dialectics*)'.²⁵ 'To these principles I have given long, painstaking and assiduous exercise, and meditation even greater than the exercise'. He is not embarrassed by talking about 'a certain perfection of judgement and intellect [*quaedam iudicii et mentis perfectio*]'

More prosaically, his foregoing statement about cancerous contagiousness might be due to a combination of 'professional skills', his resentment against the Paduan medical authorities, who did not recognise his exceptional merits, and a huge appetite of fame.

In a chapter of his autobiography, Cardano refers to an 'offer' that he publicly proposed at Bologna and that provided 'evidence of my success'.²⁶ 'I said that I would cure every sick person who would come in time into my hands', except, among others, these types of patients: 'anyone (I emphasize this especially) in possession of his faculties, and not an invalid, such as a consumptive, or with a scirrhus liver or a deep ulcer in a dangerous place'. Was he thinking, in accordance with a practice more than half a century old, that, even in its early stages, such a cancer – or any other cancer – was not to be cured?

Perhaps a more decisive factor was his arrogant and spiteful acrimony against Padua and its physicians, where the idea of cancerous contagiousness was growing. Padua: a city 'where I was born and where I found a residence', he recalled in another chapter of his biography, on the 'Dis-honours' that he had to suffer.²⁷ N. Siraisi emphasises the importance given by Cardan to the hostility of his physician colleagues and their 'vigorous efforts' to exclude him from the College of medicine of Milano and of the Faculty of Bologna. 'Thus, either because of or as a result of the rebuffs that he suffered, he tends to first present himself as a successful practitioner and to harshly criticize the practice of the other physicians'. Was his opposition to contagiousness a provocation against their blindness and sheep-like convictions? He was called by his friend Andrea Alciati – a Milanese jurist who knew 'what words mean' – 'The Man of Discoveries'.²⁸ One of his strange dreams, that he had in Milan in 1534, left him reading 'a manifest prophecy, pointing to the immortality of my name'.²⁹ He was sure that the latter will remain. In the history of oncology, at least, he was right.

²⁴Girolamo Cardano, *De subtilitate libri XXI. Nunc demum recogniti atque perfecti* (Basel: Per Ludovicum Lucium, 1554), 372. This section is lacking in the edition given in 1556 by G. Le Noir in Paris, with Richard Le Blanc's translation (268). About Cardano's modern vocabulary in the domain of cancer, see François Epée, 'Richard Le Blanc traducteur du *De subtilitate* de Cardan (1556)', in *La traduction à la Renaissance et à l'âge classique*, ed. Marie Vialon (Saint-Étienne: Publications de l'Université de Saint-Étienne, 2001), 123–37, here 133.

²⁵Girolamo Cardano, *The Book of My Life (De vita propria liber)*, trans. Jean Stoner (Printed in the U.S.A.: Dutton, 1930), 181–2 and 200–1; *De propria vita liber* (Amsterdam: Apud Joannem Ravesteinium, 1654), 154.

²⁶*The Book of My Life*, 179–80; *De propria vita liber*, 138–9.

²⁷*The Book of My Life*, 139.

²⁸*Ibid.*, 219.

²⁹*Ibid.*, 156–8.

4. The synthesis of testimonies: Zacuth and Sennert (1634–1656)

In 1603, Rodrigo or Roderic De Castro, a Portuguese Jewish physician who died in 1627, proposed an update on the subject in his *De universa muliebrum morborum medicina*. Chapter 22 of the *Pars secunda, sive praxis* ends with this question: ‘Cancer an sit contagiosus?’. He answers, regarding elephantiasis and cancer: ‘I do not see why this obstinate tumour [*procax humor*], if kept hot to some degree, and exhaling a horrible vapour, would not turn out to be contagious’.³⁰ We may get some idea of the importance accorded by De Castro to the extension of cancer as a collective term when we read in Daniel Sennert that ‘he cured many cancers in Germany, Poland, and Britain, not without causing amazement, and not without a little profit, to a point where he was called ‘the Cancer Physician’.³¹

The question put by De Castro at the beginning of the seventeenth century found an answer with Zacutus Lusitanus’s revelation in 1634 – and the third term of the quest for a decisive statement about cancerous contagiousness seemed to be reached. We left him discussing, in the first book of his *De medicorum principum historia*, the common exhalation of a ‘slow and perverse vapour’ shared by scrofula, ringworms, elephantiasis, ‘and many other skin diseases’. He announced in this work that he will ‘explain in the second book’ the reasons for adding cancer to these afflictions if one considers the ‘horrible vapour’ coming from diseases of the breast. Thus, Zacuth got into an argument with the great but controversial Italian physician who had opened the debate almost a century before: ‘Why could ulcerated cancer not be a contagious disease contracted at a distance, contrary to what Cardan claims?’.³²

Observation 115 of his *De praxi medica admiranda* of 1634 is entitled ‘Ulcerated cancer is a contagious affliction’.³³ We find here the narrative of the transmission of the breast cancer that, for many years, afflicted a wretched woman, who gave her disease to the three sons with whom she was lying. Two of them died after five years, while the strongest, after removal of the tumour, was saved. Zacuth encapsulates the story in a vigorous series of comments. ‘Distinguished modern figures who have written about contagion do not classify ulcerated cancer among contagious diseases. Do you ask the reason? They do not suggest any’. There is however a very strong reason that may be advanced in favour of its being contagious. Referring to Fernel, Zacuth shows how the burning heat of the ulcerated cancer ‘reduces its matter to contagious germs produced by a dry humour which, without being slow-acting or fixed, has enough time to operate and infect’. Thus, ‘cancer is the same as elephantiasis’ which ‘is no less contagious than leprosy’, if we refer to Paul of Aegina or François Valleriolo or Valleriola (c. 1504–1580), who argued that cancer must be contagious at a distance, contradicting Cardan. The argument became popular. Zacuth’s *De praxi medica* was reissued as early as 1637 in Leiden and again in 1644.

Zacuth’s testimony has been repeated by J. Rouëssé in his *Histoire du cancer en Occident* (2011), who devotes a chapter to ‘La contagiosité du cancer’.³⁴ The author also related that the story ‘was mentioned by a renowned surgeon, Daniel Sennert, and by Guillaume de Houpeville (16.–1726)’ who quoted moreover an observation by Nicolaes Tulpius (1593–1674). Daniel Sennert, a famous professor at the University of Wittenberg, dealt indeed with cancer in the fifth of his *Practicae medicinae*, which appeared in 1635. But it seems that it is only in a note added in the 1650 edition that Zacuth’s argument is considered.³⁵

³⁰Roderic De Castro, *Medicina pars secunda, siva praxis* (Hambourg: Off. Frobeniana, 1603), 94. See David Nahmias, ‘Rodrigo de Castro e seus filhos’ (2006) <https://arindo-correia.com/101206.html> (accessed December 13, 2019); Michael Stolberg, *A History of Palliative Care, 1500–1970. Concepts, Practices, and Ethical Challenges* (Springer International Publishing, 2017), 24.

³¹*Operum tomus tertius, quo continentur, Practicae libri primus, secundus, et tertius* (Leiden, 1656), 758.

³²Abraham Zacuth, *De medicorum principum historia, liber secundus* (Amsterdam: Sumptibus Henri Laurentii, 1636), ‘Quaestio vigesima septima. Quod cancer ulceratus, non sit affectus contagiosus ad distans, contra Cardanum. Commentarium. Tumorem cancrosum’, 312–5.

³³Zacuth, *De praxi medica admiranda. Libri tres* (Amsterdam: Sumptibus Henrici Laurentii, 1634), 99.

³⁴Jacques Rouëssé, *Une histoire du cancer en Occident. Enseignements et réflexions* (Paris: Springer, 2011), 61–3. On the notion of ‘cancer’ in Antiquity (*cancer, cancerous tumor, carcinoma*, etc.), see esp. André-Julien Fabre, ‘Le cancer dans l’Antiquité’, *Histoire des sciences médicales* 42, no. 1 (2008): 63–8.

³⁵Daniel Sennert, *Practicae medicinae liber quintus. De tumoribus, ulceribus, cutaneis vitiiis, vulneribus, fracturis, luxationibus* (Lyon: Sumpt. Petri Ravaud, 1635), Pars I, ‘Caput XX. De cancro’, 129–39; *Operum tomus tertius, quo continentur Practicae liber IV. et*

As we have seen, Sennert is sometimes supposed to have adopted Zacuth's 'contagionism',³⁶ but his real position must be cleared. Zacuth, he says, tried to prove contagiousness 'by reason and experience' and he argued that 'the putrefaction and stench coming from an ulcerated cancer are the same as those which emanate from a corpse, that infects a nearby body by its virulence'. Again, cancer is a disease similar to elephantiasis and leprosy, etc. However, if Zacuth adds to his argument a story, 'one experiment alone is not enough to support it'. 'We need more', because 'it is possible, indeed, that the three boys did not contract the disease by contagion, but by heredity'. In any case, the importance accorded to Sennert in the history of cancerous contagiousness really seems disproportionate. To this extent, his *Opera omnia* of 1656 restores his ambiguous position by omitting the critical note of 1650.³⁷

5. Tulp's personal testimony (1652)

Between the time Zacuth published his *De medicorum principum historia* (1629–1642) and Sennert his *Opera omnia* (1656), Nicolaes Tulp (1593–1674), the mayor of Amsterdam, famous for the *Anatomy Lesson* painted in 1632 by Rembrandt,³⁸ produced in 1641 and 1652 his *Observationum medicarum libri*. His approach to cancer is completely different. Following the Italian tradition of the *consultationes*, he did not propose a theoretical analysis of the medical components producing the disease, or the narrative of a special case inscribed in such accounts, but simply related a story with the minimum of comments.

In early modern times, he was not only, along with Pieter van Foreest or Forestus (1521–1597),³⁹ the practitioner in the Netherlands who published the largest number of consultations about cancer, but also one of the most popular authors in Europe dealing with the topic. The *Letter of invitation* contained in the famous *Miscellanea curiosa* of the *Academia naturae curiosorum* – the Leopoldina – included him in 1670 in the prestigious list of those who, by their observations, marked the progress of medicine, when practice has to find the 'golden thread' through the 'labyrinth of symptoms'.⁴⁰ Théophile Bonet or Boneti, one of the founders of anatomical pathology, also published in 1670 a collection of *Observations et histoires chirurgiques tirées des œuvres latines des plus renommés praticiens de ce temps* where Tulp is given an eminent rank.⁴¹

Three books of consultations were published by Tulp in 1641 and reissued in 1652 with a fourth volume.⁴² We find in the latter the story of Adriana Lamberta and her maid.⁴³ First, Tulp urges 'idle physicians' to consider whether the 'virus' of an ulcerated cancer 'is not more propagative by

V., *Tractatus de arthritide, Practicae liber VI, Tractatus de consensu et dissensu chymicorum cum Galenicis et Aristotelicis, Et exoterica* (Lyon: Sumptibus Ioannis Antonii Huguetae, et Marci Antonii Ravaud, 1650), 278–80.

³⁶The authors often follow Jacob Wolff, *Die Lehre von der Krebskrankheit von den ältesten Zeiten bis zur Gegenwart* (Jena: Fischer, 1907), Bd. I, 50; James Stephen Ewing, *Neoplastic Diseases A Text-Book on Tumors* (Philadelphia: Saunders, 1919), 18; Wagener, *History*, 28; Rouëssé, *Une histoire*, 61. For general view on Sennert, see Stolberg, *A History*, 15, 24.

³⁷*Operum tomus tertius, quo continenter, Practicae libri primus, secundus, et tertius* (Lyon: Sumptibus Ioannis-Antonii Huguetae et Marci-Antonii Ravaud, 1656), Pract. Lib. VI, Pars III, 'Caput III. De contagio', 1001–1004.

³⁸S.A.C. Dudok van Heel et al., *Nicolaes Tulp. The Life and Work of an Amsterdam Physician and Magistrate in the Seventeenth Century* (Amsterdam: Six Art Promotion, 1998); Lawrence Kruger, 'The scientific impact of Dr. N. Tulp, portrayed in Rembrandt's Anatomy Lesson', *Journal of the History of the Neurosciences* 14, no. 2 (2005): 85–92; Gary Steiner, 'The cultural significance of Rembrandt's Anatomy Lesson of Dr. Nicolaas Tulp', *History of European Ideas* 36, no. 3 (2010): 273–9; Domenico Bertoloni Meli, 'Gerardus Blasius and the illustrated Amsterdam Observations from Nicolaas Tulp to Frederick Ruysch', in *Professors, Physicians and Practices in the History of Medicine. Essays in Honour of Nancy Siraisi*, ed. Gideon Manning and Cynthia Klestinec (Cham, Switz.: Springer, 2017), 255–97.

³⁹Melchior Adam, *Vitae germanorum medicorum* (Heidelberg, 1705), 328–30; Stolberg, *A History*, 22–4, 48–9.

⁴⁰*Miscellanea curiosa sive Ephemidum medico-physicarum germanicarum Academiae naturae curiosorum. Decuriae I. Annus primus. Anni LXX* (1684), 3–4.

⁴¹Théophile Bonet or Boneti, *Observations et histoires chirurgiques tirées des œuvres latines des plus renommés praticiens de ce temps* (Genève, 1670; 1679; 1702). See Philip Rieder, 'Bonet', in *Dictionary of Medical Biography*, ed. William F. Bynum and Helen Bynum (Westport: Greenwood, 2007), I, 238–9.

⁴²The whole series reached the fifth ed. in 1716, and was reissued in 1739.

⁴³Nicolaas Tulp, *Observationes medicae. Editio nova, libro quarto auctior, et sparsim multis locis emendatior* (Amsterdam: Apud Ludovicum Elzevirium, 1652), 307–9; *Observationes medicae* (Amsterdam: Apud Henricum Wetstenium, 1785), 292–3.

proximity than at a distance'. 'What establishes the limit of its exhalation? what fixes the bounds within which this volatile spirit may be contained?'. The answer resides in this case. 'Adriana Lamberta, late in life, having been consumed with sorrow for some years, suffered from an ulcerated carcinoma that reached a degree of putrefaction to the point where, by her breath, she infected, her maid, who continually took care of her'. The disease finally acted as 'a huge fire' disseminating the 'sparks of the scourge', so that 'it invaded the maid no less than her mistress'. It 'spread to her breast and her armpits, with a hideous and uneven ulcer, in such a way that I questioned myself for some time as to which one of them would be the more tormented'.

However, this was not the only detrimental effect of Miss Adriana Lamberta's supposed cancer. Tulp, who had closely examined this 'stinking carcinoma', suffered himself from an ulceration of the throat, but 'not only precipitate of mercury, but even the everyday use of pliers did not remove the scabs aroused by the venom feeding on the throat'. Tulp's disease proved that 'an ulcerated cancer not only disseminates its contagion up close' – *cominus* – 'but remotely' – *eminus*. Special treatment was needed for a tumour of this organ, if we are to believe what Marco Aurelio Severino wrote 'On carcinoma of the throat' in his *De efficaci medicina libri tres* of 1646.⁴⁴

If Celsus or Aetios of Amida, among others, say that people with such a cancer, treated 'by iron or fire', surely died, Hippocrates alleged that he cured one by cauterisation,⁴⁵ and other 'distinguished practitioners' such as Laurent Joubert, Amatus Lusitanus or Ambroise Paré have experimented with the treatment, with the same good result. Of course, some humours are more harmful than others, and it may happen that the black bile is so acrid that anything irritates it. But we must try to treat a disease 'that is certainly pernicious'. One final question about his conclusion would be: was it perhaps read by Rembrandt, whose mistress, Hendrickje Stoffels, was represented by him in *Bathsheba at her Bath* (1654) with a 'clearly visible' breast cancer?⁴⁶ How might such a demonstration of contagiousness be received by somebody sleeping in the same bed?

In the same year as Tulp published the story of the three children, Johann Rudolf Camerer, a physician of the 'famous republic of Reutligen', a town in Baden-Württemberg, produced his *Sylloges memorabilium medicinae et mirabilium naturae arcanorum, centuriae XIII. XIV. XV. XVI*. Chapter 89 of *Centuria XVI* is entitled: 'Estne cancer ulceratus contagiosus'.⁴⁷ The question was decidedly in the air, to provoke new debates.

6. The turning point: classical age and cancerous heredity

As J. Le Brun has quite rightly stressed,⁴⁸ the turning point indicated by Sennert – the question of whether the occurrence of cancer is sometimes due to contagion or to heredity? – must be considered in the context of a number of events that took place in France, and that mobilised medical authorities, public attention and, in one case, the media of the whole country, from 1650 to 1715.

It is well known that Anne of Austria, the queen of France as the wife of Louis XIII (1615–1643) and regent during the minority of Louis XIV (1643–1651), died in 1666 of breast cancer. The disease

⁴⁴Marcus Aurelius Severinus, *De efficaci medicina libri III* (Frankfurt: Apud Joannem Beyerum, 1646), 271.

⁴⁵Hippocrates, *Epidemics*, book 7, n° 123: 'A man had a carcinoma at the throat. I applied myself the fire. He recovered'.

⁴⁶Rouëssé, *Une histoire*, xxii. On other figures of women painted during the Renaissance with a breast disease or a supposed cancer: Davide Lazzari, Donatella Lippi, Manuel Fancisco Castello, George W. Weisz, 'Breast mass in a Rubens painting', *Rambam Maimonides Medical Journal* 7, no. 2 (2016), doi:10.5041/RMMJ.10243; Raffaella Bianucci, Antonio Perciaccante, Philippe Charlier, Otto Appenzeller, Donatella Lippi, 'Earliest Evidence of Malignant Breast Cancer in Renaissance Paintings', *The Lancet Oncology* 19, no. 2 (2018): 166–7.

⁴⁷Johann Rudolf Camerer, *Sylloges memorabilium medicinae, et mirabilium naturae arcanorum, centuriae XIII. XIV. XV. XVI* (Strasbourg: Sumptibus Eberhardi Zetzneri, 1652), 377–8. 'From soon after the twelfth- and thirteenth-century reception in the West of Aristotle's *libri naturales* and Ibn Sina's (Avicenna's) encyclopedic overview of medicine, physicians sought to assure themselves and their students or readers that at least some part of medicine, usually medical theory, met the Aristotelian criteria for true knowledge (that is, *Scientia* meaning "certain knowledge", not "science"): causal explanation resting on syllogistic reasoning' (Siraisi, 'Medicine, 1450–1620, and the History of Science', 491–514, here 496), etc.

⁴⁸Jacques Le Brun, 'Cancer serpit. Recherches sur la représentation du cancer dans les biographies spirituelles féminines du XVII^e siècle', *Sciences sociales et santé* 11, no. 2 (1984): 9–31.

started to affect the queen in 1664 and one of the physicians consulted to treat her was Pierre Alliot, from Bar-le-Duc.⁴⁹ The latter published in 1698, as ‘Physician in Ordinary to his Majesty’, a *Traité du cancer*, with *Un examen du système et de la pratique de M^r Helvétius*. Adrien Helvétius (c. 1661–1727) had himself published in 1691 a *Lettre à Monsieur Régis sur la nature et la guérison du cancer*. The fourth article of the third part of Alliot’s treatise was entitled ‘In which are proposed several remarks useful for the cure of cancer’.⁵⁰ He wrote: ‘It is necessary to know one’s patient, to see how he feels in other circumstances; how regularly he is used to evacuating; whether his cancer is a family disease; whether, which is very rare, he got it by contagion, more or less like scabies’, etc.

The question of the process which gave birth to the disease was all the more current because other celebrated individuals seemed to have transmitted cancer to relatives. The writer Antoinette Des Houlières died in 1694 from breast cancer and her daughter Antoinette-Thérèse suffered from the same disease, as did Louise de La Vallière (1644–1710), first ‘official mistress’ of Louis XIV, and her daughter.⁵¹ One may easily imagine the importance assumed by these court episodes in a national historiography – and a collective conscience – so dominated by the affairs of Versailles.

Thus, in his *La guérison du cancer du sein* of 1693, Guillaume de Houppeville, already quoted, started his review of the literature concerning contagion by stressing the change of approach.⁵² ‘It is from this hereditary cause that Sennert derives the origin of many cancers that Zacuth made dependent on a contagious germ’. It is useful, ‘it seems’, to confront their ideas about a question ‘that is quite often asked of us’. Having recalled the experiments used, Houppeville considers the possible process of communication of the disease: at a distance, by vapour, or nearby, by contact. As cancer is a ‘particular kind of leprosy’, the similarity must extend to contagiousness, etc. But the author is not convinced, as nobody had related such a case of transmission until 1634. The doctrine of the Ancients in this matter must be preferred to that of ‘new physicians’, insofar as Houppeville, in his medical practice, has himself ‘seen many people staying in the same room as people afflicted with cancer – even daughters with their mothers’ – and ‘talk with them, drink and eat with them, dress them and sleep in the same bed’, without any harm.

First, what Houppeville detects in Tulp’s statement is ‘a way of protesting against the Ancients with such force because he has no evidence to propose other than that of Zacuth’ ... To some extent, their argument is inscribed in the typical French debate between the ‘Ancients and Moderns’. But Tulp’s approach itself fails to adopt a modern outlook, because it neglects some elements of medical treatment. ‘If he had taken care to indicate the conformation, the temperament, the age, and the inconveniences from which the maid was suffering, and her whole personal character, we could probably have found some internal cause, an atrabiliary ferment, a melancholic humour which could have accumulated and been excited in some circumstances, producing sadness, compassion, sorrow and related to work, to which this maid was exposed day and night’. ‘These are the outside factors that have could become the causes of this cancer: causes which are mediate and occasional, and not immediate and formal, such as humour or atrabiliar ferment’.

A very active agent is required to ‘produce cancer in places that had no tendency to it, that demonstrated the shape rather than the substance of the breasts, and that did not have those glands where cancer ordinarily arises’. These glands could not be sufficiently infected by these ‘humours’ which produce the ‘cancerous matter by their decay and corruption’. ‘Could we find a more independent and more active agent than the internal and hereditary one?’

Going back to the Hippocratic tradition, medicine was highlighting the environmental circumstances, personal conditions and even social impact on the patient. When Alliot, whom we have already quoted, criticised Helvétius in his *Traité du cancer* of 1698, he blamed him for not having taking into account factors like the age, the powers, the temper of the patient, ‘the nature of the

⁴⁹Françoise de Motteville, *Mémoires. Cinquième partie*, in *Collection des mémoires relatifs à l’histoire de France*, ed. François Petitot (Paris: Foucault, 1824), t. XL, 218 sq., 223, 262.

⁵⁰Pierre Alliot, *Traité du cancer* (Paris: François Muguet, 1698), 139–41.

⁵¹Rouëssé, *Histoire*, 46.

⁵²Guillaume de Houppeville, *La guérison du cancer au sein* (Rouen: V^oe L. Behourt and G. Behourt, 1693.), 96 sq.

liquors dominating in his blood', his food, the quality of the air, etc.⁵³ This information would be useful to establish whether he got cancer by contagion – 'which is very rare' – or because it was a 'disease of the family'. The psychological causes of cancer, which were stressed for a long time by medicine, will be considered more and more by the coming Enlightenment.⁵⁴

7. Enlightenment: from animal experiment to social exclusion

Among those who remembered Tulp's story during the eighteenth century, Bernard Peyrilhe (1737–1804) is probably the most well-known. In his *Dissertation académique sur le cancer*, that earned the prize of the Lyon Academy in 1774, this surgeon provided a somewhat original reading of the evidence.⁵⁵ He first states that the 'cancerous miasma which is absorbed with the air, the saliva, and everything that is swallowed, produces a putrid mixture' which may 'give rise by inhalation to cancerous ulcers'. 'This is the sort of misfortune that we read of in *Tulpius*, when a man, who wished to relieve his wife's symptoms, sucked her cancerous breast; a cancer affected the gums of his lower jaw, and he died'. Not exactly what Tulp had written ...

Peyrilhe is famous in the history of medicine for an 'experiment' that, he says, was 'special'. He took a little of the 'virus drawn from a cancerous breast' and introduced it with a syringe into a dog. A maid, disgusted by the stench that came from the animal, and touched by its moans, threw it into the latrines. Thus, she deprived the scientist of 'the opportunity of observing the following phenomena of this disease' ...

Peyrilhe mentions two other cases of cancerous transmission. They were related by Walter Harris (1647–1732), a physician who had studied medicine in France, where he graduated in 1675 before he became established in London.⁵⁶ In his *Dissertationes medicæ et chirurgicæ* of 1725, Harris explains how an unnatural quantity of black bile, when it degenerates through a sort of burning, concentrates the acid quality and produces a poisoned acridness.⁵⁷ Harris illustrates the process with 'a recent story that nobody can have forgotten'. 'Master *Smith*, a surgeon who not so long ago worked with us at the large *St Thomas* hospital, operated on a woman suffering from breast cancer and examined the vesicle which is behind the breast, which was filled with some clear liquid. Prompted by idle curiosity, he wanted to taste a little drop of this liquor; but he paid for his foolish inquisitiveness by suffering painful ill-effects. During the following months, the surgeon gradually weakened "but the *taste* of this horrible liquid remained in his mouth until the last breath'. How is it possible to protect oneself from such a 'pungent and *poisonous* liquid' when we are subject 'the putrefaction of stagnant waters, and the powerful smell that dominates in the fetid cesspools'?

The same smell coming from the ulcerated cancer of his wife, Harris goes on, killed 'our *colleague* the distinguished surgeon *Bellinger*', who also kept it 'in his nose' until his last moments. A Francis Bellinger, who died in 1721, practiced in Stamford and London.⁵⁸ We may suppose that Master Smith's action had something to do with the experimental tradition developed in British science. Experiments on living animals have been recorded by D. Bertoloni Meli, since the time of Harvey.⁵⁹

In France, it is perhaps significant that this kind of cancerous experimentation is illustrated by a sort of quack, Guillaume-René Lefébure de Saint-Ildephont, who published in 1775 a *Remède*

⁵³Alliot, *Traité*, 139–140; Daniel Droixhe, *Soigner le cancer au XVIII^e siècle. Triomphe et déclin de la thérapie par la ciguë dans le Journal de médecine* (Paris: Hermann, 2015), 213.

⁵⁴Droixhe, *Soigner le cancer*, 219–21 ('Tristesse, ennui, colère').

⁵⁵Bernard Peyrilhe, *Dissertation académique sur le cancer* (Paris: Chez Ruault, 1776), 43–8; Arthur I. Holleb, 'Peyrilhe's quest and modern oncology', *CA: A Cancer Journal for Clinicians* (2008): 21; George Androustos and Marianna Karamanou, 'Bernard Peyrilhe (1737–1804) and the first experimental transmission of cancer', *Journal of B.U.O.N.* 14 (2009): 731–3; Guy Faguet, *The Conquest of Cancer. A Distant Goal* (Houten: Springer, 2015), 24.

⁵⁶Harris, Walter (1647–1732), in *Dictionary of National Biography, 1885–1900*, vol. 25.

⁵⁷Walter Harris, *Dissertationes medicæ et chirurgicæ chirurgicæ habitæ in amphitheatro Collegii regalis medicorum Londiniensium* (London: Impensis Guil. & Joh. Innys, 1725), 163–79.

⁵⁸'Bellinger, Francis (d. 1721)', in *Dictionary of National Biography, 1885–1900*, vol. 4.

⁵⁹Domenico Bertoloni Meli, 'Early Modern Experimentation on Live Animals', *Journal of the History of Biology* 46 (2013), 199–226.

éprouvé pour guérir radicalement le cancer occulte, et manifeste ou ulcéré. This ‘teacher in venereal diseases’ who mostly practised in Versailles (where he is supposed to have cured many patients) gave a dog a piece of bread soaked in ‘the saliva of someone suffering from cancer’.⁶⁰ The animal did not show any ill effects, but four other dogs were put to the test. Only one felt ‘a slight heartburn’. Lefébure must have particularly impressed the Count of Provence, Louis XVI’s younger brother, a simpleton to whom he was attached.

The cases related by Harris found an echo in the *Mémoire sur les maladies contagieuses* by Johann Friedrich Christian Pichler, of Strasbourg (1786). The latter reminds us how someone having ‘tasted this watery discharge died of it and how the ‘cancerous smell’ contaminated another person – a double punishment.⁶¹ He had his own ideas about the way the spread of cancer could be stopped. ‘This disease being hereditary, the government should forbid marriage between persons suffering from it and authorise their separation’.

8. Conclusion

At the time when Peyrilhe and Lefébure de Saint-Ildephont were experimenting with the transmission of cancer, new treatments for the disease were undertaken using up to date technological or informational means. In June 1778, the *Gazette de santé* announced that Pierre-Jean-Claude Mauduyt de La Varenne, a regent-doctor of the Faculty of Paris, had received an annual bursary to sustain his researches into the ‘treatments of various diseases by electricity’.⁶² The healing should be extended to include ‘the lymphatic and serous tumours’. A whole system of electrical therapy was developed in many areas, which has been described by Fr. Zanetti.⁶³ In May 1779, the same *Gazette* published an article informing the public that ‘new methods for the treatment of some diseases’ had been submitted to the Société royale de médecine, which had recently been founded.⁶⁴ One of them dealt with ‘the curing of several kinds of ulcers, operated by the movement to and fro of a burning glass’. A surgeon called La Peyre, instead of firing iron or copper until they were red hot, or firing coal, to cauterise a tumour, had used a lens focusing the rays of the sun and concentrating them on the part affected. The process had been applied as early as 1759 on the ‘chancrous tumour’ of a woman, as related by ‘M. Le Comte, a surgeon at Arcueil’, to avoid an extraction that the horrified patient did not want to try.⁶⁵ The tumour had been burnt ‘without the surrounding areas feeling the heat’ and with less pain. This first attempt at treatment by means of ‘rays’ was promising.⁶⁶ It was announced in the *Journal de médecine* in 1782.⁶⁷ The New World also brought new promises. In 1773, Benjamin Franklin received from his friend Barbeu Du Bourq a letter mentioning the virtues of the juice of the plant called *phytolacca*, which was supposed to cure cancer. Franklin replied: ‘It might be useful to quickly and universally spread the important discovery of the efficacious remedy of such a cruel disease’, etc.⁶⁸

Alongside these ‘novelties’, the history of paleo-oncology as a whole in early modern times is punctuated with ‘discoveries’ and debates often going back to the first attempts to cure ‘the cruel disease’, and most of them were inevitably concluded by the famous Hippocratic statement in the *Aphorisms* n° 48. Cancer was an incurable disease, so that ‘it is better not to undertake any treatment

⁶⁰Daniel Droixhe, *Les charlatans du cancer. Offre thérapeutique et presse médicale dans la France des Lumières* (Paris: Hermann, 2018), 189–211 (Lefébure de Saint-Ildephont: le paradoxe de l’empirique ?).

⁶¹J.-Fr.-Chr. Pichler, *Mémoire sur les maladies contagieuses* (Strasbourg: Aux dépens de l’Auteur, 1786), 125–8.

⁶²Droixhe, *Charlatans du cancer*, 61–66, ‘La thérapie électrique’.

⁶³François Zanetti, *L’électricité médicale dans la France des Lumières* (Oxford: Voltaire Foundation, 2017).

⁶⁴*GdS*, 2 May 1779, 71–72.

⁶⁵On the practice and modalities of the extraction, see the article ‘Cancer’ in the *Encyclopédie* – which is not, as N. Hanafi believes, by de Jaucourt but by the great Antoine Louis, who wrote many articles in the dictionary about medicine; Nahema Hanafi, ‘Le cancer à travers les consultations épistolaires envoyées au docteur Samuel Tissot (1728–1797)’, in *Lutter contre le cancer (1740–1960)*, ed. D. Foucault (Toulouse: Privat, 2012), 95–122.

⁶⁶Droixhe, *Charlatans du cancer*, 267–9, ‘Le traitement par rayons’.

⁶⁷*JdM*, July 1782, t. 58, 98–9.

⁶⁸Droixhe, *Charlatans du cancer*, 287–92, ‘Espoirs américains’.

of the persons affected by occult cancers; for if they are treated, they quickly die; if they are not treated, their life is extended'.⁶⁹ Thus, research into the history of cancer has to consider at the same time multi-secular traditions involving various remedies and the forms they took when their failure left open the prospect of a possible hope of recovery. We have tried to reconstruct the genesis, and the progressive discrediting, of a sensational remedy promoted in Europe during Enlightenment: the cure by hemlock.⁷⁰ But the controversial treatment by one of the most harmful and even lethal plants in fact took over the role played by another dangerous species, the belladonna or deadly nightshade. The oldest pharmacopoeias mention another plant frequently used to treat breast cancer: the blessed thistle (*carduus Benedictus*).⁷¹ Even the recourse to frogs to cure the disease, which was well-known in folk-medicine, found at the end of the eighteenth century an unexpected variation when Joseph Florès, of the 'Real Universidad of Guatemala', announced to an astonished Europe that the Indians of Saint-Christoval Amatitan cured cancer by swallowing 'small lizards' similar to those 'called "anolis" in the *Encyclopédie*'.⁷²

Tracing these traditions reveals at least one positive aspect of the tradition of *consilia*, *consultations* and *stories* that flourished from the end of the thirteenth century.⁷³ The *victus rationes* provide anti-cancerous diets that should be compared with those recommended nowadays.⁷⁴ Perhaps not everything is to be forgotten in paleo-oncology.

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⁶⁹Rouëssé, *op. cit.*, 103.

⁷⁰Droixhe, *Soigner le cancer*.

⁷¹Simon Paulli, *Quadripartitum botanicum* (Strasburg: Impensis, Auth. Fil. Simonis Paulli, 1667), 238.

⁷²Daniel Droixhe, 'Le lézard du Guatemala. Histoire d'un remède anti-cancéreux au XVIII^e siècle', *Revue d'histoire de la pharmacie* 66, no 397 (2018), 53–68; *Charlatans du cancer*, 227–58, 'Florès: le lézard du Guatemala'.

⁷³See: Nancy G. Siraisi, *The Clock and the Mirror: Girolamo Cardano and Renaissance Medicine* (Princeton University Press, 1997–2016); Siraisi, *Medieval and Early Renaissance Medicine*; Siraisi, *Medicine and the Italian Universities*, 72–76, 149–50; *Professors, Physicians and Practices in the History of Medicine. Essays in Honor of Nancy Siraisi*, ed. Gideon Manning and Cynthia Klestinec (Springer Intern. Publishing, 2017), 299–307. See also Gianna Pomata and Nancy G. Siraisi, 'Praxis historialis: the uses of *Historia* in early modern medicine', in *Historia: Empiricism and Erudition in Early Modern Europe*, ed. G. Pomata and N. Siraisi (MIT University Press, 2005), 105–46; Gianna Pomata, 'Sharing cases. Observations in early modern medicine', *Early Science and Medicine* 15 (2010): 193–236; Gianna Pomata, 'Fällen mitteilen. Die *Observationes* in der Medizin der Frühen Neuzeit', in *Krankheit schreiben. Aufzeichnungsverfahren in Medizin und Literatur*, ed. Y. Wübben and C. Zelle (Göttingen: Wallstein, 2013), 20–63 (translation of the previous reference).

⁷⁴Naama Cohen-Hanegbi, 'Mourning under Medical Care: A Study of a *consilium* by Bartolomeo Montagnana' *Parergon* 31, no. 2 (2014): 35–54; Marilyn Nicoud, 'L'alimentation, un risque pour la santé ? Discours médical et pratiques alimentaires au Moyen Âge', *Médiévales* 69 (2015): 149–170; Ken Albala, *Eating Right in the Renaissance* (Berkeley-Los Angeles-London: University of California Press, 2002; many interesting views on relationship between gastronomic and medical diets); Daniel Droixhe, 'Towards a History of Prophylaxis and Dietetics Against Cancer. Some Examples from Renaissance to Enlightenment', *Jacobs Journal of Food and Nutrition* 6, no 3 (2019), on line.