In Praise of the Ordinary: Shifting Knowledge and Practice in the Medical Use of Drinking Water in Italy, 1550–1750

David Gentilcore

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In Praise of the Ordinary: Shifting Knowledge and Practice in the Medical Use of Drinking Water in Italy, 1550–1750

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SUMMARY: This article is conceived as a contribution to our increasing appreciation of the importance of water for drinking purposes in early modern culture. By analyzing the medical recommendations contained in the case histories and consultations of three prominent Italian doctors—Epifanio Ferdinando, Francesco Redi, and Francesco Torti—it provides evidence of shifting medical knowledge and practice in the use of drinking water. It traces how, as the medical philosophies shifted, so too did the medical use of drinking water, as both aliment (part of a healthy and healing diet) and medicament (part of therapy to treat specific diseases). The most significant finding regards the increasing appreciation and enthusiasm for the health benefits of drinking ordinary local waters, from the mid-seventeenth century. Any ordinary local water would do—as long as it was pure, of good quality, and reputable—overturning a long-standing hierarchy of waters inherited from the ancient world.

KEYWORDS: drinking water, clinical consultations and case histories, early modern Italy, Epifanio Ferdinando, Francesco Redi, Francesco Torti, mineral waters and thermal springs, water as aliment and medicament

In his *Arianna Inferma* (Ariadne sickened), physician Francesco Redi wrote of the feverish Ariadne, in her delirium, crying out for water to drink:

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Why do you deny me drink?	*Perché il bever mi negate?*
Come, bring me to drink	*Su portate pel mio bevere*
all of the cold	*tutte quante le gelate*
waters of the Arno and the Tiber.	*acque d'Arno, acque del Tevere.*
Come, bring to my dry lips	*Su portate al labbro asciutto*
every wave	*ogni flutto*
that from the Nile and the Ganges,	*che dal Nilo, e che dal Gange*
murmuring, breaks onto the sea.	*mormorando al mar si frange.*[1]

And with the reservations of his medical colleagues in mind, Redi—that is, Ariadne—goes on,

And if you worry that the doctor will clamor,	*E se temete, che schiamazzi il medico*
with his usual surly look,	*colla solita sua burbera cera,*
with reprimands, shun that backbiter	*pe' rabbuffi schivar di quel malèdico*
and bring me some Nocera water.	*portatemi dell'acqua di Nocera.*

Redi intended this dithyrambic poem as an ode to water, to pair with his *Bacchus in Tuscany* (*Bacco in Toscana*, 1685),[2] an ode to wine—Ariadne being Bacchus's consort in Greco-Roman mythology. Alas, Redi never finished it. For at least one nineteenth-century critic this was just as well since he considered *Arianna Inferma* to be "as inferior to *Bacco* as water is to wine."[3] This questionable judgment aside, *Arianna Inferma*, and the intention and ideas behind it, represents a milestone in the medical history of drinking water—a history that has yet to be written. It can therefore serve as a useful point of departure for what we propose to explore in this article: the changing representation of drinking water in Italian medical practice from the late Renaissance to the mid-eighteenth century. If water is perhaps unique in being potentially at one and the same time element, aliment, and medicament, medical authors privilege the latter two. That said, there is a history to the use of drinking water as part of a healthy diet and as medical treatment, with significant shifts from the late Renaissance through to the eighteenth century, as we will see. In particular, it enables us to track the growing enthusiasm for ordinary local water.

1. Francesco Redi, *Arianna Inferma*, in *Opere di Francesco Redi* (Milan: Società Tipografica de' Classici Italiani, 1809), 2:103–15, quotation on 104. All translations are my own unless indicated otherwise.

2. Francesco Redi, *Bacco in Toscana*, in *Opere di Francesco Redi* (n. 1), 1:1–34. For an English translation, see *Bacchus in Tuscany, a Dithyrambic Poem from the Italian of Francesco Redi*, trans. Leigh Hunt (London: John and H. L. Hunt, 1825).

3. Gaetano Imbert, *Il Bacco in Toscana di Francesco Redi e la poesia ditirambica* (Città di Castello: S. Lapi, 1890), 81. The fragments of Redi's *Arianna Inferma* have never been translated into English, so my own attempts will have to do.

In a previous study, I have shown how the nature of medical advice on water consumption in the preservation of health through diet (regimen) was radically transformed as medical philosophies transitioned from the "revivals" (variously, neo-Galenic and neo-Hippocratic) of the late Renaissance to chemical medicine and through to mechanical medicine in the early eighteenth century.[4] Water went from being considered a base beverage, the consumption of which, though necessary, had to be carefully regulated in the late Renaissance, to a "universal medicine," able to prevent and treat disease in the eighteenth century. However, the knowledge contained in the printed regimens and health guides I analyzed was theoretical; they were targeted at an idealized, healthy reader. As a result—I readily admit—it left the important question of therapeutics in the messy world of everyday medical practice wide open. What place did drinking water occupy in the treatment of real-life patients? How did the place of drinking water in representations of medical *practice* change over the period?

To identify changing attitudes toward water consumption in medical therapeutics, this article compares the recommendations contained in the case books and clinical consultations of three very different physicians—different chronologically, medically, and geographically. I have identified them as more or less representative of the three different phases in medical philosophies that characterize early modern Italy. The first, Epifanio Ferdinando, is typical of late Renaissance neo-Hippocratic medicine, while the third, Francesco Torti, is typical of early eighteenth-century mechanical medicine. The second, Francesco Redi, fits somewhere in between.

Both casebooks and consultations have been underused by historians of medicine, partly due to their sheer bulk, partly due to their limitations as sources. They can by stylized and formulaic, while also raising issues of the author's presentation of self. And yet they provide rare insights into a doctor's way of thinking and practicing. As Domenico Bertoloni Meli has noted, they represent a crucial "continuum with other forms of medical publications," providing us with "precious information on the interplay among anatomical research, pathology, therapeutics, and the relationships among physicians and between physicians and patients."[5] If I underplay the important distinctions between the different genres here, it is because my focus is on the specific content of their recommendations, through a mixture of qualitative and quantitative analysis.

4. David Gentilcore, "From 'Vilest Beverage' to 'Universal Medicine': Drinking Water in Printed Regimens and Health Guides, 1450–1750," *Soc. Hist. Med.* 33, no. 3 (2020): 683–703.

5. Domenico Bertoloni Meli, *Mechanism, Experiment, Disease: Marcello Malpighi and Seventeenth-Century Anatomy* (Baltimore: Johns Hopkins University Press, 2011), 352.

Drinking Water in Late Renaissance Medical Therapeutics

Epifanio Ferdinando (Mesagne, 1569–1638) is a good place to start. He undertook his medical studies in Naples, before returning to his native Mesagne in 1595 to practice as town physician there. In his published works he exemplifies the neo-Hippocratic physician typical of late Renaissance Italy, with his emphasis on locality and environment as important factors in disease and in his use of the case-recording format, with a pervasive neo-Galenism in his approach to diet. Ferdinando is also useful for our purposes in the way his works deal with both knowledge (in the form of preventive medicine) and practice (in the form of therapeutics). Better still, he makes it easy for us to trace the links between the two subjects by frequently citing himself! Thus, in his collection of case histories (*Centum historiae*), Ferdinando will refer readers to his work on prevention and long life (*De vita proroganda*), in which he will, in turn, refer us to his work on medical propositions (*Theoremata medica*).[6] I consider all three since they all mix theoretical knowledge and therapeutic practice to some extent, although my focus is on Ferdinando's collection of case histories. As he reminds us, distinction between medical theory and practice was part of medical training and learning. In his *Theoremata medica et philosophica*, published in Venice in 1611, Ferdinando divides medicine into the canonical two branches (theorem 4, "Quae nam sit medicinae recta divisio").[7] Theoretical medicine consists of physiology (how the body functioned), pathology (how it malfunctioned), and semiotics/semiology (an understanding of "signs" and symptoms); and practical medicine, which is divided into curative (therapeutics) and preservative (preventive) medicine. The curative, in turn, is subdivided into dietetics, pharmaceutics, and surgery.

But let us begin with prevention or, more accurately, Ferdinando's short work on "how to preserve youth and delay old age," dedicated to Camillo Borghese, Pope Paul V, and published in Naples in 1612. Not surprisingly, the focus is on the regulation of the six non-naturals, beginning with air (environment) and ending with perturbations of the soul

6. Epifanio Ferdinando, *Centum historiae seu observations et casus medici* (Venice: Thomam Baglionum, 1621), and A. E. Distante, ed., *Cento storie od osservazioni e casi medici* (Bari: S4M Edizioni, 2020); Ferdinando, *De vita proroganda seu iuventute conservanda et senectute retardanda* (Naples: Io. Baptista Gargani, 1612), and M. L. Portulano-Scoditti and A. E. Distante, eds., *De vita proroganda* (Mandura: Giordano, 2004); Ferdinando, *Theoremata medica et philosophica* (Venice: Thomam Ballionum, 1611). Strictly speaking, he is Epifanio Ferdinando the Elder, since his grandson of the same name was also a physician and author.

7. Ferdinando, *Theoremata* (n. 6), 10–11.

(emotions), although the longest chapter is on food and drink.[8] As a general rule, Ferdinando advises, one should eat more and drink less during winter, and the opposite during summer.[9] As in all Renaissance printed regimens, wine is the preferred beverage because it sustains our health and life, but drunk "cum sobrietate."[10] Water might also be drunk, as long as it was good spring water, of the qualities he outlines in his *Theoremeta*, Ferdinando suggests. And since Ferdinando was writing for a pope in Rome, he advises that what he calls "Tiber water" is fine to drink: boiled with cypress or lotus branches till it reduces to a third, then mixed with spring water for twenty-four hours, and finally sieved. "Pleasing to the taste" ("gustui suavis"), it can be mixed with wine or drunk on its own.[11] It is a reminder, however, that when a late Renaissance physician writes "water" he rarely means simple water, consumed unadulterated on its own.[12]

And since Ferdinando points us to his previous work, the *Theoremata*, what does he say about water there? In answer to the question "What is the best water?" (theorem 13), it should be clear, light, and tasteless. The best water is spring water and water from eastward-flowing rivers, followed by rainwater, and in turn by cistern water. Well water was the worst. All this is quite standard, received wisdom as it were, following the Ancients.[13] However, Ferdinando argues that, if done "by art," cistern water, which captures rainwater and stores it, ridding it of impurities, can improve on both natural rainwater as it falls from the heavens and river water as it flows over the ground.[14] Ferdinando is unusual among authors of guides to health and long life in discussing (at some length) rainwater cisterns as a source of drinking water; he is probably unique in preferring cistern water

8. See Sandra Cavallo and Tessa Storey, eds., *Conserving Health in Early Modern Culture: Bodies and Environments in Italy and England* (Manchester: Manchester University Press, 2017).

9. Ferdinando, *Proroganda* (n. 6), 37.

10. Ibid., 41.

11. Ibid., 43.

12. The quality of Tiber water was much debated by contemporary doctors such as Alessandro Bacci, Alessandro Petronio, and Giovanni Battista Modio, but even the most favorable advised storing it in earthenware vases for six months prior to drinking. See Giuseppe Bonaccorso, "Roma e le sue acque potabili nel Cinquecento. La competizione con il Tevere," *Roma moderna e contemporanea* 17 (2009): 73–90, and Elisa Andretta, "Les médecins du Tibre. La construction d'un savoir sur les fleuves dans la Rome du 16e siècle," *Histoire, médecine et santé* 11 (2017): 99–129.

13. Cornelis van Tilburg, "Greek and Roman Ideas about Healthy Drinking-Water in Theory and Practice," *eä Journal* 5, no. 1 (2013), http://www.ea-journal.com/images/stories/Art0501/Articulo_-_Van_Tillburg_-_Drinking_water.pdf.

14. Ferdinando, *Theoremata* (n. 6), 30.

above all others.[15] But never underestimate the ability of a neo-Galenic physician to make a virtue of necessity, tailoring generalized medical dietary advice to meet local circumstances and habits.[16] The inhabitants of Ferdinando's native Mesagne made use of rainwater cisterns for much of their freshwater needs, not having a river or aqueduct to rely on.[17] It was a topic Ferdinando would develop fifteen years later in a short *Libellus de bonitate aquae cisternae* (1625)—alas never published and of which no trace survives.[18]

Cistern water does however make an appearance in Ferdinando's own published collection of medical case histories. His *Centum historiae seu observations et casus medici* (One hundred histories or observations and medical cases), published in Venice in 1621, is typical of this late Renaissance genre, with its emphasis on medical practice and empirical observation.[19] The individual medical "histories" (cases) are drawn from Ferdinando's own professional practice and are organized simply by year, beginning in 1596 and ending in 1613. His patients are drawn from all social ranks, as one would expect of a town physician; just over a third (thirty-six) are women.

The genre mixes a precise observation and recording of an actual medical case (providing name of the patient, origins, gender, age, constitution, time of the year) and the course of the disease and treatment, with what lessons can be learned from these in more general terms, even though the act of observation predominates, almost as an end in itself. The approach is openly pedagogical and didactic, allowing the author to demonstrate his academic learning and communicate this to his (mostly

15. Cistern water was largely ignored by ancient authors too.

16. On the "domestication" of Galenic dietary advice to fit in with local consumption patterns, see Thomas Olsen, "Poisoned Figs and Italian Sallets: Nation, Diet and the Early Modern English Traveler," *Annali d'Italianistica* 21 (2003): 233–53; and David Gentilcore, *Food and Health in Early Modern Europe* (London: Bloomsbury, 2016), 85–88, 167, 181.

17. In a feudal survey of Mesagne carried out in 1731, cisterns are referred to inside the town while springs and groundwater wells are to be found in the surrounding countryside. A. Sconosciuto, D. Urgesi, and M. Vinci, eds., *L'Apprezzo del feudo di Mesagne eseguito da Pietro Vincaccia nel 1731 con l'aggiunta di documenti inediti* (Fasano: Schena, 2001).

18. Enzo Paci, "Epifanio Ferdinando: la vita, le opere e altre notizie storiche e di costume," in *Epifanio Ferdinando: medico e storico del Seicento*, ed. Mario Marti and Domenico Urgesi (Nardò: Besa, 2001), 219–49, quotation on 226.

19. The genre and Ferdinando's contribution to it are discussed in two articles by Gianna Pomata: "Sharing Cases: The *Observationes* in Early Modern Medicine," *Early Sci. Med.* 15, no. 3 (2010): 193–236, and "A Sense of Place: Town Physicians and the Resources of Locality in Early Modern Medicine," in *Civic Medicine: Physician, Polity and Pen in Early Modern Europe*, ed. J. Andrew Mendelsohn, Annemarie Kinzelbach, and Ruth Schilling (London: Routledge, 2020), 210–34.

medical) readers. Nevertheless the cases do not necessarily spotlight the doctor's triumph in the face of adversity, since Ferdinando does not shy away from presenting cases that end in the patient's death. Each case history methodically follows the same structure: introducing the illness episode, how it struck the patient, and how it developed (including local climatic and weather conditions); outlining the natural, nonnatural, and preternatural (pathology) factors involved; discussing the nature of the illness in general terms, where he cites a wide range of (mostly) ancients and (some) moderns; and commenting on the various points of view, causes of the illness, signs and symptoms, prognosis, treatment and diet (involving all of the six nonnaturals), surgical interventions (if relevant), and pharmacy and medicines used. Occasionally, he breaks free of this structure, with three of his chosen cases serving as a pretext for what amount to mini-treatises. From his discourse on famine and plague in case 52 to his explorations of tarantism in case 81 and male and female sterility in case 95, these extended discussions provide evidence of the extent to which Ferdinando's practice as physician was rooted in local realities, which included serving as Mesagne's mayor.[20]

If Ferdinando was unusual in being an enthusiast of cistern water, he was more typical of his medical peers in having a pronounced aversion to drinking water in general. Thus, the Bolognese physician Baldassare Pisanelli, writing in 1584, may have been rhapsodic on the precious nature of water as *element*, but he was much more circumscribed when it came to water's use as *aliment*.[21] Water's "qualities" as cold and humid, light and non-nourishing, presented serious problems for bodily regimen—meaning that it should be avoided when one was thirsty and that its best use was in mixing with wine.[22] Given the harm that drinking water could cause as aliment, it is not surprising that drinking water as *medicament* does not figure at all in Pisanelli. In Ferdinando, the few references to drinking water as part of treatment appear in the section of his case histories where he provides regimen advice, which includes food and drink.[23] Thus a diabetes patient with an insistent raging thirst was allowed to drink "vinum amarenatum" diluted with ferrous cistern water ("acqua cisternae chalybeatae").

20. Paci, "Epifanio Ferdinando" (n. 18), 222.

21. Baldassare Pisanelli, *Trattato della natura de' cibi et del bere* (Venice: Giovanni Battista Porta, 1584), 158.

22. Ibid., 135, 156. See also general discussion in Gentilcore, "Drinking Water" (n. 4), 690.

23. See also Nunzia Maria Ditonno and Santina Lamusta, "Cibi prescritti, consigliati o proibiti nelle Centum historiae di Epifanio Ferdinando," in Marti and Urgesi, *Epifanio Ferdinando* (n. 18), 295–361.

This was wine infused with bay leaves diluted with what was the ordinary local water in Mesagne.[24] Drinking water—the same "ferrous water"—is mentioned as part of the cure on just two further occasions, both cases of excessive menstruation.[25]

Indeed, in Ferdinando drinking water—especially cold water—far from constituting part of medical treatment, actually brought on a variety of afflictions, either as the sole cause or in conjunction with other causes. The illnesses thus caused include paralysis,[26] fever and vesical inflammation,[27] persistent hiccups,[28] nocturnal blindness,[29] kidney stones and resulting fever,[30] gout,[31] emaciation and cough,[32] hernia,[33] and heart palpitations.[34]

Drinking water was something best avoided. Ferdinando accepted its consumption in the case of diabetes mentioned above, in which the patient was "afflicted with an unquenchable, persistent and unbearable thirst" and constantly asked for water to drink.[35] But from this exception to total abstention from drinking water was a short step for Ferdinando. This is part of his recommended treatment for a case of dropsy. Not only did the patient not drink water, but, in keeping with Avicenna's advice, he

24. Ferdinando, *Centum historiae* (n. 6), hist. 37, p. 114. *Vinum amarenatum* is referred to by the jurist of Monopoli, Prospero Rendella, in his *Tractatus de vinea, vindemia et vino* (Venice: Giunta, 1629), 53.

25. Ferdinando, *Centum historiae* (n. 6), hist. 3, p. 9; hist. 33, p. 104. He is more favorable to bathing in water, as long as it is in thermal springs such as those of Ischia and Pozzuoli (ibid., hist. 10, p. 29; hist. 30, p. 94; hist. 56, p. 174; and hist. 82, p. 274).

26. Ibid., hist. 12, p. 32.

27. Ibid., hist. 19, p. 63.

28. Ibid., hist. 43, p. 128. In this case, the water consumption was exacerbated by eating large amounts of fresh fruit, another risky activity as far as Renaissance physicians were concerned. Gentilcore, *Food and Health* (n. 16), 116–17, and Paul Lloyd, "Dietary Advice and Fruit-Eating in Late Tudor and Early Stuart England," *J. Hist. Med. Allied Sci.* 67, no. 4 (2012): 553–86.

29. Ferdinando, *Centum historiae* (n. 6), hist. 51, p. 156. In this case, Ferdinando concludes that the illness was caused by drinking the "heavy water" ("aquam grassum bibebat") that is particularly common south of "our town," most likely well water.

30. Ibid., hist. 54, p. 166. In this case, the patient drank only cold water, not drinking wine.

31. Ibid., hist. 59, p. 180. The patient drank excessive quantities of water and found it especially pleasing.

32. Ibid., hist. 73, p. 215. The patient erred in drinking large amounts of water during the dog days of summer, "unbeknownst to doctors."

33. Ibid., hist. 74, p. 218. The culprit in this case was the drinking of marshy water.

34. Ibid., hist. 79, p. 239.

35. Ibid., hist. 37, p. 114.

was not even to look at it.[36] If the word "water" makes any appearance at all in Ferdinando's therapeutics and remedies, it comes in the form of a range of compound medicines, where water is used as a base or the word simply indicates a remedy in liquid form. Thus the "aqua mirabilis" is a distilled remedy, containing no water at all, and Ferdinando's "water of distilled cherries" sounds quite potent.[37] In a case of "pernicious asthma," the patient is to drink not water at all but a water-based "decoction" of guaiac or sarsaparilla instead, presumably because of their perceived warming qualities.[38]

Otherwise, wine was the preferred drink for the sick—as it was for the healthy—in his case histories. This is consistent with his own recommendations in *De vita prorogandа* and with printed regimens of the late Renaissance more broadly.[39] Indeed, in a case of heart palpitations, Ferdinando has the patient abstain from the water he "was used to drinking" and go back "little by little to wine," since wine "in this disease is more medicament than aliment"—something the patient was only too happy to do, apparently![40] In a very few cases, usually affecting the head, where Ferdinando recommends that the patient abstain from wine, then the substitute will invariably be barley water, the gentle drink favored by Galen because of its balanced qualities,[41] rather than plain water. Sometimes the barley water is to be drunk on its own, on other occasions mixed with wine.

Drinking Water in the Experimentalism of Francesco Redi

When doctors began to question received wisdom, for instance via chemical medicine, drinking water started to assume a much larger role as aliment and medicament. For instance, the first edition of the Milanese pharmacopoeia, compiled by the protophysician Giovanni Onorato Castiglione in 1668, contains a long list of compound remedies made with water, such as twenty-one "medicated waters" and a short section on dew, but nothing

36. Ibid., hist. 30, pp. 92, 93. The point was to ensure as "drying" a diet as possible. Ferdinando repeats Avicenna's advice in a second dropsy case: hist. 38, p. 116.

37. Ibid., hist. 20, p. 65; hist. 24, p. 75. Some 130 years later, and in a very different medical environment, remedies labeled "waters" (i.e., artificial waters, distillations, and decoctions), such as "the Queen of Hungary's water" or "Pomponazzi's antimonial water," continue to be prescribed by Francesco Torti, but their appearance is much less frequent.

38. Ibid., hist. 48, p. 146. Despite their simple names, both are compound remedies containing numerous ingredients besides the guaiacum or sarsaparilla.

39. Gentilcore, *Food and Health* (n. 16), 162–65.

40. Ferdinando, *Centum historiae* (n. 6), hist. 79, p. 244.

41. Galen, *De ptisana* [On the ptisan, or barley-water], in Mark Grant, *Galen on Food and Diet* (London: Routledge, 2000), 62–67.

on water itself.[42] However, the second edition, published thirty years later by Onorato's son Branda Francesco, not only is twice the length, adding a hefty section on chemical medicines, but also has an entire chapter on water. This discusses water "as element more necessary than any other in medicine," "its use as food and medicine," and which waters are best.[43]

The precursor in this regard is Francesco Redi (Arezzo 1626–Pisa 1698), our second physician. His clinical consultations place him somewhere in between Ferdinando and Francesco Torti (see next section), both chronologically and medically. Redi is certainly the most famous of the three. As medical practitioner and natural philosopher, Medici court physician, writer and poet, he is regarded as one of the pioneers of the scientific method, in particular the controlled experiment.[44] It was Redi who demonstrated the link between fly eggs, rotting meat, and maggots, disproving the notion of spontaneous generation; and it was Redi who determined how viper venom acted on the body and experimented on viper's flesh as a remedy.[45] In 1673 Redi carried out "experiences" (*esperienze*) to test whether a certain water, claimed in France and England to be "miraculous at immediately staunching all types of blood flows out of any vein or artery," really possessed this property. He found that any "pure and plain water, whether of well or fountain, can produce the staunching effect."[46] Redi is celebrated as one of the medical "moderns" who began the process of distancing European medicine from its Aristotelian and Galenic past, not afraid to challenge received wisdom. That said, he did so in a measured way, "without arrogance."[47] Not so much a radical departure, then, but something of a new openness, critical and questioning.

Redi's own concept of pathology remained essentially humoral, while being open to iatrochemical interpretations circulating at the time. Thus,

42. Giovanni Onorato Castiglione, *Prospectus pharmaceuticus, sub quo Antidotarium* (Milan: Giovanni Battista Ferrari, 1668), 25–26, 146–55.

43. Branda Francesco Castiglione, *Prospectus pharmaceutici editio secunda, sub quo Antidotarium Mediolanense galeno-chimicum* (Milan: Carlo Giuseppe Quinto, 1698), 36–38.

44. Barbara Hawgood, "Francesco Redi (1626–1697): Tuscan Philosopher, Physician and Poet," *J. Med. Biogr.* 11, no. 1 (2003): 28–34.

45. Francesco Redi, *Osservazioni intorno alle vipere* (Florence: all'Insegna della Stella, 1664); English trans. Peter Knoefel, ed. and trans., *Francesco Redi on Vipers* (Leiden: Brill, 1988). See also Jay Tribby, "Cooking (with) Clio and Cleo: Eloquence and Experiment in Seventeenth-Century Florence," *J. Hist. Ideas* 52 (1991): 417–39.

46. Redi, *Opere di Francesco Redi* (Florence: Giuseppe Manni, 1724), vol. 4 (Lettere), 254–55.

47. Pascal Duris, "L'introuvable révolution scientifique. Francesco Redi et la génération spontanée," *Ann. Sci.* 67, no. 4 (2010): 431–55; Paula Findlen, "Controlling the Experiment: Rhetoric, Court Patronage and the Experimental Method of Francesco Redi," *Hist. Sci.* 31, no. 1 (1993): 35–64.

Redi could regard the workings of the stomach in Galenic terms, explaining by analogy the immediate effects of drinking warm liquids as "we see pots full of hot water reach boiling faster than those full of cold water,"[48] while also using iatrochemical language. Likewise, his medical practice was a mixture of the traditional with a few important departures. These partly stem from his general approach, which has been called agnostic and iconoclastic.[49] All of this is clearly evident in his surviving consultations, which attempt to reconcile evolving knowledge and a critical approach to received wisdom, on the one hand, with standard Renaissance therapeutics, on the other.

Redi never prepared his epistolary consultations for publication. What survives was gathered together and published posthumously, first by the publisher Giuseppe Manni in 1726, and second by literary scholar Carla Doni in 1985.[50] The former collection contains 55 consultations, including a few that are fragments, while the latter contains an additional 161, some of which are more personal letters than proper consultations, sometimes quite brief, as well as fragments and various medical "notes." As they emerge from these two collections, Redi's consultations scrimp on information about the patients themselves, of the kind we see in Ferdinando and, later, in Torti. Redi's patients are mainly members of the Tuscan elite. However, Redi's consultations share with theirs the same didactic intent, even if this information is sometimes imparted in Redi's particular style, at once humane, idiosyncratic, and literary. He has no difficulty in responding to one patient "with simple and direct words, a long way from the obscure terms, half-Greek and half-Latin, commonly used and peddled by common doctors . . . since this is my usual custom and manner of writing."[51]

Redi's dietary and therapeutic recommendations would have been broadly familiar to a Renaissance physician like Ferdinando, although his treatments are less complex. "Nature enjoys the simplicity of things," Redi remarks.[52] To his sister-in-law he provides the following concise recommendation: "Drink water. Take clysters often. If you need to, have

48. Francesco Redi, *Consulti medici*, ed. Carla Doni (Florence: Centro Editoriale Toscano, 1985), 226 (hereafter Redi, *Consulti* [1985]).

49. C. A. Madrignani, "Il metodo scientifico di Francesco Redi," *Rassegna della Letteratura Italiana* 65 (1961): 476–89, quotation on 487; Bertoloni Meli, *Mechanism* (n. 5), 349.

50. Francesco Redi, *Consulti medici* (Florence: Giuseppe Manni, 1726) (hereafter Redi, *Consulti* [1726]); Redi, *Consulti* (1985) (n. 48). See also Bertoloni Meli, *Mechanism* (n. 5), 344–49.

51. Redi, *Consulti* (1985) (n. 48), 355.

52. Redi, *Consulti* (1726) (n. 50), 163.

more blood let."[53] For a "hypochondriac"—here in the sense of pain in the lower abdomen—Redi concludes that healing requires time and calm of the spirit, with only gentle and delicate medicines. He comments critically that the patient "has taken so many and different sorts of medicines that they would have been sufficient to cure or kill all of the poor sufferers languishing not just in the Santo Spirito Hospital but in the St John Lateran Hospital as well."[54]

If the general thrust of Redi's consultations might have been broadly familiar to Ferdinando, his enthusiasm for the consumption of local "ordinary, pure" water was radically different and quite new—an enthusiasm that would continue apace with Torti (as we will see below). Redi remarks in one consultation, "When men drank water, the sacred scriptures tell us, they lived to be 900 years old or more; but after Noah introduced the use of wine, our lifetimes were notably reduced."[55]

To suggest how the author of *Arianna Inferma* emerges from the pages of his consultations, it is helpful to return briefly to Redi's two poetic odes. In *Bacco in Toscana*, Bacchus and his consort Ariadne take an imagined tour of the grand duchy, imbibing the wines as they go.[56] While Redi has Bacchus sing the praises of a wide range of wines, their differing qualities and benefits—and get quite drunk in the process—he has his consort Ariadne praise a variety waters, in response, in *Arianna Inferma*. Redi's Ariadne is not really ill, just suffering from a bad hangover that has made her so parched "she could drink a well."[57] And while Redi's Bacchus mocks those "meager doctorlings" (*magri mediconzoli*) who think water can "cure all sorts of ills"[58]—which is Redi taking a wry potshot at himself—in *Arianna Inferma* it is the doctors' opposition to drinking water he pillories, as we noted at the beginning of this article.

We get a sense of Redi's enthusiasm for ordinary local waters in the surviving fragments that make up *Arianna Inferma*. The waters of Fiesole and of the Arno and Tiber rivers are mentioned, as is the Pimenteira spring outside Lisbon.[59] Ariadne describes in loving detail the qualities of

53. Redi, *Consulti* (1985) (n. 48), 282.

54. Redi, *Consulti* (1726) (n. 50), 93. Redi is referring to two Roman hospitals that were then among Italy's largest.

55. Ibid., 131.

56. On the Tuscan grand-ducal context for Redi's work, see Giovanni Cipriani, "Il vino alla corte medicea," *Rivista di storia dell'agricoltura* 42, no. 1 (2002): 111–26.

57. Redi, *Arianna Inferma* (n. 1), 105.

58. Redi, *Bacco in Toscana* (n. 2), 25; *Bacchus in Tuscany* (n. 2), 44.

59. Redi, *Arianna Inferma* (n. 1), 113, 144. This was the spring favored by the Portuguese court, which the future grand duke Cosimo III would come to know during his monthlong stay there in 1669. Riguccio Galluzzi, *Istoria del granducato di Toscana sotto il governo della casa Medici* (Capolago: Elvetica, 1841), 6:179.

the spring at the Medici villa at Pratolino, but reserves her greatest praise for the waters of Siena's Fontebranda fountain, which she would gladly exchange for all the casks of Valdarno and Chianti wines:

Thus, it is my hope	*Così da me si spera*
to chase away the raging	*di cacciar via l'infesta*
fever, and with it the great headache,	*febbre, e con essa il gran dolor di testa,*
and that so painful	*e quella sì molesta*
oppilation, which through no want of mine,	*oppilazion, che non per mio difetto,*
but by the influence of a cruel planet	*ma per influsso d'un crudel pianeta*
makes me barren to my husband in bed	*steril mi rende al mio consorte in letto.*[60]

We can only imagine what Redi might have said about other well-known waters from around Tuscany and beyond had the full poem survived. There is just one hint. In a letter of 1687 Redi told Giuseppe Valletta in Naples how his poem was going to contain an appreciation of the waters of that city's *Formale*, Naples's vast underground water system, a portion that, alas, does not appear in the surviving fragments of the poem.[61]

When it comes to his consultations, Redi's advice is to drink whatever water is commonly to hand, ordinary local water, specifying only that it be "pure and plain spring [*fonte*] water, or from a good cistern or a good well."[62] The hierarchy of waters so entrenched in Renaissance authors (including Ferdinando), derived from antiquity, is largely absent. Indeed, if well water was previously maligned, Redi regards it as quite good to drink.[63] That said, a tension between the specificity of particular local waters and their inherent interchangeability goes unresolved in Redi—but then, he was active a hundred years before Antoine Lavoisier reduced all waters to a single chemical compound of oxygen and hydrogen.[64]

When Redi refers to the ordinary water of a specific place, this is partly as a matter of convenience for the patient. In two consultations Redi

60. Redi, *Arianna Inferma* (n. 1), 113.

61. Redi, *Opere* (n. 46), vol. 4, 254–55. Valletta was coordinating Redi's works for publication by the printer Giacomo Raillard. On the Neapolitan hydraulic system and the high esteem of its waters among contemporaries, see David Gentilcore, "'Cool and Tasty Waters': Managing Naples's Water Supply, c. 1500–c. 1750," *Water Hist.* 11 (2019): 125–51.

62. Redi, *Consulti* (1726) (n. 50), 84.

63. Better still when taken as an enema, another favorite treatment of Redi's: "Well water does not force open the guts as is generally thought by vulgar doctors, but is very pure, and was used in ancient times with much benefit in the preparation of clysters" (Redi, *Consulti* [1985] [n. 48], 188).

64. On this transition, see Christopher Hamlin, "'Waters' or 'Water'?—Master Narratives in Water History and Their Implications for Contemporary Water Policy," *Water Policy* 2 (2000): 313–25; Jamie Linton, *What Is Water? The History of a Modern Abstraction* (Vancouver: University of British Columbia Press, 2010), 73–88.

recommends "acqua di fonte di Pisa" both as a drink on its own and as a base for medicines, for two patients from the area.[65] In a case of "nodules in the eyelids," the young female patient is advised to drink water from the Trevi Fountain, "whether cold or warm, as she wishes," as long as it is "pure and neat, without being sweetened in any way." From 1570, the fountain was the terminus for Rome's restored Acqua Vergine aqueduct (although the fountain itself was not the one we know, which was erected between 1732 and 1762, but a medieval antecedent). Indeed, Redi goes on to say that if the patient considers that water "something too vulgar," she could turn to barley water or herb waters. Finally, it is most necessary ("necessario necessarissimo") "that for many, many months she should abstain totally from wine, drinking water in its place."[66]

If Redi's appreciation for ordinary local waters is quite new, the rationale for it may be partly traditional. Despite Redi's experimental and skeptical approach toward received wisdom, it may hark back to a Galenic preference for what is local when it comes to an individual's food and diet, since its continued consumption becomes part of the fabric of one's body and is thus considered crucial to the maintenance of health. It is also an illustration of how each local water was perceived as qualitatively different, to be evaluated and, possibly, appreciated on its own terms—a notion that likewise goes back to antiquity.[67] Then again, Redi emphasizes the interchangeability of waters, as long as they were pure, which is new. He is conscious, too, that some of his patients may find their ordinary local water far too ordinary, "too vulgar," to use in treating themselves, so he gives them the option of purchasing barley water or a comparable bottled spring water from an apothecary's shop (as we shall see below).

Redi is occasionally at pains to stress that drinking ordinary water is not harmful, contrary to long-standing medical ideas. He advises a patient suffering from "a most obstinate obstruction in the veins of the uterus," "to drink according to her thirst"—the mere notion would have been anathema to a late Renaissance physician like Ferdinando! And, indeed, recognizing that the patient might be worried about the effects of all this water on her stomach, Redi seeks to put her at ease by insisting that "the stomach is never harmed and troubled by fresh things, but only by things overly heating, acrid, sharp, pungent, irritating."[68] If Redi

65. Redi, *Consulti* (1726) (n. 50), 73, 168. This is ambiguous, as *fonte* can mean either a fountainhead or a spring: thus either water from a fountain in the city or perhaps the thermal baths at Bagni di Pisa. It is difficult to discern from the context which of these Redi means.

66. Ibid., 10.

67. Gentilcore, "Drinking Water" (n. 4), 686–87.

68. Redi, *Consulti* (1726) (n. 50), 85.

refutes doctors' objections to treating fever patients with ordinary water, he does however insist on its quality. "In prescribing that fever patients drink water, it is understood that this water should always be reputable and good," he writes. But any good water would do, whether from spring, cistern, or well.[69]

Redi often accompanies his dietary recommendations with advice to his patients to abstain from wine. It may come as a surprise that the author of an ode in praise of wine advises his patients that wine is best avoided, as Redi did in seventeen of his consultations (eleven in Manni, six in Doni).[70] To his brother, Redi offers the example of the Tuscan grand-duke, Cosimo III, who "for the past fifteen years has not even tasted wine, and has always drunk water pure and simple, without ever sweetening it or souring it, but using only water pure as God made it."[71] The stomach digests water more easily than wine, "of which I have a hundred infallible proofs," Redi claims elsewhere.[72] Moreover, "generous" wines are always harmful because "they mix with the fluids that flow and reflow through the channels of our body," where they "ferment" (*ribollire*), making respiration difficult.[73] If consumed at all by patients, the wine should always be well watered: in the case of fever patients, citing Hippocrates, this should be one part wine to twenty-five parts water.[74] But Redi is no killjoy. The author of *Bacco in Toscana* comes through in a consultation from 1689 where he writes in answer to a patient's query, "If I were in Florence I would give you a flask of the most exquisite Montepulciano wine, which would end all disputation on the matter, because coming from the hands of a friendly doctor and servant, one could believe it the equal of ambrosial nectar or even better a panacea"—with the proviso that the wine should be to the patient's taste and "well watered."[75]

Water as beverage figures in just under half (27 of 55) of the Manni consultations and in just under a fifth of the Doni collection (31 of 161). These can be divided into recommendations for ordinary local water (9 in Manni, 12 in Doni) and mineral waters (18 in Manni, 19 in Doni). In his use of mineral waters, Redi is not adding anything original, since

69. Ibid., 247.

70. In fact, *Bacco in Toscana* ends with the dire effects of inebriation and excess, while *Arianna Inferma* affirms that the consumption of undiluted wine should be banned (Redi, *Arianna Inferma* [n. 1], 112).

71. Redi, *Consulti* (1985) (n. 48), 314–15.

72. Ibid., 136.

73. Redi, *Consulti* (1726) (n. 50), 89.

74. Ibid., 248.

75. Redi, *Consulti* (1985) (n. 48), 120. Redi has Bacchus pronounce Montepulciano "the king of all wine" (Redi, *Bacco in Toscana* [n. 2], 31; *Bacchus in Tuscany* [n. 2], 55)

their use in medical therapeutics was well established by his time, part of a widespread "culture of thermal springs."[76] In Redi's case, however, it was not mineral water as such that interested him. Aside from Nocera and Tettuccio waters, Redi makes very little use of them. He considers their consumption best avoided because of their high mineral content, which remains "in our bodies," in preference for common water.[77]

Why does Redi use Nocera and Tettuccio mineral waters then? The two waters had markedly different but complementary functions. Nocera water was considered gentle and soothing, ideal to take after a bloodletting or a purge. The quantities Redi suggested could be quite substantial, such as the six or seven pounds (over two liters) recommended, following a purge.[78] The enthusiasm we see for Nocera water in Redi's consultations is echoed in his *Arianna Inferma*, the only mineral water referred to in the poem. Ariadne anticipates the objections of doctors to her drinking ordinary water and so asks them for water from the springs at Nocera, knowing they cannot object to that:

This water is good for fever and cholic pain,	*Questa è buona alla febbre e al dolor colico,*
heals kidney stones and chest pains,	*guarisce la renella, e il mal di petto,*
gladdens the melancholic,	*fa diventare allegro il malinconico,*
frees up the stretcher,	*l'appigionasi appicca al cataletto,*
and leaves the gravediggers idle,	*ed in ozio fa star tutt'i becchini,*
But one mustn't merely sip it;	*ma non bisogna berla a centellini;*
And what is important, the doctor approves of it	*e quel che importa, il medico l'approva,*
and in a hundred thousand bizarre cases	*e in centomila casi stravaganti*
he has even demonstrated its powers,	*ha fatto ancor di sue virtù la prova*
praising it more that Chianti wine.	*celebrandola più del vin di Chianti.*[79]

The ironic touch here is in Redi having Ariadne refer to himself and his own "experiences" with Nocera water.

For Redi, Nocera water served as a medically approved substitute for ordinary local water. Its use would appeal both to other physicians and to Redi's patients, either not satisfied with or unaccustomed to the medical use of common waters. Redi may have been the most celebrated

76. Didier Boisseuil, "Impiego e cultura delle acque termali in Italia nel Rinascimento (XIII–XVI secolo)," in *La civiltà delle acque tra Medioevo e Rinascimento*, ed. Arturo Calzona and Daniela Lamberini (Florence: Olschki, 2010), 2:491–505, quotation on 505.

77. Redi, *Consulti* (1726) (n. 50), 43, 75. Perhaps this is why there are no references to thermal water bathing, or indeed any kind of bathing, in Redi's consultations.

78. Redi, *Consulti* (1985) (n. 48), 130.

79. Redi, *Arianna Inferma* (n. 1), 104.

enthusiast for Nocera water, but he was certainly not alone. Histories of the European trade in mineral waters tend to start their story in the mid-nineteenth century;[80] but in fact mineral waters were being put into sealed glass flasks at their source and transported in crates for the elites to drink at home from the sixteenth century and were being widely sold in apothecaries' shops in France and Italy from the early seventeenth.[81] In Nocera a new fountainhead was built in 1611 to enable access to the water, and around the same time newly appointed "water deputies" ensured the proper seals were affixed to barrels leaving the site.[82] At the same time, physician Annibale Camilli, lecturer at the University of Perugia, promoted the "virtues" of the water in a treatise published in 1601 and again, in a much expanded edition, in 1614—itself republished in 1627, 1638, 1646, 1660, and 1689.[83] By the middle of the century, Nocera water was being sold "not only in Rome, Florence, Milan and other places in Italy, but also in Germany, Portugal, Constantinople and in other most distant regions," according to local priest and scholar Lodovico Iacobilli.[84] Thus, in April 1680 the Venetian College of Apothecaries voted to uphold their right to sell Nocera water retail, as a medical substance, against a

80. Nicolas Marty, *L'invention de l'eau embouteillée. Qualités, normes et marchés de l'eau en bouteille en Europe, XIXe–XXe siècles* (Brussels: Peter Lang, 2013); Paolo Raspadori, "Bollicine. Per una storia dell'industria delle acque minerali in Italia dalle origini agli anni ottanta del Novecento," *Annali di storia dell'impresa* 13 (2002): 357–96.

81. The Italian "prehistory" of the trade in thermal and mineral waters has yet to be studied. On bottling for home consumption, see Didier Boisseuil and Marilyn Nicoud, "L'invention d'une source: les Bagni della Porretta, les médecins et les autorités publiques," in *Séjourner au bain: Le thermalisme entre médecine et société (XIVe–XVIe siècle)*, ed. D. Boisseuil and M. Nicoud (Lyon: Presses universitaires de Lyon, 2010), 71, 87–88, and Rita Mazzei, "Il viaggio alle terme nel Cinquecento. Un 'pellegrinaggio' d'élite fra sanità, politica e diplomazia," *Archivio Storico Italiano* 172, no. 4 (2014): 665. On their sale by apothecaries in France, see Cécile Raynal, "La vente des eaux minérales par les pharmaciens," *Revue d'histoire de la pharmacie* 92, no. 344 (2004): 587–606, and Pascale Cosma-Muller, "Entre science et commerce: Les eaux minérales en France à la fin de l'Ancien Régime," *Hist. Reflect. / Réflexions Historiques* 9, no. 1/2 (1982): 249–62.

82. Gabriele Caldari, "Dai bagni all'acqua di Nocera Umbra," *Proposte e Ricerche: Economia e Società nella Storia dell'Italia Centrale*, no. 60 (2008): 115–37; Luciano Giacchè, "Acque alimentari e acque medicinali," in *L'acqua in Umbria. Disponibilità, consumo e salute* (Perugia: ARPA, 2013), 133–54.

83. Annabile Camilli, *Del bagno di Nocera nell'Umbria, detto acqua santa overo acqua bianca* (Perugia: Vincentio Colombara, 1601). For the book's publishing history, see Caldari, "Dai bagni all'acqua" (n. 82), 117n10.

84. Lodovio Iacobilli, *Di Nocera nell'Umbria e sua diocesi* (Fologno: Agostino Alterij, 1653), 42.

petition by a certain Antonio Salvatori of Perugia to enforce his contract to sell it wholesale.[85]

The only other mineral water Redi used was the saline Tettuccio water, from Montecatini. He favored it (like Torti later) for its purgative properties, it "having this property with its salty part to purge the channels [of the body], invigorate the stomach and to affect and cut through the viscous and sticky matter."[86] Redi had frequent recourse to purgation in his consultations: nothing was reputed better to treat a case of persistent diarrhea than a good purge.[87] In using Tettuccio water, Redi was accessing a more local, Tuscan resource, whose more extensive Italian-wide commercialization belongs to the eighteenth century, to which we now turn.[88]

Drinking Water, Therapeutics, and Mechanical Medicine

In our third series of medical cases, dating from roughly 130 years after Ferdinando, the transformation in favor of drinking water is complete, firmly entrenched as both aliment and, even more enthusiastically, medicament. Francesco Torti (Modena 1658–1741) studied at the University of Bologna, graduating in 1678. Together with Bernardino Ramazzini, Torti joined the newly created University of Modena and in 1685 became personal physician to the duke of Modena. He is best known for his work on what was then known as ague or intermittent fever (malaria) and the use of Peruvian bark (or cinchona) to treat it.[89] As we shall see, while much of Torti's vocabulary was new, consistent with a new medical philosophy, this was superimposed on the Hippocratic-Galenic philosophy that preceded it.

85. Biblioteca del Museo Correr, Venice, *Mariegola* 209 (Speziali da medicina), I, fol. 219r, cited in Sabrina Minuzzi, "Sul filo dei segreti medicinali. Praticanti e professionisti del mercato della cura a Venezia (secoli XVI–XVIII)" (Ph.D. diss., University of Verona, 2008), 32.

86. Redi, *Consulti* (1985) (n. 48), 163. The language here is quite iatrochemical.

87. Redi, *Consulti* (1726) (n. 50), 141.

88. Alessandro Bicchierai, *Dei bagni di Montecatini* (Florence: Gaetano Cambiagi, 1788), 42–56; Vieri Becagli, "Da San Giuliano a Montecatini. Lo sfruttamento delle risorse termali nella Toscana del Settecento," in *Una politica per le Terme: Montecatini e la Val di Nievole nelle riforme di Pietro Leopoldo* (Siena: Periccioli, 1984), 174–210.

89. Francesco Torti, *Therapeutice specialis ad febres periodicas perniciosas* (Modena: Bartolomeo Soliani, 1712). On Torti, see Saul Jarcho, *Quinine's Predecessor: Francesco Torti and the Early History of Cinchona* (Baltimore: Johns Hopkins University Press, 1993); Fiorella Lopiccoli, "Medicina teorica e medicina pratica nel primo Settecento: Francesco Torti (1658–1741) e il dibattito sull'uso terapeutico della china-china contro le febbri intermittenti" (Ph.D. diss., University of Geneva, 2011–12).

Torti dictated his 303 "medical consultations," compiled at various times during his medical practice, while in retirement, in preparation for publication—although he later changed his mind about that.[90] They thus remained in three manuscript volumes until doctor and historian of medicine Saul Jarcho painstakingly rendered them into English.[91] The consultations date from the 1720s and 1730s (mostly undated, some have dates in the text). They were written in response to queries from the local consulting physicians or to the patients themselves.

By the eighteenth century medical consultation by letter, although practiced since the late Middle Ages in Italy,[92] had become a common and lucrative procedure throughout Europe. For many physicians letter writing had become "a constituent part of their professional and learned activities."[93] Benefiting from increased literacy, and improved transport links and postal networks, their correspondents might be laypeople, women and men, as well as their professional colleagues.[94] In form and content the epistolary consultation can be as structured and as "knowing" as the case history. However, unlike the case history, the author of the epistolary consultation generally had no direct contact with the patient and the outcome of the case was not known. Despite this limitation, the letters provide a real insight into how physicians thought when it came to practical medicine, if not actual practice at the patient's bedside. The fact that they are letters may explain why Torti feels no obligation to refer

90. Torti tells us that he changed his mind for two reasons. First, since the advice he offered in reply to queries from other doctors sought to be consistent with their own often quite different medical philosophies, his recommendations had to fit a range of theories, not always ones Torti himself shared. Second, in most instances Torti was unaware of the outcomes of the cases he advised on, so they lacked closure. In Saul Jarcho, ed. and trans., *The Clinical Consultations of Francesco Torti* (Malabar, Fla.: New York Academy of Medicine-Krieger, 2000), 910–11.

91. Francesco Torti, "Consultazioni mediche" (Biblioteca Estense Universitaria di Modena, α. no. 8), 10–12; Jarcho, *Clinical Consultations* (n. 90). They have never been published in Italian, but since Jarcho's translation keeps quite close to the original, we will cite from it.

92. On the *epistolae medicinales* as a genre and its development, see Nancy Siraisi, "Medicine and the Renaissance World of Learning," *Bull. Hist. Med.* 78 (2004): 1–36, and Siraisi, *Communities of Learned Experience: Epistolary Medicine in the Renaissance* (Baltimore: Johns Hopkins University Press, 2013); Ian Maclean, "The Medical Republic of Letters before the Thirty Years War," *Intellect. Hist. Rev.* 18, no. 1 (2008): 15–30; and Jole Agrimi and Chiara Crisciani, *Les* consilia *médicaux* (Turnhout: Brepols, 1994).

93. Hubert Steinke and Martin Stuber, "Medical Correspondence in Early Modern Europe: An Introduction," *Gesnerus*, no. 61 (2004): 139–60, quotation on 142.

94. Séverine Pilloud, *Les mots du corps. Expérience de la maladie dans les lettres de patients à un médecin du 18e siècle: Samuel Auguste Tissot* (Geneva: Editions BHMS, 2013), 32–34.

readers to his published work, unlike Ferdinando.[95] In any case, as with the case histories, we are interested primarily in the advice they contain.

Torti's patients were mostly noblemen, officials, clerics, and nuns (and a few children) from northern and central Italy, with a sprinkling of foreigners (from Austria, Switzerland, and France); there is no one from the artisan rank downward. If rather verbose, in the style of the day, the tone of the letters is friendly and factual, presenting enough information to justify the advice and course of action without overwhelming the reader with abstract theoretical digressions or great displays of learning. Each consultation has a heading based on prominent symptoms or names given to some diseases, such as "melancholic sickness in a child" or "callous ulcer in the tongue." Not surprisingly, given Torti's fame and interests, consultations for fevers figure prominently. But there are also a wide range of other afflictions: abdominal discomfort, chest palpitations, irregular menses, back pains, urinary difficulties, and hypochondria.

As with Ferdinando's *Observationes*, Torti's collected medical consultations seem designed to highlight what can be learned from medical practice. In approach and structure, too, there are some continuities. The patient's individual temperament and constitution still occupy a place in clinical assessment and are mentioned at the beginning of each consultation; and Torti's recommendations are shared between lifestyle changes (regimen) and the ingestion of medical remedies. There are also fairly similar in structure and exposition to Ferdinando's. But Torti's differ in providing only summary patient histories and in lacking direct physical inspection and observation—typical limitations associated with long-distance medical management.

Torti was in two minds when it came to theory—"method" or "system"—an ambivalence summed up in reply to a query regarding a case of convulsions:

> The illness of the lady described therein needs good medicines more than beautiful theories, which often involve extremely intricate controversies but have very small conclusions; nevertheless it is equally true that without some judicious reasoning, compatible with observations and practice, no method can be established for guiding a treatment properly if it is not necessary to operate merely empirically or haphazardly.[96]

That said, the theoretical underpinnings of a doctor of Torti's time and place are there in abundance: the importance of constitution and temperament, humoral balance, and regular evacuation and the centrality

95. Torti refers to his book only once, in case 269 on hypochondriacal sickness (732).
96. Torti, "Consultazioni mediche" (n. 91), case 256, p. 688.

of diet. All of these represent continuity with the medical world of Ferdinando (and, to a lesser extent, Redi). This may be above all rhetorical. As Torti wrote in one of his consultations, knowledge of physiology and pathology had progressed markedly "in the course of about a century," while therapeutics had advanced relatively little.[97] Thus, viper's flesh is a constant. Indeed, even more than Ferdinando, Torti is prone to have recourse to exotic polypharmacy, despite his claims to simplicity in drugs. If Torti does have a method, it lies in his routine use of two therapeutic interventions. There are "two drugs which are universal . . . if not for eradicating, at least for assuaging the ferocity of the disease," he writes in regard to a case of epilepsy, but which can be extended to almost all of his consultations: "The first would be to drink water constantly during the duration of his life . . . the second is bloodletting repeated appropriately many times."[98]

With regard to Torti's enthusiastic use water, what can explain the shift? What is new, compared especially to Ferdinando, is Torti's iatromechanical understanding of physiology. Torti likened the body to a hydraulic-pneumatic mechanism, where liquids and solids were both responsible for the workings of the body, with liquids more important ("primary"). As water flowing through channels made a mill turn, so blood coursing through the veins allowed the body to function.[99] Torti also uses this water mill analogy in one of his consultations, which actually turns into a short essay on a case of diabetes. Here he also indicates that the correction of the liquids might be more important to the cure than that of the solids. In this case Torti offers an extended essay on the "mechanical system," citing some of the main European iatromechanists of his day.[100]

Mechanical medicine brought with it a complete change in the way physiology (how the body functioned) and pathology (how it malfunctioned) were perceived, resulting in a new role for drinking water. Maintaining flow in the bodily machine was the key. Halle physician Friedrich Hoffmann had been the first to propose "common water" as a "universal medicine in preventing and curing diseases," in 1712.[101] As aliment,

97. Ibid., case 9, p. 51.

98. Ibid., case 273, p. 742.

99. Francesco Torti, *Therapeutice specialis ad febres periodicas perniciosas* (Venice: Laurentium Basilium, 1769), 37–38.

100. Torti, "Consultazioni mediche" (n. 91), case 244, p. 654.

101. Frederick [Friedrich] Hoffmann, *An Essay on the Nature and Properties of Water. Shewing Its Prodigious Use and Proving It to Be an Universal Medicine* (London: L. Davis and C. Reymers, 1761), 19. This is a translation of his *Dissertatio solemnis medica de aqua medicina universali* of 1712, a work that circulated widely in Latin, both on its own and, later, as part of Hoffmann's *Opera omnia* (first edition 1740) and was also translated into English, French, and German.

Hoffmann argued, drinking water kept the blood fluid, increased the appetite, cleansed the intestines, and carried nourishment throughout the body, thus preventing disease. It was "universal" in the sense of being suited to all types of people.[102]

For this reason, drinking water could only be beneficial. In Torti's words, "As to the use of practical remedies that can produce and maintain fluency of the entire humoral mass, both the red fluids and the white . . . I favor water in the first rank, as much as the ordinary drink as for washing." This extended to "cooling mineral waters for all the channels," like Nocera or Villa waters, and for the exterior, "baths of sweet [i.e., fresh] water."[103] Indeed, in virtually all of his consultations, Torti recommends that the patient abstain from drinking wine, in favor of water. Water is to be preferred "to every artificial drink."[104] As for wine, "it is known from experience," Torti writes, "that just as wine applied externally comforts the nerves, when it is taken internally it weakens, and induces tremors, dizziness, paralyses, and similar troubles."[105] And, as for water as aliment, Torti, like Redi, expresses a marked preference for plain, "pure" water as the patient's "ordinary drink."[106] In other consultations he refers to "clear fountain [i.e., spring] water," "natural and pure" water, or, for a patient in Mantua, "ordinary water from better sources [i.e., springs] or cisterns, provided that it is clear."[107] Torti thus goes further than Redi in jettisoning any specificity of different common waters; all pure, clear waters seem created equal. Torti differs slightly from Hoffmann as well, who wrote of "common" water in general yet stressed the obvious differences between them, before concluding that rainwater collected in the countryside was the best for medical use.[108]

Francesco Paolo De Ceglia, *I fari di Halle: Georg Ernst Stahl, Friedrich Hoffmann e la medicina europea del primo Settecento* (Bologna: il Mulino, 2009), 388–91. See also Gentilcore, "Drinking Water" (n. 4), 699–700.

102. Hoffmann, *Essay* (n. 101), 2–3.

103. Torti, "Consultazioni mediche" (n. 91), case 68, p. 212. In most cases Jarcho's translation is impeccable, but occasionally his literal approach is misleading, as when he translates the Italian *acqua dolce* as "sweet water" instead of "fresh water." As this passage suggests, Torti also favored the use of bathing as part of treatment. Baths and bathing figure in just over a fifth of his consultations (in 68 or 22.4 percent), whether in ordinary local water (41 or 13.5 percent) or in thermal springs (31 or 10.2 percent).

104. Ibid., case 103, p. 297.

105. Ibid., case 244, p. 656.

106. Ibid., case 2, p. 28.

107. Respectively, ibid., case 12, p. 61; case 31, p. 118; and case 101, p. 290.

108. Hoffmann, *Essay* (n. 101), 12–17. Although the differences may be implicit in Torti.

In any case, there are indications that not everyone was happy drinking all this water. When Torti is not advising total abstinence from wine, he might write "I would be most pleased if he [the patient] chose pure water, or at least wine greatly diluted with water," hinting at some negotiation going on.[109] Elsewhere Torti was realistic enough to admit that "some concession must be made to habit and taste."[110] To coax reluctant patients off wine Torti had no objection to flavoring the water "lightly with a little cinnamon or modified with fragmented bread soaked in it."[111] Evidently ideas against the drinking of common water remained among his patients (though no longer among doctors, it would seem). Torti feels obliged to reassure one patient regarding "the scruples he has always had against drinking pure water for fear of incurring greater sickness, since I am very far from believing it to be harmful in any way when it is completely pure, clear and free from admixture of foreign matter."[112]

When it comes to drinking water as medicament, Hoffmann regarded water was the best remedy for both acute and chronic diseases, due to how it increased "flow" in the body, countering "obstructions."[113] Torti was not far behind. He suggested that merely switching from wine to water "alone would be by itself a great remedy."[114] We opened this section with reference to the mechanical medicine of Torti's time and his water mill analogy to account for this shift; in a consultation from 1734 he lends his support to a fairly new therapeutic "method" involving water consumption. In response to a case of "asthmatic illness," Torti pens a lengthy reply to a patient's query "about the watery diet based on the method of Cirillo."[115] He sees no reason why it should not have some positive effect.

> I am convinced that his kind of total, very simple and continued washing of the human body, the texture of which is virtually nothing but a big bundle of channels of little blisters and tubes, all of which are filled with various liquids perpetually circulating, could be able to change to a large extent the tendency of those very liquids and subsequently that of the solids also, and of the fibers, to the continual movement of which a tasteless and clear fluid contributes, constantly entering instead of so many others, both red and white, and greatly differing.[116]

109. Torti, "Consultazioni mediche" (n. 91), case 10, p. 58.
110. Ibid., case 2, p. 28.
111. Ibid., case 18, p. 82.
112. Ibid., case 260, p. 701.
113. Hoffmann, *Essay* (n. 101), 33–34.
114. Torti, "Consultazioni mediche" (n. 91), case 109, p. 308.
115. Ibid., case 42, pp. 149–50.
116. Ibid., case 42, p. 149.

The reference is to the Neapolitan Niccolò Cirillo, doctor at the city's Incurables hospital and professor of practical medicine at the University of Naples until his death that same year (1734). Cirillo's views on the medical uses of water to treat fever and other acute diseases were published in the *Transactions of the Royal Society* in 1730; but his medical consultations, compiled during the first three decades of the century, also refer to the use of drinking water in therapeutics.[117] A consultation dating from 1707 discusses the successful use of copious amounts of cold drinking water in a case of fever, which by 1722 he is calling his "watery diet" (*diaeta aquea*).[118] This has echoes of John Hancocke's very successful *Febrifugum Magnum*, which Cirillo cites.[119] Cirillo's ideas are also reminiscent of his close contemporary and fellow Neapolitan, Niccolò Crescenzo, and his "water medicine."[120] Indeed, one might be tempted to speak of a Neapolitan "school" in the therapeutic use of drinking water, were it not for the fact that Cirillo and Crescenzo do not so much as mention one another in their respective works. In any case, Torti is indirectly familiar with Cirillo's "diet," having "heard of it mainly by report . . . that it cures many sicknesses." Torti's reply is the closest he gets to outlining a "method" in his epistolary consultations, accounting for the effects of drinking water. It demonstrates the extent to which Torti was part of broader Italian medical trends that welcomed and put into practice the use of water as medicament, in addition to aliment.

In a case of "melancholy and maniacal delirium" Torti advises, "As to drinks I prefer pure water to everything else and wish to have it taken copiously."[121] For "hysterical attacks," Torti has "found in practice no rem-

117. Niccolò Cirillo [Nicolao Cyrillo], "De frigidæ in febribus usu," *Transactions of the Royal Society* 36 (January 1730): 142–51; Cirillo, *Consulti medici* (Naples: Novello de Bonis, 1738), 3 vols.

118. Cirillo, *Consulti medici* (n. 117), 1:49–51 and 3:157–62.

119. John Hancocke, *Febrifugum Magnum: or Common Water, the Best Cure for Fevers and Probably the Plague* (London: R. Halsey, 1723), cited in Cirillo, "De frigidæ" (n. 117), 146. On the success of Hancocke's work and reaction to it, see Gentilcore, "Drinking Water" (n. 4), 700–702, and Mark Jenner, "Quackery and Enthusiasm, or Why Drinking Water Cured the Plague," in *Religio Medici: Medicine and Religion in Seventeenth-Century England*, ed. O. P. Grell and A. Cunningham (Aldershot: Scolar Press, 1996), 313–39.

120. Niccolò Crescenzo, *Ragionamenti intorno alla nuova medicina dell'acqua* (Naples: Gennaro Muzio, 1727). In these "Argumentations Around the New Water Medicine," Crescenzo outlines how to tailor different temperatures of water, in different quantities, to treat a wide range of illnesses. Intriguingly, Crescenzo remarked that his "water method" was easier for non-doctors to appreciate than for doctors, steeped as they were in their "ideas against water" (ibid., 343)—reminiscent of Redi's own judgment of his medical contemporaries fifty years earlier.

121. Torti, "Consultazioni mediche" (n. 91), case 7, pp. 46–47.

edy greater than a huge drink of water," which might extend to "emptying in one breath an entire flask containing four pounds of water," as in another case he treated.[122] In a case of epileptic convulsions, abstinence from wine "and the continual use of water is indispensably necessary as the hinge of the entire treatment."[123] For a case of jaundice, Torti praises the benefits of "taking large drinks of water after the midday meal as a remedy and also to please the palate."[124] Drinking water can also function as a preventive, as in a patient suffering "pain in the abdomen": "since during the paroxysm he [the patient] derives immediate benefit from a long drink of water, it seems to me that the same could also serve him as a preventive, if he continually drank pure water at his meals and at other times in place of wine."[125] All these recommendations would have had Ferdinando spinning in his grave. All that is reminiscent of Ferdinando is Torti's recommendations for barley water—occasionally "Settala's barley water," as in case of "virulent gonorrhea"[126]—and sometimes whey.

Taking aliment and medicament together, Torti counsels drinking water of some sort in almost half of his consultations. This figure includes both "ordinary" or "pure" local waters (in forty-five cases, or 14.9 percent of consultations), from springs or cisterns, as well as mineral waters (in eighty-eight cases, or 27.7 percent). Nocera water accounts for most of these mineral water recommendations and appears in over a fifth of Torti's consultations (in sixty-five, or 21.5 percent). As with Redi, Nocera water—described by Torti as a "cooling or mild spring water"—is the mineral water most like a good-quality ordinary local water, recommended as the patient's regular drink.[127] Torti would have been able to refer to a new medical guide to the "celebrated water" and how to take it, in addition to Camilli's, by local physician Florido Piombi, more consistent with Torti's own medical philosophy.[128] Thus, in a case of "renal disease," Torti

122. Ibid., case 73, p. 225.

123. Ibid., case 238, p. 631.

124. Ibid., case 83, p. 247.

125. Ibid., case 34, p. 127.

126. Ibid., case 40, p. 143. Lodovico Settala, protophysician of Milan, proposed this remedy for thirsty plague victims, consisting of hulled barley cooked in water, with the addition of chicory, borage, bugloss, sorrel, anise, and sugar. Lodovico Settala, *Preservatione dalla peste* (Brescia: Bartolomeo Fontana, 1630), 78–79.

127. Torti, "Consultazioni mediche" (n. 91), case 19, p. 87.

128. Florido Piombi, *Compendioso trattato delle celebre acqua di Nocera nell'Umbria* (Foligno: Niccolò Campitelli, 1720). Piombi's explanation of the water's efficacy is a mixture of the iatrochemical and iatromechanical—a very different language from that used by Camilli a hundred years earlier, even if in content, structure, and approach the two books are quite similar.

suggests the patient take "a good pound of Nocera water" "during the time of digestion." Importantly, in Torti's consultations it can be substituted by ordinary water, as long as it is pure and clean.[129]

As part of treatment, Torti also recommends drinking Villa water, from near Lucca (in forty-seven, or 15.5 percent of consultations), Tettuccio water (nineteen, or 6.3 percent), and Brandola water, a sulfurous water from near Modena (twenty-two, or 7.3 percent). Here Torti is consistent with the medical knowledge of the day. Substitutions could be made, if the waters are of the same type. For instance, in a case of nephritis, following the standard (for Torti) bloodletting, the patient is to drink Brandola water "for twelve or thirteen days." He adds, "In case the transportation of this water is not convenient, since I do not know the gentleman's residence, it would be possible to replace the water with the Villa water of Lucca," while expressing a marked preference for the Brandola.[130] Otherwise, each mineral water has it specific uses. Thus Torti recommends Tettuccio water as a purgative,[131] consistent with its widespread medical reputation and with Redi's use of it.[132] Indeed, Torti's use of these thermal waters is sometimes accompanied by an expression like "to be given according to the customary procedures of the art"[133] or "in the forms and with the precautions well known to physicians,"[134] reminding us of a broader medical learning and practice within which Torti is operating. At the same time, Torti bases his recommendation on his own "frequent experience in similar cases."[135]

The quantities Torti recommends imbibing can be quite considerable, especially when it is part of the actual treatment (medicament), as opposed to the regimen of eating and drinking (aliment). In a case of "obstruction of the liver" the patient is to drink Tettuccio water on three successive mornings at the start of the treatment, four pounds (1.36 liters) on day 1, five pounds (1.7 liters) on day 2, and six pounds (2.1 liters) on

129. Torti, "Consultazioni mediche" (n. 91), case 301, p. 807.

130. Ibid., case 296, p. 792.

131. For instance, ibid., case 15, p. 72, and others.

132. Its medical use, citing sources from the mid-sixteenth century onward, is described in Giuseppe Giuli, *Storia naturale di tutte l'acque minerali di Toscana ed uso medico delle medesime* (Florence: Piatti, 1833), 273–89.

133. Torti, "Consultazioni mediche" (n. 91), case 209, p. 546, referring to Villa water. Torti would have had two recent medical guides available, both by lecturers at the University of Pisa: Giuseppe Duccini's *De' Bagni di Lucca trattato chimico, medico, anatomico* (Lucca: Pellegrino Frediani, 1711) and Giuseppe Zambeccari's *Breve trattato de' bagni di Pisa e di Lucca* (Padua: Gio. Battista Conzatti, 1712).

134. Torti, "Consultazioni mediche" (n. 91), case 285, p. 765.

135. Ibid., case 242, p. 646.

day 3, as a "vehicle for manna." On day 4 he is to drink four pounds (1.36 liters) of Villa water, as a vehicle for some cream of tartar. The aim is to bring about "a certain clarity [i.e., clearing] in the passage through the paths of the intestine and the urine."[136] While Tettuccio water was well reputed as a treatment for "liver obstructions"—in addition to its purgative qualities (or perhaps because of them)—Torti seems to favor larger doses than was the norm.[137]

If Torti was part of a Europe-wide medical trend in using ordinary local water as part of the treatment of disease (medicament), and not just in diet (aliment), he was also part of a trend in his recommendation of mineral waters. Close to a quarter (23.1 percent) of the twenty-five hundred French epistolary consultations studied by Robert Weston for the years 1665 to 1789 recommended drinking mineral waters. They privileged waters located close by.[138] This is certainly true of the Brandola and Villa waters Torti recommended: Brandola was near Modena and Torti resided at Villa di Lucca for at least part of the year,[139] but the Tettuccio and Nocera waters came from much farther away, Tuscany and Umbria, respectively. Not just any mineral water would do, either. Torti was hesitant to advise drinking San Maurizio water, in line with the consulting doctor's recommendations, due to "the lack of sufficient experience (to confess frankly)" with it, as he had only read about it in books or heard of it being prescribed.[140]

Conclusion

Most generally, this article is conceived as a contribution to our increasing appreciation of the importance of water for drinking purposes in early modern culture. Second, it provides evidence of the consistency between medical knowledge and medical practice in the use of drinking water, as both aliment (part of a healthy diet) and medicament (part of therapy to treat specific diseases). It traces how, as the medical philosophies shifted—from the neo-Galenism of the late Renaissance to the iatromechanics of the early eighteenth century—so too did the medical

136. Ibid., case 234, p. 616. The same doses are recommended to treat "pains in the abdomen" (ibid., case 290, p. 777) and "various abdominal troubles preceded by colic" (ibid., case 302, p. 810).

137. Giuli, *Acque minerali di Toscana* (n. 132), 280–81.

138. Robert Weston, *Medical Consulting by Letter in France, 1665–1789* (Farnham: Ashgate, 2013), 170.

139. Torti, "Consultazioni mediche" (n. 91), case 25, p. 105.

140. Ibid., case 25, p. 106.

use of drinking water. It emerges that there is quite a close fit between contemporary theories and practices, if our three Italian doctors and our qualitative and quantitative analyses of their medical case histories and clinical consultations are anything to go by. If Ferdinando accepted the consumption of water for its role in concoction and to dilute wine, he otherwise severely restricted and circumscribed its use, consistent with late Renaissance medicine. Redi's critical approach, based on "experience," opened the way for a new enthusiasm toward drinking water. The consumption of drinking water as part of healthy and healing diet assumes a central role in Redi's consultations, in the form of plain water. Torti went even further, considering the drinking of water as itself therapeutic and using its consumption to treat a range of diseases, including mineral waters in addition to plain water. The mechanical medicine of the early eighteenth century openly embraced drinking water both in regimen and, even more, in the treatment of disease.

All waters benefited from this increasing enthusiasm for drinking water, mineral and plain alike. However, our most important finding has been the increasing appreciation and enthusiasm for the health benefits of drinking ordinary local waters. Completely absent from Ferdinando—whose "Tiber water" is actually a rather complex beverage—common water occupies a central place in Redi and Torti. It worked by cleansing the body, countering its heat, and improving digestion, in the case of Redi, and by aiding the circulation of fluids (especially blood) and lubricating the bodily mechanism and its "channels," in the case of Torti. The amounts consumed can be quite substantial—and it also meant giving up wine, something not all patients were happy about. Any ordinary local water will do, it seems, whether from a spring, fountain, cistern, river, or well. In Redi there is still an unresolved tension between specificity of ordinary local waters versus their interchangeability, perhaps due to a persistent Galenism favoring the local, continuing notions of the plurality of waters, or to patient expectations (or convenience of access). In Torti, this specificity of different local waters goes unremarked. Their approach overturned a long-standing hierarchy of waters deemed healthy or unhealthy, dear to late Renaissance medicine and inherited from the ancients. But a crucial proviso for both Redi and Torti is that the water be pure, of good quality, and reputable. As if to reinforce this perspective, the mineral water most prescribed by both Redi and Torti was Nocera water, a medically approved stand-in for good-quality common water, purchased from an apothecary's shop.

David Gentilcore is full professor of early modern history at Ca' Foscari University of Venice and PI of the European Research Council advanced grant "Water-Cultures. The Water Cultures of Italy, 1500–1900." He is the author of *Food and Health in Early Modern Europe, 1500–1800* (2016) and, with Egidio Priani, *Pellagra and Pellagrous Insanity during the Long Nineteenth Century* (2023).