TIS The Independent Scholar

A peer-reviewed interdisciplinary journal

www.ncis.org ISSN 2381-2400

Volume 8 (forthcoming 2021)

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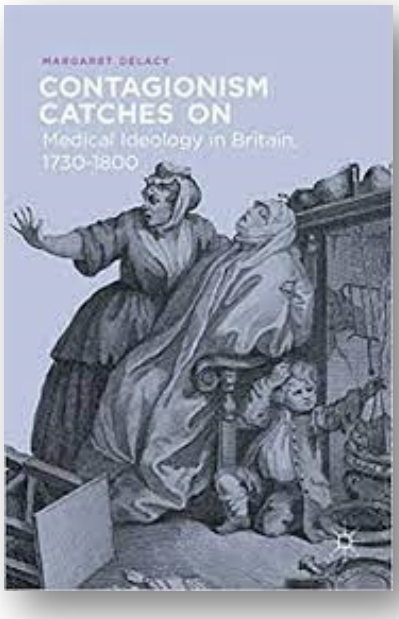

Contagionism Catches On: Medical Ideology in Britain, 1730-1800

Margaret DeLacy

Palgrave Macmillan, 2017.

284pp. + Appendix, Bibliography, Index.
eBook €67 / £57 / $78
ISBN 978-3-319-50959-4
Hardcover €114 / £97 / $134
ISBN 978-3-319-50958-7
Softcover €84 / £72 / $98
ISBN 978-3-319-84531-9
DOI 10.1007/978-3-319-50959-4

https://www.palgrave.com/gp/book/9783319509587

Review by Shelby Shapiro. First published online 8 September 2021 and will appear in Volume 8 of *The Independent Scholar.*

Historian Margaret DeLacy has written an important work in her *Contagionism Catches On: Medical Ideology in Britain, 1730-1800*." Contagionism is the idea that a material substance transmits disease from patient to patient." (p. 1). DeLacy carefully traces the zigs and zags of disease theory developments, starting with the view that disease resulted from imbalances among the four elements (fire, water, earth, air) to the ideas of Hippocrates and Galen based on imbalances among the four humors (blood, phlegm, black bile, yellow bile). These imbalances caused the body to react in specific ways: medical professionals and scientists did not recognize a disease as a discrete entity. Others combined these ideas with classifications according to temperature and humidity, thus: moist, dry, hot, cold, replicating the divisions of everything, it seems, into sets of four.

We think of the Germ Theory of Disease generally occurring in the mid-nineteenth century with the pioneering work of Joseph Lister, Louis Pasteur, and Robert Koch. Margaret DeLacy pushes this story back to the mid-eighteenth century. Early on she notes the dangers of "precursoritis," working backwards from today to see how a given present theory was "anticipated," as if that could be possible (p. 3).

Instead, as per Thomas Kuhn's work on paradigm shifts, we see how reluctant scientists and doctors were to abandon past ideas, and by a process of adding, adapting and adopting, managed to maintain a belief in prior theories of disease causation.

In the chapter "Animate Disease after 1750: *Exanthemata Viva,"* we learn of the role played by Carl Linnaeus —best known for botanical classification—in developing ideas about the animate sources of disease. A technological innovation, the microscope, enabled Linnaeus and others to locate the cause of disease in tiny animate sources. What exactly these sources were became the question: were they animalcules, or insects, as Linnaeus originally thought (p. 91)? Working off the findings of Linnaeus, Pringle and others, Marcus Antonius Plenciz "not only argued that specific agents were responsible for specific diseases. He solved the problem of index cases by arguing that all humans had existed since the beginning in the ovaries of Eve and therefore the 'seeds' of all diseases had also existed since the time of creation." (p. 99)

A number of underlying issues lay at the core of the main medical one: what was a disease? How to define it? What were the main disease theories, and how did

these theories connect and change over time? How did scientists—doctors or others—seek to explain new evidence and new phenomena within the framework of older theories? What were the institutional factors which enabled or constrained the various actors? In what contexts were all of these factors embedded: print culture, communication and transportation networks, educational institutions, religious movements, political changes (including the American and French Revolutions)? Margaret DeLacy answers all these questions in a mere 284 pages—an impressive feat in itself.

One of the most interesting and exciting aspects of *Contagionism Catches On* is DeLacy's institutional focus: developments within religious tendencies (Anglicans vs. Dissenters), the evolution of cities, the expansion of print culture, the growth of transportation and communications networks, changes in medical education and licensure, the developments of statistical observation, the birth of medical narratives (a history of "the history"), the exchange of ideas enabled by these other factors. DeLacy's ability to weave these strands and sub-strands together serve as an example of how to approach a complex historical phenomenon and present it in an understandable manner without sacrificing vital details.

Urban expansion with dense populations had the effect of magnifying contagion. But it also brought those interested in science and medicine in closer contact. One of the major emphases of this book lies in its focus on the concept and reality of the network. She carefully draws the connections between particular characters, where they studied, with whom they interacted, their professional and personal interactions. In short, she traces the formation of intellectual communities:

> "(T)here as a dense web of other connections between the participants: these were further enhanced by dramatic improvements in transportation and communication. [John] Fothergill, for example, would grasp many new and improved opportunities to collect and disseminate information by personal contact, mail and publication; he cultivated friendships with sea captains, served as the English advisor for American Quakers and colonial visitors, acted as an administrator and facilitator for British 'Friends, mentored young men seeking medical instruction, brought groups of Nonconformist physicians together for professional and political action, established a medical journal and wrote articles for the general public." (p. 11)

Because of the hostility between the Church of England and various groups of Dissenters or Nonconformists, and as an effect of the English Civil War, physicians pushed for bills of mortality, rather than christenings and burials—to do so would have led to excluding non-Anglicans, thus skewing the results. This meant that those interested could gather meaningful statistics without regard to religious beliefs. They sought patterns, commonalities and differences. They looked for links among all matter of data: from mortality records, to temperatures, weather, astronomical conditions, astrology, alkalinity and acidity, so on and so forth. Sheffield physician Thomas Short published a book of observations on the bills of mortality:

> "Short enthusiastically tossed the effects of the scarcity or plenty of harvests on all sexes and ages, the seasons, meat consumption, the aurora borealis, astrological events, and many other factors." [p. 130]

A smallpox epidemic in Warrington could be correlated to variations in the air. With no discernable difference among those coming down with the disease and particular states of the air, physicians could abandon that theory. (p. 135)

For graduate students of this reviewer's generation, Thomas Kuhn's *The Structure of Scientific Revolutions* (1962) was required reading. We learned how scientists test accepted paradigms, probing for the exceptions that disprove the rule. Typically, they try to stretch the ruling paradigm to account for anomalies—at the point that an accepted paradigm no longer works and can no longer be stretched or adapted to explain the anomaly, competing models appear until there is a "paradigm shift"—a new paradigm essentially agreed upon by consensus. Alternatively, a new phenomenon may arise which similarly does not fit the existing paradigm. Kuhn focused on physics, and the development of new ideas which could explain phenomena that Newtontan physics could not. DeLacy's book provides another case study, using the development of medical theories. As disease theories going back to the ancient Greeks could no longer explain or deal with newly discovered diseases—or as they became defined as discrete disease entities—new theories came to the fore. DeLacy also makes clear that changes in medical ideas do not occur in a linear fashion. Thus, by the mid-eighteenth century,

> "(c)ontagionism was not adopted instantly or universally." She continues: "Contagionism remained one theory among many and even contagionist doctors continued to blame illnesses on the winds and weather; assess the

> humoral temperatures of their patients; and bleed, puke and purge their way through their patient lists (and patients)." (p. 77)

The book consists of nine densely packed and detailed chapters, including the introduction and conclusion. She tells a complex story, juggling a number of historical and conceptual balls at the same time. Each chapter covers new areas in the jagged road leading to contagionism and its competitors. Summarizing each chapter would mean an inordinately long review.

DeLacy carefully explains the complexities of English medical education and licensure. As a result of the English Civil War, those not pledging allegiance to the Church of England could not attend Oxford or Cambridge, or become licensed by the London College of Physicians. education and licensure did not mark the limits of the effects of the English Civil War. The education at Oxford and Cambridge was grounded in the classics, based on mastery of classical languages and texts. That this perpetrated the teachings of Hippocrates and Galen thus comes as no surprise. Those not adhering to the Church of England—Dissenters, Nonconformists etc.—sought education where their religious beliefs did not act as a bar. Hence the heavy concentration of doctors trained in Scotland and in Europe. It was outside the bounds of Oxford and Cambridge that new ideas developed. One center was Leiden, where Herman Boerhaave held sway.

Boerhaave represented the ultimate stretching and combining of paradigms. DeLacy's detailed treatment of Boerhaave is one among many, as she traces the contours of different theories of disease, contagion and treatment in the following extended quote:

> Like Galen, Boerhaave accepted contagion, but his elaborate discussions of physiological factors pushed it to the sidelines. He noted that all the humors in the body were made from what it consumed. The process that occurred inside the body must mirror the process observed every day in the outside world. Outside the body, different foods decomposed in different ways. Some, usually acid fruits, fermented: they became warmer and bubbled up. Others, usually vegetables, dissolved into a mush. Finally, meats rotted, grew dark and gave off a terrible odor. They had putrefied, a process understood as a gradual dissolution of a living body into its constituent parts in the absence of a "vital spirit" that held them together. Inside the body, "inflammatory" fevers corresponded to fermenting fruit; "slow" (or slow continued) fevers corresponded to the dissolution of vegetables into mush, and "putrid" fevers corresponded to the putrefaction or rotting of meat. They resulted either from the ingestion of these foods or from similar processes that arose when living things functioned improperly.
>
> Boerhaave also classified diseases as diseases of the solid parts of the body (the fibers that held all its smallest parts together); diseases of the vessels (that is, the "hoses" that carried all sorts of fluids about the body); diseases of the "humors" (the fluids that circulated around the body within the vessels); diseases that combined solids and fluids; and obstructions or wounds. He subdivided diseases of the vessels into diseases of the large (blood) vessels, those of the small (blood) vessels, and diseases of the entrails. When vessels became weak and dilated it caused a stagnation of liquids, incomplete digestion or their contents (crudity of fluids), putrefaction of the liquids, a rupture of the vessels and an effusion of the fluids they had contained. Diseases of the fluids resulted from inappropriate foods or a failure of the body to break them down completely so that they continued to decompose within the body. The fluids might be too acid, too "gluey" or too alkaline, containing salts with sharp edges. This acrid, irritating substance in the blood decomposed into a putrid mass, ate away at the vessels, ruined the circulation, dissolved everything in its path, and disrupted secretion and excretion.

DeLacy elaborates on Boerhaavian theories further, noting, for example, that "(t)oo much blood became too hot and thick, dilating the arteries and compressing the veins. Virtually any of these causes, if not corrected by a vigilant physician, could end in inflammations, abscesses, gangrenes, and death". Her account goes much deeper than this summary. Is it any wonder, she notes, that "Boerhaave, like the Bible, was popular because he permitted a breadth of interpretation." (pp.22- 23)

DeLacy manages throughout this book to summarize fairly complex systems of thought; she discusses these theories, as well the experimentation that affirmed, confirmed, or undercut them. To test Joseph Priestley's theory of noxious air from marshes being dangerous sources of disease, "led Thomas Paine and George Washington to experiment by igniting the air from a pond in 1783. In 1806, Paine

attributed outbreaks of yellow fever to this effluvium." (p. 157-158n60). John Pringle, for example, "took the idea of a 'septic principle' very seriously, devoting several years and many experiments to trying to isolate it and learn more about its role in putrefaction. His painstaking, smelly and sometimes disgusting efforts bore little fruit but he did demonstrate that putrefaction was completely different from alkalinity, contributing to the final overthrow of Boerhaavian physiology." (p. 58)

Related to this septic principle was the idea that diseases emanated from miasmas. Economic historian Carlo M. Cipolla, in *Fighting the Plague in Seventeenth-Century Italy*, makes that point in discussing the protective clothing worn by doctors, the bird's beak mask and a long waxed robe. In the beak of the mask aromatic herbs protected the wearer against miasmas. As to the reasoning behind waxing the coats, he states:

> The idea behind the making and the adoption of the waxed robe was that the venomous atoms of the miasmas would not "stick" to its smooth and slippery surface. Because its use seemingly worked and served its purpose, the doctors of the time found in that fact a confirmation of their theories about contagion and the role of miasmas.[1]
>
> Father Antero Maria da San Bonaventura was a bright and energetic friar who was charged with the administration of the main pesthouse at Genoa during the epidemic of 1657. Experience taught him that those who went to serve in the pesthouse and who had not been previously infected with the plague rarely failed to contract the disease. He had no faith in the precautions currently practiced, and about the robe made from waxed cloth, this is what he had to say: "The waxed robe in a pesthouse is good *only* to protect one from the fleas which cannot nest in it."[2] (emph. added).

The observations by the friar about the waxed robe was both accurate and perceptive: the robe did not protect people from miasmas, it protected people from the fleas.

Nobody then saw any connection between the flea and the disease. This serves as an example " . . . of sound action born out of erroneous theory. . ."[3]: the waxed robes kept the actual vector, the flea, from spreading the plague. And since those wearing the robes did not come down with the plague, obviously its role as a protector against miasmas must be correct.

As intellectual and medical networks expanded, a result of changes in transportation and communication, the growth of the public sphere wherein participants could and did share ideas, the professionalization of medicine continued. The craze for statistics enabled scientific communities to take broad views, making all kinds of correlations, and disproving others.

One of this reviewer's tests for determining how interesting a particular piece of writing—whether article, monograph or book—lies in its stimulus to further reading, starting with examining some of the sources listed in the author's footnotes. This is done not so much to check on the author's accuracy but to learn what else might be learned from a given source. DeLacy's sources are international, with material in English, Latin, Italian and French. A very careful historian, she notes bibliographical mistakes that scholars have made, including herself (p. 120n98). The source notes contain much of interest and should not be skipped. Margaret DeLacy passed the stimulus test with flying colors.

My only complaint had to do with how source notes appeared—as endnotes for each chapter rather than footnotes. This reviewer recognizes that such a decision is often beyond the author's control. That arrangement is still better than having them all placed at the end of the book. This, however, is a minor quibble—perhaps more indicative of the state of mind of a Footnote Freak than an author. She brings us to a complete appreciation of the dictum of British fiction writer L. P. Hartley: "The past is a foreign country: they do things differently there."

Shelby Shapiro *is an Independent Scholar who obtained his Ph.D. in American Studies with a dissertation on the Yiddish press and how various publications of differing political and religious viewpoints sought to construct different identities for Jewish immigrant women. He has written about Jazz, Anarchism, and the labour movement, and presently is Associate Editor of Records of the State of Connecticut.*

[1] Carlo M. Cipolla, *Fighting the Plague in Seventeenth-Century Italy* (Madison: University of Wisconsin Press, 1981), 12.

[2] Cipolla, *Fighting the Plague*, 12.

[3] Cipolla, *Fighting the Plague*, 17.