

Skepticism and the Catarrh: a Case Study of Medical, Religious, and Political Tensions in Natural Philosophy

What happened if a man fell sick with toothache in the seventeenth century? If he visited a physician, he would most likely be told his ailment was caused by an imbalance of humors, which caused a catarrh to rise up from his stomach, make its way into his head, and harass his unfortunate tooth. If his complaint was of a severe cough, a head cold, or any of a myriad others, he would get the same diagnosis: a catarrh. Although the term was later used for a cold-like disease, in the seventeenth century “catarrh” referred to a whole range of ailments, all caused by a “condition where the watery and phlegmy humors thickened beyond their normal state and then clogged up the areas where they naturally accumulated”¹. The predominant Schools of medicine taught that the phlegmy humor, called rheume, could travel around the body and sicken whatever it touched. However, this belief, like so many others in the seventeenth century, had its skeptics. Among them was the Flemish Catholic doctor Jan Baptiste van Helmont (1577-1644). In some ways a modern scientist and in others an occultist, van Helmont was a proponent of iatrochemistry, or the study of physiological processes as chemical reactions, as well as a disciple of Paracelsus and the Paracelsian belief in spirits. Van Helmont wrote extensively about medicine, and specifically addressed the catarrh in a posthumously published² treatise, *Deliramente Catarrhi*. In 1650, Walter Charleton, former physician of Charles I, translated the text from Latin to English and had it published in Interregnum London. The text itself displays the tensions between science and the occult so prevalent in the sixteenth century, and its

¹ Lindemann, Mary. *Medicine and Society in Early Modern Europe*, 2nd ed. Cambridge University Press (Cambridge, 2010), 26.

² "Helmont, Johannes (Joan) Baptista Van." *Complete Dictionary of Scientific Biography*. 2008. Encyclopedia.com. 18 Apr. 2015 <<http://www.encyclopedia.com>>.

translation tells us about the market for Royalist- and Catholic-influenced texts among the scientific elites of England under Parliamentary rule.

We shall begin our study of these tensions with a brief overview of the text. Van Helmont found the catarrh idea highly irrational, devoting the seventy-five pages of *Deliramente Catarrhi* to disproving it. He pulled no punches with his opening line, denouncing all diseases “imputed to a distillation of Rheume” as an “old wives’ fable, invented by the common adversary of Mankind [the Devil],” (van Helmont, 3). In his mind, Galenic medicine was highly inferior to the “Catholique medicines”(van Helmont, 4) which he described. From the first moment of conception each part of the body had its own guiding (and divinely created) spirit, or *archeus*, which was assisted by another spirit emanating from the heart. These ideas were the Paracelsian replacement of the theory of humors. To these older notions, van Helmont added his own: first, that the spirits act by producing a chemical ferment, and second, that all disease is caused locally by a disturbance of the ferment in that part of the body. Van Helmont argued that there was Biblical evidence for this: “My spirit (the involucrum or conservatory of the Ferment) shall be attenuated and (therefore) my dayes shortned,” (van Helmont, 5). Van Helmont was not among those willing to remove God from natural philosophy.

With this foundation in place, van Helmont began his critique of the catarrhs. He first examined the formation of catarrhs: hot vapors from the stomach ascended into the brain, thought to be cold, and condensed there. He explained the impossibility of this: first, anatomy shows us that the gullet is moist, and will collapse when nothing passes through it. The “lower end of the Gullet is contracted [... and] is therefore never opened but by the violence of some aliment or other tenant” (van Helmont, 15), so given that watery vapors in general condensed rapidly after their production, they would not have the force to open the passage. Van Helmont

added that even if this were somehow to be achieved, men would be constantly belching; it was observable that air could not pass through the gullet without heralding its passage in such a manner. Even if the afflicted man shut his mouth to prevent a belch, the defluxion would be unable to penetrate much farther than the nose: after all, “our very breath, though violently compressed by stopping of the mouth and nostrils, cannot force open a way into the castle of the brain” (van Helmont, 19). And by the Schools’ logic, any man who kept his mouth constantly agape would be forever free of catarrh symptoms because the vapors would escape through that orifice. This, of course, was observably false. He continued to use this combination of observation and logic to criticize the conventional wisdom about catarrhs and their many physiological consequences.

Van Helmont also discussed the nature of breathing. The conventional belief was that air drawn into the lungs fills the lungs and goes no deeper into the body cavity, and that the lungs themselves expanded and contracted like bellows to move the air with the aid of the muscular midwife. Van Helmont argued that the air must go into the chest cavity, and that the lungs would not move at all. While we now know that this belief is erroneous, it was nonetheless founded on logic and observation: if a man measured the girth of his chest, breathed in deeply, and measured it again, he would find that the increase in volume was greater than the volume of the lungs as measured by anatomists. Van Helmont concluded this argument with several case studies of patients with respiratory damage.

The author next turned to critiquing a canine vivisection carried out by physicians and passed down as a case study through the Schools. The physicians placed saffron dyed milk into the dog’s mouth, and found that a minute quantity entered the lungs. They called this proof that vapors ascend from the stomach into the brain, and that the resulting catarrh can drip down into

the lungs. In van Helmont's opinion, a far more logical explanation was that the epiglottis³ of the howling, terrified dog had failed to securely cover the trachea, and thus some of the milk had slipped directly into the lungs.

After dismantling this “proof of catarrhs”, van Helmont turned once more to his own ideas. He stated again that disease is a product of a malfunctioning archeus, and that this could alter the properties of the latex—the salt water humor that flows throughout the body and is the cause of phenomena like sweat. He argued that the latex is controlled by the cycles of the moon, much like the tides, and thus closed his treatise by linking the physiological with the astrological.

Indeed, the major tension revealed within the text is that between skepticism or “modern science” and the occult. In many ways, van Helmont is following in the skeptical tradition of Descartes, who examined older learning and then threw it out as an improper foundation for true knowledge. Van Helmont did the same: he “read over whole Centuries of the Councils of Physicians” (van Helmont, 9), but found their conclusions uncertain and defective. Like Descartes, who “entirely abandoned the study of letters, and resolved no longer to seek any other science than the knowledge of [him]self, or of the great book of the world⁴,” van Helmont discarded the written consensus in favor of real-world observations such as the anatomical impossibility of a catarrh travelling from the stomach to the brain. Even van Helmont's old mentor Paracelsus was not spared the lash: “To which Epidemick tradition of Catarrhs, Paracelsus [...] doth frequently subscribe, and alwayes openly acknowledge the name of Defluxion (*flussen*) staggering into self-contradiction, under the drunken guidance of that great Lady, Incertitude,” (van Helmont, 10). While van Helmont found some of Paracelsus' beliefs

³ The epiglottis is a flap of tissue that covers, alternately, the trachea or the epiglottis. The trachea, or windpipe, leads to the lungs, while the epiglottis descends to the stomach.

⁴ Descartes, René. *Discourse on the Method*, part I (Leiden, 1637).

reasonable, he did not blindly accept them all, much less spare any pity for his mentor's ideas of defluxions and catarrhs. Indeed, he was much less of an occultist than Paracelsus.

Van Helmont also emphasized *quantitative* observation when discussing the function of the lungs. To disprove the Schools, one should *measure* one's chest before and after drawing breath, calculate the change in volume, and compare it to the volume of the lungs (known from human dissections, which had been carried out in Europe since 1315⁵). This experiment resembles our modern science, where observation and measurements are paramount. It bears the influence of the Scientific Revolution, whose fathers were among van Helmont's contemporaries. In 1520, Francis Bacon stated that natural history is undermined by sloppy investigation: "nothing duly investigated, nothing verified, nothing counted, weighed, or measured, is to be found in natural history; and what in observation is loose and vague, is in information deceptive and treacherous⁶." Bacon argued for the type of quantitative and detailed observation which formed the basis of Van Helmont's medicine, and which is still vital to every experiment performed in a respectable scientific institution today.

Like Bacon and his close contemporary Robert Boyle, van Helmont applied skepticism to experimental observations. When he discussed the case study of the canine vivisection, which had been held up as an empirical demonstration of catarrhs, he set out to "prosecute the experiment⁷". That is, he looked for reasonable alternate explanations for the phenomena observed, much as Boyle did in his own demonstration of a vacuum. The original vivisectors neglected to do this. They trusted in the perception of their senses, which as Bacon commented,

⁵ Lindemann, *op. cit.*, p 92.

⁶ Bacon, Francis. *Novum organum*, in *The Collected Works of Francis Bacon*, 15 vols, ed. J. Spedding, R. L. Ellis and D.D. Heath (London: Longmans, 1857–74). Bk. I, Aph. Xcviii.

⁷ This is the phrase used by Boyle in excerpts from *New Experiments in Physico-Mechanical* in Margaret Jacob, *The Scientific Revolution. A Brief History with Documents* (Boston, 2010), 84-90.

“do not materially mislead us; yet even these are sometimes confused⁸”. Satisfied with their senses and not experimenting further, they were able to interpret their results fit their theory. Van Helmont did what they could not when he proposed the much simpler explanation of the milk accessing the trachea.

While van Helmont in many ways resembles a modern scientist, we see the very prevalent influence of the magical in his writing, as in that of most natural philosophers of his time. He refers constantly to the *archeus* and closes his text with references to the power of the moon and planets in health and disease. However, this was far from uncommon in scientific circles of the time. Astrology was considered a legitimate science, and both Kepler and Tycho Brahe were astrologers by profession; astrological references in a skeptical text would not have been the heresy they would be today. As for reference to spirits and immaterial movers, van Helmont was not alone: the idea of pure materialism was still fringe, and the majority of minds in natural philosophy maintained the idea of a “first mover”, the physical cousin of the medical *archeus*. Thus, van Helmont’s ideology was not uncommon for the seventeenth century.

What of Dr. Walter Charleton, translator of *Deliramente Catarrhi*? As he prominently advertised on the front page of his translation, and those of others of van Helmont’s works, Charleton was “physician to the late king,” Charles I. The translation was published in 1650; in January 1649, Charles I had been tried, found guilty, and publicly beheaded. His Catholic tendencies had particularly vexed his enemies: Charles’ wife was a Catholic, and the Carolinian Church had veered away from Calvinism. Van Helmont, too, was a Catholic, and indeed referred to correct medical systems as “*Catholique* medicines”. Thus, at first glance Charleton’s translation, printed at the Signe of the Turk’s Head in Fleet Street in conflict-ridden London,

⁸ Bacon, *op. cit.*, Bk. 1, Aph.xx.

appears to be a risky move. However, the religious-political situation in 1650 England was not so simple.

To many Englishmen, Charles I was not a villain but a martyr. Only the most radical faction of Parliament voted for his execution; the moderates had been forced out by Colonel Pride. Many of the moderates, both inside and outside of Parliament, had been hoping for a peace treaty and were horrified by the King's execution. Contemporary artwork⁹ depicted people fainting in the streets at the scene. Ten days after the King's death, his purported autobiography *Eikon Basilike* was published. The text presented the king in a moving, sympathetic light, and its frontispiece highlighted the martyr theme by showing Charles holding a crown of thorns while receiving a divine message in a beam of light. Though not without its detractors—John Milton published a rebuttal, *Eikonoklastes*, the same year—the book was wildly popular and went through 36 editions in the year of its publication. There was certainly a literary market for authors who favored, or at least were not opposed to, the late king.

Of course, a medical text would appeal to a more specialized subset than those who would consume *Eikon Basilike*. Both the text and Charleton's introduction contain Greek passages and Latin footnotes; the target audience would be sufficiently educated to understand these. They would be largely medical men and natural philosophers, like the men of Charleton's circle: Hobbes, a strict materialist; Sir Francis Prujean, an influential physician; and George Ent, defender of Harvey's experiments on the circulation of blood¹⁰. Materialists like Hobbes were rare, and the moderates, while they despised naturalism, did not want to travel so far towards materialism that God fell out of the equation. Paracelsus was on the other end of the spectrum

⁹ For instance, John Weepol's *Execution of Charles I*, ca. 1649

¹⁰ "Charleton, Walter". *Dictionary of National Biography*. (London: Smith, Elder & Co. 1885–1900).

from Hobbes: too much of an occultist for the moderates, he was also a favorite of the Puritans¹¹. Van Helmont's middle ground, where skepticism does not totally eclipse the immaterial, would appeal to such a scientifically and politically moderate audience. Indeed, the particular volume¹² in which the copy of *Deliramente Catarrhi* studied by this author is bound contains both another translation of van Helmont (*A Ternary of Paradoxes*) and one of Charleton's original works, *The Darkness of Atheism*. This collection speaks to the target audience of the translation: someone who was interested in skeptical natural philosophy, but nonetheless shied away from pure materialism and its atheistic implications.

Deliramente Catarrhi is, thus, a case study of the tensions at play in seventeenth-century society. Within the text itself, we see the tension between skepticism and the religious and magical. As fond as van Helmont is of observation, logic, and measurement, like most of his fellow natural philosophers he is not ready to abandon God's role in nature and medicine. The translation of this Catholic author by the openly Royalist Charleton demonstrates the sympathy, even among the intellectual elite, to those affiliated with the old king and his cause. Indeed, the book evidences the inhomogeneity of English political and religious beliefs during the Interregnum. Not everyone was pleased with the political zeitgeist. The political moderates opposed both absolutist monarchy and the Interregnum, and the intellectual moderates opposed both pure materialism and the Puritan-affiliated naturalism, creating a substantial market for texts that walked a political and religious-scientific middle path.

¹¹ Jacob, Margaret. "Science in the Crucible of the English Revolution" in *Scientific Culture and the Making of the Industrial West*, (New York: Oxford University Press, 1997), 53-54.

¹² The volume, a quarto, is bound in leather and entitled "CHARLETON'S WORKS" in gilding on the spine. The books within were printed by J. Fletcher (*A Ternary of Paradoxes*; *The Darkness of Atheism*) and E. F. of the Signe of the Turk's Head in Fleet Street (*Deliramente Catarrhi*), all for one William Lee. The original owner of the volume is unknown; its oldest known owner is the Victorian inventor, George Edward Dering.

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