

**PROGRESSIVE REACTIONARY:  
THE LIFE AND WORKS OF JOHN CAIUS, MD**

by

**Dannielle Marie Cagliuso**

Submitted to the Graduate Faculty of the  
Kenneth P. Dietrich School of Arts and Sciences in partial fulfillment  
of the requirements for the degree of  
Bachelor of Philosophy

University of Pittsburgh

2015

UNIVERSITY OF PITTSBURGH  
KENNETH P. DIETRICH SCHOOL OF ARTS AND SCIENCES

This thesis was presented

by

Dannielle Marie Cagliuso

It was defended on

July 20, 2015

and approved by

Dr. Peter Distelzweig, Assistant Professor, Department of Philosophy

(University of St. Thomas)

Dr. Emily Winerock, Visiting Assistant Professor, Department of History

Dr. Janelle Greenberg, Professor, Department of History

Thesis Director: Dr. James G. Lennox, Professor and Chair,

Department of History and Philosophy of Science

Copyright © by Danielle Marie Cagliuso

2015

**PROGRESSIVE REACTIONARY:  
THE LIFE AND WORKS OF JOHN CAIUS, MD**

Dannielle Marie Cagliuso, BPhil

University of Pittsburgh, 2015

The picture of Dr. John Caius (1510-1573) is fraught with contradictions. Though he had an excellent reputation among his contemporaries, subsequent scholars tend to view him more critically. Caius is frequently condemned as a reactionary and compared unfavorably to his more “progressive” contemporaries, like Conrad Gesner and Andreas Vesalius. This approach to Caius is an example of what I term “progressivist history,” a prevalent but problematic trend in historical scholarship. Progressivist history applies a progressive-reactionary dichotomy to the past, splitting people and events into two discrete camps.

By exploring the life and works of John Caius and comparing him to some of his “progressive” contemporaries, I reveal why this dichotomy is problematic. It treats both the progressive “heroes” and reactionary “villains” unfairly in that it fails to appreciate the agency of each individual and the nuanced differences between them. The progressives were not merely following the inexorable beckoning of Progress, and the reactionaries were not reflexively and irrationally placing obstacles in the progressives’ path. Furthermore, the supposed progressives and reactionaries of sixteenth-century European medicine and natural history were not following completely different methodologies, as the dichotomy implies.

Instead of splitting people into discrete groups via the progressive-reactionary dichotomy, I suggest that we instead place them on spectrums, e.g. a spectrum from absolute adherence to classical authors to absolute adherence to observational evidence. This

contextualized historiographical approach specifically demonstrates that John Caius is a much more positive and nuanced figure than critical accounts suggest, but it also has broader implications. It reveals that sixteenth-century European medicine and natural history; the transition from Renaissance humanism to the Scientific Revolution; and the scholars of this period, “progressives” and “reactionaries” alike, were more complex than the overly simplistic progressive-reactionary dichotomy would allow. Though history of science scholarship seems particularly prone to progressivist history, the progressive-reactionary dichotomy does appear in other historical fields. My revisionist alternative thus has broad applicability.

## TABLE OF CONTENTS

|  |               |
|--|---------------|
| <b>PREFACE.....</b>                      | <b>VII-X</b>  |
| <b>1.0 INTRODUCTION.....</b>             | <b>1-39</b>   |
| <b>1.1 GENERAL INTRODUCTION.....</b>     | <b>1-11</b>   |
| <b>1.2 GALEN AND GALENISM.....</b>       | <b>11-21</b>  |
| <b>1.3 MEDICAL HUMANISM.....</b>         | <b>22-28</b>  |
| <b>1.4 JOHN CAIUS.....</b>               | <b>29-39</b>  |
| <b>2.0 PROGRESSIVE REACTIONARY .....</b> | <b>40-92</b>  |
| <b>2.1 NATURALISM .....</b>              | <b>40-50</b>  |
| <b>2.2 ANATOMY .....</b>                 | <b>50-65</b>  |
| <b>2.3 SWEATING SICKNESS.....</b>        | <b>66-92</b>  |
| <b>CONCLUSION .....</b>                  | <b>93-94</b>  |
| <b>BIBLIOGRAPHY.....</b>                 | <b>95-112</b> |

## **PREFACE AND ACKNOWLEDGMENTS**

This project could not have been completed without the support, insight, and hard work of my thesis committee. Peter Distelzweig, thank you for travelling to attend my defense in person and for your ideas regarding Caius and Vesalius. Janelle Greenberg, thank you for your encouragement of both my present and future academic endeavors. I am very grateful to you and your husband for altering your travel plans to accommodate my defense. Emily Winerock, your academic support of my initial work on John Caius and the Sweating Sickness served as the foundation for this thesis, and both your academic and personal support helped me see it to completion. I am blessed to have you as a mentor and as a friend.

Jim Lennox, I cannot thank you enough for agreeing to serve as my supervisor. I have no idea how you managed it, given your responsibilities as Chair of the Department, but you always found the time to thoroughly critique my work, rapidly respond to emails, and frequently meet with me. I am so grateful for your thoughtful insights and for your support of this project from the beginning. I have benefitted greatly from your mentorship and will always appreciate the time you have invested in my thesis and in me. Your patience with me has been undeserved, but I am very grateful for it.

I owe particular thanks to Michael Siegel, Keith Bemer, Eric Hatleback, and especially Jim and Emily for all the work you invested in my graduate school applications. Without the support you provided, my Oxbridge dreams could not have come true. I will be

eternally grateful for your assistance in helping me finally achieve that goal. Keith and Eric, I am also indebted to you in another way, for it was your excellent classes that inspired me to change my major to History and Philosophy of Science.

Thanks also to three high school teachers who always supported me, both academically and personally. Gene Klein, I regret that I have forgotten all the Sir Alex Ferguson fun facts that I used to put on my tests in (futile) attempts to solicit bonus points. I do, however, remember R.R. Palmer's *A History of the Modern World* quite vividly! Jeff Sebastian, thank you for your great patience and kindness toward this very reluctant mathematics student. I will always remember the answer to the question "What are they selling?" ("Chocolates!") And Steve Moxie, thank you for fostering my loves of history, writing, and mythology. Thank you also for inspiring me by your example. I pray I will prove half as skillful and engaging a teacher as you.

Though I have never met him, I must also thank Vivian Nutton. As my footnotes and bibliography attest, I could not have completed this project without his previous scholarship on Galen, Caius, Renaissance anatomy, and other relevant topics. His balanced assessment of John Caius inspired this thesis.

To my family, thank you for your love and support and for the education with which you have provided me through the years. I am particularly grateful for my parents, Joseph and Jennifer Cagliuso; my grandparents, Eugenio and Jacqueline Mazza and Domenico and Sandra Cagliuso; my aunt and godmother, Angel Mazza; and my beloved dachshund, Louis. I owe particular thanks to you, Mother, for always editing my papers, even in the middle of the night. We have come a long way since you read me my first book! Father, thank you for supplying me with caffeinated beverages and snacks for stress eating, without which this dissertation would



not have been possible. Louis, thank you for your cuddles, unconditional love, and comic relief. Despite your disinclination to adhere to most commands, I rather enjoy your independent nature and could not imagine a better dog than you.

Thanks also to my friends, especially Reed Frey, Ellie Johnston, and Gerard Rothfus. Reed, thank you for your very helpful suggestions on this thesis and for supporting me at my defense.

“Sink me,” Ellie, but what did I do to deserve a friend as wonderful as you? No one tolerates my quirks and faults more patiently or indulgently than you. You are a true “kindred spirit,” to use Lucy Maud Montgomery’s term. I look forward to a lifetime of adventures with you, especially those in which we can “let our hair down.” I will forever treasure your friendship and am so grateful for your presence at my defense. You are always there when I need you! Gerard, thank you for always very patiently and helpfully responding to my (many) late-night messages asking, “But what do you think of THIS idea?!” You are an excellent sounding board and an even better friend. I am blessed to have you in my life.

I am very grateful for the Pittsburgh Oratorians and their spiritual support throughout my undergraduate studies.

Thanks to John Caius and the lovely Gonville and Caius College, Cambridge for inspiring this project. I am finally a Caian and am immensely honored by the opportunity to join the college community this fall!

Finally, I must acknowledge my gratitude to God, who has blessed me in so many ways.

ANNO DOMINI MMXV

*Ad Majorem Dei Gloriam*

## 1.0 INTRODUCTION

### 1.1 GENERAL INTRODUCTION

The picture of Dr. John Caius (1510-1573) is fraught with contradictions. Some accuse him of being a reactionary whose influence held back the progress of English medicine, yet others praise him as one of the greatest humanists of his day.<sup>1</sup> He was mocked by William Shakespeare (1564-1616) in *Merry Wives of Windsor* but described by William Bullein (c. 1515-1576) as “the second Linacer,” a flattering reference to the great medical humanist Thomas Linacre (c. 1460-1524).<sup>2</sup> Caius’ monograph on the English Sweating Sickness, *A boke, or counseill againste the sweate* has been lauded as an excellent, progressive piece of scholarship but also dismissed by Charles Creighton as a collection of “generalities... which amount to no more than a funeral essay, in the scholastic manner, upon the theme of sudden death.”<sup>3</sup> His defense of physicians’ professional privileges during his time as President of the College of Physicians has been

---

<sup>1</sup> Vivian Nutton, “John Caius and the Linacre Tradition,” *Medical History* 23, no. 4 (1979): 373.

<sup>2</sup> There is debate over whether Shakespeare’s Dr. Caius was modelled after John Caius. For arguments in favor of this hypothesis, see Christopher Mead Armitage, “Dr Caius: Cambridge Scholar, Shakespearian Buffon,” *Notes and Queries* 56, no. 1 (2009); William Bullein, *Bulleins bulwarke of defense* (London, 1562), fol. 4r.

<sup>3</sup> For examples of praiseworthy accounts, see Vivian Nutton, “Caius, John (1510–1573),” *Oxford Dictionary of National Biography*, Oxford University Press, 2004. <http://www.oxforddnb.com.pitt.idm.oclc.org/view/article/4351> and Alan Dyer, “The English Sweating Sickness of 1551: an Epidemic Anatomized,” *Medical History* 41, no. 3 (1997): 370. For a critical account, see Charles Creighton, *A History of Epidemics in Britain from AD 664 to the Extinction of Plague* (Cambridge: Cambridge University Press, 1891). Kindle edition.

described as praiseworthy “resolute action” that protected his profession and the vulnerable populace, while others regard it as a harsh persecution of well-meaning, skilled alternative medical practitioners.<sup>4</sup>

Criticisms of Caius usually revolve around his conservative Galenism. Elizabeth Lane Furdell stated that, “even after Vesalius discredited Galenic anatomy, however, Caius never abandoned his faith in tradition and because of that has been deemed an anachronism in his own lifetime.”<sup>5</sup> Charles O’Malley agreed: “By the time Caius became active his intense devotion to Galen was verging on the anachronistic... He could observe sharply when his vision was not blunted by veneration for the past.”<sup>6</sup> Though O’Malley did acknowledge that Caius was “occasionally a progressive,” he also maintained that “Caius was an anachronism during his lifetime... and would seem to have had a retarding influence upon the progress of English medicine.”<sup>7</sup> Charles Singer and George Sarton were harsher still. “Caius was a confirmed and obstinate Galenist of the old school, and added nothing to anatomical knowledge.”<sup>8</sup> “He was stern, ungenial, and excessively conservative.”<sup>9</sup>

---

<sup>4</sup> Sir George Clark, *A history of the Royal College of Physicians of London* (Oxford: Oxford University Press, 1964), volume I, 107-124; Margaret Pelling and Charles Webster, “Medical practitioners,” in *Health, medicine and mortality in the sixteenth century*, ed. Charles Webster (Cambridge: Cambridge University Press, 1979), 168-173 and 183-189.

<sup>5</sup> Elizabeth Lane Furdell, *The Royal Doctors 1485-1714: Medical Personnel at the Tudor and Stuart Courts* (Rochester: University of Rochester Press, 2001), 46.

<sup>6</sup> C.D. O’Malley, *English Medical Humanists: Thomas Linacre and John Caius* (Lawrence: University of Kansas Press, 1965), 26 and 44.

<sup>7</sup> O’Malley, *English Medical Humanists*, 26 and 45.

<sup>8</sup> Charles Singer, *A Short History of Anatomy from the Greeks to Harvey* (New York: Dover Publications Inc., 1957), 171.

<sup>9</sup> George Sarton, *The Appreciation of Ancient and Medieval Science During the Renaissance (1450-1660)* (Philadelphia: University of Pennsylvania Press, 1955), 31.

These critics are correct in recognizing Caius' devotion to the teachings of the ancient physician Galen of Pergamum (129-c. 216).<sup>10</sup> Caius' Galenism is typically construed as static Galenism, unresponsive-to-the-evidence Galenism, and, from a modern perspective, "wrong" Galenism. One of the most notorious tales about Caius and his Galenism is that of John Geynes (?-1563). Geynes was an Oxonian physician who, in 1559, claimed that Galen had committed twenty-two errors. Thomas Wendy reported this offense to the College, then Chaired by John Caius, which ordered Geynes to present his claims to the Fellows.<sup>11</sup> After three days of debate, the Fellows ruled that Geynes was indeed guilty of the crime, and Caius ruled that the offender should be imprisoned as a quack if he refused to recant.<sup>12</sup> Upon his recantation, Geynes was immediately forgiven and received into the College.<sup>13</sup>

One can view this as an "incident very characteristic of the times and of the man."<sup>14</sup> Charles E. Raven believed that "this attachment to the infallible utterances of the ancients was eminently typical of Caius; and in this case it coincided with his special interest [in Galenic manuscripts]."<sup>15</sup> I agree with the observation that this situation touched upon Caius' particular passion, but I reject the simplistic implication that Caius the conservative was characteristically being an obstinate reactionary, reflexively and irrationally defending his beloved Galen. Did

---

<sup>10</sup> I accept Vivian Nutton's hypothesis that Galen died *circa* 216, later than previous estimates of *circa* 200. Vivian Nutton, "Galen (129-216 CE)." *Encyclopedia of Philosophy*. Web. 6 June 2015. [http://go.galegroup.com.pitt.idm.oclc.org/ps/i.do?id=GALE%7CCX3446800709&v=2.1&u=upitt\\_main&it=r&p=GVR&sw=w&asid=810a75a2df054634fe4b9cc429365f25](http://go.galegroup.com.pitt.idm.oclc.org/ps/i.do?id=GALE%7CCX3446800709&v=2.1&u=upitt_main&it=r&p=GVR&sw=w&asid=810a75a2df054634fe4b9cc429365f25). For information on Caius' dedication to Galen, please see Nutton, *John Caius and the Manuscripts of Galen*.

<sup>11</sup> Furdell, *The Royal Doctors 1485-1714*, 72; Charles E. Raven, *English Naturalists from Neckam to Ray: A Study of the Making of the Modern World* (Cambridge: Cambridge University Press, 1947), 140.

<sup>12</sup> Furdell, *The Royal Doctors 1485-1714*, 72; Raven, *English Naturalists from Neckam to Ray*, 140.

<sup>13</sup> Thomas Joseph Pettigrew, *Medical portrait gallery: biographical memoirs of the most celebrated physicians, surgeons, etc. etc. who have contributed to the advancement of medical science*, volume I (London: Fisher, Son & Co., 1840), 62.

<sup>14</sup> Raven, *English Naturalists from Neckam to Ray*, 140.

<sup>15</sup> Raven, *English Naturalists from Neckam to Ray*, 140.

Caius and his College quash a voice of dissent? Obviously. Do their actions conflict with the modern prioritization of “free speech”? Certainly.

It does not necessarily follow, however, that Caius’ actions were professionally unjustified, i.e. against the best interests of sixteenth-century physicians and patients. Modern medicine has regulatory bodies that ensure conformity of practice according to (per the current consensus) the best standards of care. Furthermore, it is possible that Caius’ staunch Galenism stemmed not from an apparent personality flaw, but because it was the most reasonable position at the time. In context, being reactionary can be the most rational choice.

A.R. Hall has postulated that Galen’s supposed errors were philosophical rather than anatomical in nature.<sup>16</sup> Whether Galen or Geynes – or neither – was correct is uncertain, but given Caius’ intimate knowledge of Galenic manuscripts, it is quite possible that his defense of Galen was well-informed and deserved.<sup>17</sup> Though little is known about John Geynes, it seems certain that he was not more familiar with Galenic manuscripts than John Caius.

Furthermore, in the mid-sixteenth century, trusting Galen’s authority was reasonable:

Until the Paracelsian revival of the 1560s, there was no obvious alternative to the Galenic and Hippocratic tradition other than folk medicine and pure empiricism... If, as was generally admitted, it was Greek ideas that lay behind a millennium and a half of apparently successful practice, to reject the theories of the Greeks was at the same time to deny the validity of generations of cures that were based upon them.<sup>18</sup>

Though criticisms of Galen began to mount in the late sixteenth century, tenets of Galenism remained part of the dominant medical paradigm for centuries more. For Geynes to claim, in 1559-1560, that he was correct and Galen was wrong was still a rather rash move. If Galen could

---

<sup>16</sup> A. Rupert Hall, *The revolution in science, 1500-1750* (New York: Longman Group Limited, 1983), 43.

<sup>17</sup> For detailed information on Caius’ work with Galenic manuscripts, please see Nutton, *John Caius and the Manuscripts of Galen*.

<sup>18</sup> Nutton, *John Caius and the Manuscripts of Galen*, 2-3.

err in 22 instances, who is to say he did not err in many more? To suddenly reject Galenic theory would be just as devastating to sixteenth-century medicine as discarding germ theory would be to modern medicine. Fighting to prevent such a dramatic revolution is far from illogical.

Like Vivian Nutton, I acknowledge that Caius was clearly conservative in many ways.<sup>19</sup> However, I again concur with Nutton that Caius is a much more complex and nuanced figure than his critics recognize. Incidents in Caius' life, like the Geynes controversy, do reveal his conservatism, but conservatism does not automatically deserve derision. From a modern standpoint, Caius was often in error, but "he should not be criticized strongly for backing the wrong horse."<sup>20</sup> After all, he lacked our hindsight bias. As Nutton has argued, "much of the scorn directed upon him by modern scholars derives from a fallacious historical perspective, the temptation to view 1559 in the light of 1628, even to the ludicrous extent of making William Harvey attend Caius' dissections and praising Caius for his joint foundation of the Lumleian lectures eight or nine years after his death."<sup>21</sup>

To paraphrase D.A. Winstanley, "nothing is more unfair than to judge the men of the past by the ideas of the present. Whatever may be said of morality, medical wisdom is certainly ambulatory."<sup>22</sup> To judge Caius fairly is to contextualize him before assessing him. This is to accept Nutton's suggestion that Caius be studied "on his chosen ground, as a textual critic of Galen and as a humanist physician."<sup>23</sup> Thus, what methods of investigation – philological, anatomical, etc. – were available to Caius? What evidence – textual, physical, etc. – was obtainable for him? What were his contemporaries doing, and to what extent were they, too,

---

<sup>19</sup> Nutton, "John Caius and the Linacre Tradition," 373.

<sup>20</sup> Nutton, "John Caius and the Linacre Tradition," 384.

<sup>21</sup> Nutton, "John Caius and the Linacre Tradition," 374.

<sup>22</sup> D.A. Winstanley, *Lord Chatham and the Whig Opposition* (Cambridge: Cambridge University Press, 1912), 129.

<sup>23</sup> Nutton, "John Caius and the Linacre Tradition," 385.

mired in their shared classical heritage? At the time, was trusting a given ancient author on a particular matter reasonable or not?

In the mid-sixteenth century, “the leading physicians of his [Caius]’ generation were medical humanists almost to a man.”<sup>24</sup> Humanism was regarded as “progressive” relative to medieval scholasticism, and there was not a distinct, discrete camp in opposition to the humanists (excluding Paracelsians), but rather humanists with different opinions on the best path to the future. I believe that classifying sixteenth-century humanists into discrete “progressive” and “reactionary” camps is thus untenable, especially given that the classifications are based on modern, retrospective ideas instead of contemporary perceptions. I seek to reveal that the situation is much more nuanced and that a progressive-reactionary dichotomy is inappropriate.

One could thus classify this thesis as “anti-Whig history,” but I wish to avoid the baggage associated with “Whig history” and related terms. The concept of Whig history was most famously presented in Herbert Butterfield’s *The Whig Interpretation of History* (1931). Butterfield rejected the perceived “tendency in many historians to write on the side of Protestants and Whigs, to praise revolutions provided they have been successful, to emphasise certain principles of progress in the past and to produce a story which is the ratification if not the glorification of the present.”<sup>25</sup>

Though the term “Whig history” is frequently used, Butterfield’s book and his concept have received criticism.<sup>26</sup> Furthermore, many adopt the term but not all – or even most – of the meaning Butterfield attached to it. “The phrase ‘whig history’ has long been used as a term of

---

<sup>24</sup> Nutton, *John Caius and the Manuscripts of Galen*, 2.

<sup>25</sup> H. Butterfield, *The Whig Interpretation of History* (London: G. Bell and Sons, 1931), v.

<sup>26</sup> For examples of critical reviews, see A. Rupert Hall, “On whiggism,” *History of Science* 21 (1983): 45-59, G.R. Elton, “Herbert Butterfield and the study of history,” *The Historical Journal* 27 (1984): 729-743, and Adrian Wilson and T.G. Ashplant, “Whig History and Present-Centred History,” *The Historical Journal* 31, no. 1 (1988): 1.



historiographical criticism, in such a way as to imply, firstly, that everyone knows what it means, and secondly, that nobody wants to be 'whiggish.'"<sup>27</sup> "No two people seem to use the term in exactly the same sense, nor would any two historians entirely agree exactly what is whiggish."<sup>28</sup> The vague and polemical qualities of "Whig history" render the term, though nicely recognizable, not ideal. Some have offered different terms that represent related criticisms, e.g. "present-centeredness," "present-mindedness," "presentism," and "triumphalism."<sup>29</sup>

For the purposes of this essay, I will utilize a different term: progressivist history. It is perhaps a cousin of Hasok Chang's triumphalism, "which unreflectively continues to celebrate what was once victorious in the past."<sup>30</sup> To borrow Chang's language, progressivist history unreflectively continues to celebrate what the present classifies as "progressive" in the past and is overly critical of the opposing, "reactionary" camp. Progressivist accounts present a false dichotomy and praise the progressives primarily because they are regarded as progressive and not because of their ideas. As described by Butterfield, a historian who falls into this error "very quickly busies himself with dividing the world into the friends and enemies of progress... the men who furthered progress and the men who tried to hinder it."<sup>31</sup>

Butterfield dedicated much of *The Whig Interpretation of History* to this objectionable "division of mankind into good and evil, progressive and reactionary, black and white."<sup>32</sup> Though I agree with some criticisms of that work, I think Butterfield ably described what I label progressivist history:

---

<sup>27</sup> Wilson and Ashplant, "Whig History and Present-Centred History," 1.

<sup>28</sup> Ernst Mayr, "When is Historiography Whiggish?" *Journal of the History of Ideas* 51, no. 2 (1990): 301.

<sup>29</sup> Wilson and Ashplant, "Whig History and Present-Centred History," 11; Hasok Chang, "We Have Never Been Whiggish (About Phlogiston)," *Centaurus* 51 (2009): 239-264.

<sup>30</sup> Chang, "We Have Never Been Whiggish," 239.

<sup>31</sup> Butterfield, *The Whig Interpretation of History*, 5 and 11.

<sup>32</sup> Butterfield, *The Whig Interpretation of History*, 1.

If we see in each generation the conflict of the future against the past, the fight of what might be called progressive versus reactionary, we shall find ourselves organising the historical story upon what is really an unfolding principle of progress, and our eyes will be fixed upon certain people who appear as the special agencies of that progress.<sup>33</sup>

As Butterfield identified, this problematic way of writing history interprets the past through a teleological lens. It is easy to see why, in a narrative constructed to reveal the irrepressible march of progress, those who opposed the movement appear dramatically out-of-step with the natural course of human history. Historians who fall prey to this fallacy often gracefully (though patronizingly) “hand out a consolation prize to the man who, ‘though a reactionary, was irreproachable in his private life.’”<sup>34</sup> Critical accounts of Caius often include such begrudging compliments.

Such objectionable, condescending qualifications also occur in accounts of the progressives, though the reactionaries always fare worse:

Matters are not very much improved when we come to the historian who qualifies all this by some such phrase as that ‘Luther however was of an essentially mediaeval cast of mind’; for this parenthetical homage to research is precisely the vice and the delusion of the whig historian, and this kind of afterthought only serves to show that he has not been placing things in their true context, but has been speaking of a modernized Luther in his narration of the story. But if one party is misconceived through this method of historical approach, it would seem that the opposing party is even more gravely maltreated. It is taken to have contributed nothing to the making of the present-day, and rather to have formed an obstruction; it cannot by the process of direct reference be shown to have stood as a root or a foreshadowing of the present; at worst it is converted into a kind of dummy that acts as a better foil to the grand whig virtues.<sup>35</sup>

As implied in the above quote, these progressivist problems can be avoided if one considers historical figures in their proper contexts. The sixteenth-century medical community housed

---

<sup>33</sup> Butterfield, *The Whig Interpretation of History*, 45-46.

<sup>34</sup> Butterfield, *The Whig Interpretation of History*, 4-5.

<sup>35</sup> Butterfield, *The Whig Interpretation of History*, 35.

numerous viewpoints, some of which please present sensibilities better than others, but the historian must never forget that they are all sixteenth-century perspectives, nonetheless.

Proper contextualization, as indicated by Butterfield, reveals that the progressive-reactionary dichotomy is a false one:

If we use the present as our perpetual touchstone, we can easily divide the men of the 16<sup>th</sup> century into progressive and reactionary; but we are likely to beg fewer questions, and we are better able to discover the way in which the past was turned into our present, if we adopt the outlook of the 16th century upon itself... In this case we shall tend to see not so much progressive fighting reactionary but rather two parties differing on the question of what the next step in progress is to be. Instead of seeing the modern world emerge as the victory of the children of light over the children of darkness in any generation, it is at least better to see it emerge as the result of a clash of wills, a result which often neither party wanted or even dreamed of, a result which indeed in some cases both parties would equally have hated, but a result for the achievement of which the existence of both and the clash of both were necessary.<sup>36</sup>

In the above passage, Butterfield was primarily considering the Protestant Reformation, but his point is broadly applicable. Vesalian and eventually modern anatomy could not have developed without the philological work of the humanists, and humanist critics like Caius pushed Vesalius to become a better anatomist. It is the interaction of the medical “reformers” and the orthodox humanists that birthed modern anatomy, not the first party acting alone.

When dealing with tales like that of John Caius and the College of Physicians’ reaction to John Geynes, tales that irritate modern sensibilities, I think it prudent to accept Butterfield’s advice:

Instead of being moved to indignation by something in the past which at first seems alien and perhaps even wicked to our own day, instead of leaving it in the outer darkness, he [the ideal historian] makes the effort to bring this thing into the context where it is natural, and he elucidates the matter by showing its relation to other things which we do understand. Whereas the man who keeps his eye on the present tends to ask some such question as, How did religious liberty arise? while the whig historian by a subtle organisation of his sympathies tends to read it as the

---

<sup>36</sup> Butterfield, *The Whig Interpretation of History*, 27-28.

question, To whom must we be grateful for our religious liberty? the historian who is engaged upon studying the 16th century at close hand is more likely to find himself asking why men in those days were so given to persecution.<sup>37</sup>

To apply Butterfield's approach to the Caius-Geynes controversy, why did Caius trust Galen and not Geynes? Why did Caius use philological methods to defend Galen? Why did Caius and men like Jacobus Sylvius trust Galen completely while their contemporaries, like Geynes and Andreas Vesalius, believed that Galen could err? Were they using the same investigative methods but acquiring different results and/or interpreting the data differently, or were their methodologies completely distinct? Following these paths of inquiry will provide fresh insight into sixteenth century medicine, whereas simply designating Caius and Sylvius reactionaries and rejecting them and their methods, and praising Geynes and Vesalius as progressives and engaging in hagiography, is static and unproductive.

Though the purpose of this paper is to argue for a more nuanced view of John Caius and not to foray deep into normative historiography, I propose three problems with progressivist history. First, the progressive-reactionary dichotomy is objectionable due to its seemingly inevitable tendency to invite or even encourage personal judgments about the historical individuals. I object to making moral judgments about people based on their perceived friendliness or opposition to what the present consensus deems "progress." Second, the progressive-reactionary dichotomy is untenable. I believe that it is often more appropriate to regard historical figures as lying on a spectrum, e.g. a spectrum of Galenism, rather than occupying discrete, exclusive categories, i.e. progressive and reactionary.

Third, the progressive-reactionary dichotomy carries the problematic implication that the progressive position was justified – simply because it was progressive – without providing a

---

<sup>37</sup> Butterfield, *The Whig Interpretation of History*, 17-18.

detailed defense of why it was the best position in that context. The polemical “reactionary” moniker implies that the reactionary individual reflexively rejected Progress, capital P. Accepting the dichotomy discourages further (contextualized) investigation, which could reveal that the reactionary position was more justified in that context. In the case of Caius controversies, what was the available evidence? Methodologies? What position on a given issue was of the most benefit to sixteenth-century patients and physicians?

This thesis is not an attack on the notion of scientific progress, and I believe that Vesalius and other progressivist heroes do deserve high praise. Though this paper is focused on Caius, it will explore broader issues in the history and philosophy of science. It is designed to reveal that mid- and late-sixteenth-century medicine and natural history; the transition from Renaissance humanism to the Scientific Revolution (to use controversial terms); and the scholars of this period, “progressives” and “reactionaries” alike, were more complex than a faulty progressive-reactionary dichotomy would allow. Specifically, I seek to reveal that John Caius was a much more positive and nuanced figure than critics suggest.

## **1.2 GALEN AND GALENISM**

To understand John Caius, a staunch Galenist, one must understand Galen and his teachings. Yet, the story does not begin with Galen, but with the man he esteemed as Caius, Hippocrates. Hippocrates of Cos (c. 460 BCE – c. 375 BCE) is arguably the most famous physician of antiquity. Well-respected by his contemporaries, he was revered, sometimes deified, by

subsequent generations.<sup>38</sup> An extensive mythology about his life was developed, and to him were attributed about sixty treatises. Though this group of texts is still known as the Hippocratic Corpus, the current scholarly consensus is that the Corpus includes the work of several authors, and it is possible that none of them stemmed from the reed pen of Hippocrates himself.<sup>39</sup> Not only are there stylistic, philosophic, dialectal, and temporal differences, but some pieces contradict others, e.g. the author of the Hippocratic Oath forbids abortion, whereas the author of “The Nature of the Child” describes cooperating with one with no apparent moral qualms.<sup>40</sup> The bulk of the Corpus was compiled in third century BCE at the famous library of Alexandria.<sup>41</sup>

Hippocrates is known as “the Father of [Western] Medicine,” but in a practical sense, that title arguably belongs to Galen of Pergamum (129-c. 216).<sup>42</sup> It was his theories, taken from his voluminous corpus, that determined both the theoretical and practical aspects of learned medicine. His texts greatly influenced ancient Byzantine and medieval Arabic medicine, and “by the fourteenth century he had become a canonical figure in Europe as well.”<sup>43</sup> Galenism was

---

<sup>38</sup> Wesley D. Smith, “Hippocrates.” *Encyclopædia Britannica Online*. June 2015. <http://britannica.com/biography/Hippocrates>.

<sup>39</sup> Smith, “Hippocrates”; Singer, *A Short History of Anatomy from the Greeks to Harvey*, 12; “Pen.” *The Hutchinson unabridged encyclopedia with atlas and weather guide*. June 2015.

<http://search.credoreference.com.pitt.idm.oclc.org/content/entry/heliconhe/pen/1>.

<sup>40</sup> Singer, *A Short History of Anatomy from the Greeks to Harvey*, 12; Hippocrates, “The Oath,” trans. J. Chadwick and W.N. Mann, in *Hippocratic Writings*, ed. G.E.R. Lloyd, 67 (New York: Penguin Books, 1983), 67; Hippocrates, *The Nature of the Child*, trans. I.M. Lonie, in *Hippocratic Writings*, ed. G.E.R. Lloyd, 324-346 (New York: Penguin Books, 1983), 325.

<sup>41</sup> Roy Porter, *The Greatest Benefit to Mankind: A Medical History of Humanity* (New York: W. W. Norton & Company, Inc, 1997), 56.

<sup>42</sup> Wesley D. Smith, “Hippocrates.” *Encyclopædia Britannica Online*. June 2015.

<http://www.britannica.com/biography/Hippocrates>; Nutton, “Galen (129-216 CE).”

<sup>43</sup> Vivian Nutton, “Logic, Learning, and Experimental Medicine.” *Science* 295 (2002): 800; R.J. Hankinson, Introduction to *The Cambridge Companion to Galen*, ed. R.J. Hankinson, xv-xviii (Cambridge: Cambridge University Press, 2008), xv.

the basis of Renaissance medicine and remained the dominant European medical paradigm through the seventeenth century.<sup>44</sup>

Galen was born in Pergamum, a city famous for its library – almost the size of Alexandria’s – and its statue of the Greek god of healing, Asclepius.<sup>45</sup> His father Nicon, an architect, provided him with an extensive, pluralistic education that exposed him to all the major philosophical schools: the Platonic, Peripatetic/Aristotelian, Epicurean, and Stoic. When Galen was about sixteen or seventeen and immersed in his philosophical education, Asclepius reputedly visited Nicon in a dream and informed him that his son was best suited for a career in medicine.<sup>46</sup> His medical education was quite unusual; he commenced his studies later than most, and he continued them longer than most in what was “the longest recorded medical education from the ancient world.”<sup>47</sup> He studied medicine for about a decade, spending four or five years in Alexandria alone.<sup>48</sup>

Galen began his medical education in Smyrna and Corinth, where he studied with first a Rationalist and then an Empiricist.<sup>49</sup> After his father’s death, he travelled to “Alexandria, the greatest medical center of antiquity.”<sup>50</sup> There, he studied anatomy. Whether Galen dissected human corpses in addition to animal is unknown but was fiercely debated during the Renaissance.<sup>51</sup> Though Galen was unclear about whether he personally dissected human corpses,

---

<sup>44</sup> Nutton, “Logic, Learning, and Experimental Medicine,” 800.

<sup>45</sup> Nutton, “Logic, Learning, and Experimental Medicine,” 800.

<sup>46</sup> R.J. Hankinson, “The man and his work,” in *The Cambridge Companion to Galen*, ed. R.J. Hankinson, 1-33 (Cambridge: Cambridge University Press, 2008), 3-4; Nutton, “Galen (129-216 CE),” 4.

<sup>47</sup> Nutton, “Galen (129-216 CE),” 4.

<sup>48</sup> Nutton, “Logic, Learning, and Experimental Medicine,” 800.

<sup>49</sup> Michael Boylan, “Galen (130-200 C.E.).” *Internet Encyclopedia of Philosophy*. June 2015.

<http://www.iep.utm.edu/galen/>

<sup>50</sup> Boylan, “Galen (130-200 C.E.)”; Nutton, “Logic, Learning, and Experimental Medicine,” 800.

<sup>51</sup> Caius isolated passages in Galenic manuscripts that seemingly indicated that Galen had dissected humans. Vivian Nutton, “‘Prisci dissectionum professores’: Greek Texts and Renaissance Anatomists,” in *The Uses of Greek and*

he wrote about Alexandrian anatomists who had. He described Herophilus of Chalcedon (c. 300 BCE) as the first to dissect both humans and animals, though it seems that Herophilus was merely the first to dissect them in public demonstrations, not the first to dissect them at all. There is evidence of previous (private) human dissections, especially by Diocles.<sup>52</sup> Both Herophilus and his younger contemporary, Erasistratus (c. 290 BCE), were accused of human vivisection.<sup>53</sup>

Regardless of whether Galen personally engaged in human dissection, he explicitly mentioned examining a human skeleton during his Alexandrian training.<sup>54</sup> Later, he would urge his students, “look at the human skeleton with your own eyes,” as he had done.<sup>55</sup> Galen’s anatomical education continued when, in 157, he moved back to Pergamum to serve as the physician at the gladiatorial school.<sup>56</sup> This provided him with practical experience with human anatomy and physiology, as he treated many traumatic injuries.

After treating the gladiators for four years, he travelled through the Mediterranean, studying native plants and local remedies.<sup>57</sup> By 162, he was in Rome, where “he quickly established a reputation as a doctor, anatomist, and philosopher.”<sup>58</sup> His descriptions of his time in Rome display his characteristic lack of humility; he bragged about “his superior knowledge and ability in differential diagnosis.”<sup>59</sup> “Although he invariably portrayed his success as the result of his own ability, integrity and industry, as well as his talent for unmasking the baseless

---

*Latin: Historical Essays*, ed. A.C. Dionisotti, Anthony Grafton, and Jill Kraye (London: The Warburg Institute, 1988), 119-120.

<sup>52</sup> Singer, *A Short History*, 28-29.

<sup>53</sup> Singer, *A Short History*, 34.

<sup>54</sup> Singer, *A Short History*, 52.

<sup>55</sup> Galen, cited by Boylan, “Galen (130-200 C.E.)”; Singer, *A Short History*, 52.

<sup>56</sup> Hankinson, “The man and his work,” 4.

<sup>57</sup> Hankinson, “The man and his work,” 4-5.

<sup>58</sup> Nutton, “Galen,” 4.

<sup>59</sup> Hankinson, “The man and his work,” 5.



pretensions of his rivals, it is evident that he availed himself of both his own social standing and of various connections with his family at Pergamum.”<sup>60</sup>

From his earliest days in Rome, Galen moved in high society and earned himself both powerful allies, like the philosopher Glaucon, and powerful enemies. “The medical community in Rome was competitive and corrupt,” and his rivals were not very charmed by his arrogance and his popularity.<sup>61</sup> Galen fled Rome in 166, either due to his competitors or to an epidemic, and returned to Pergamum.<sup>62</sup>

However, the Roman Emperors Marcus Aurelius and Lucius Verus recalled Galen to Rome in 168.<sup>63</sup> He followed them on campaign during the Marcomannic Wars. Galen remained an imperial physician until his death, treating Aurelius’ son Commodus and other high-profile Roman patients.<sup>64</sup> Galen’s death is typically dated to about 200, but Galenic scholar Vivian Nutton has persuaded many that approximately 216 is more accurate, making Galen over eighty-years-old at the time of his death.<sup>65</sup>

Despite his busy clinical practice, Galen’s chief occupation was writing his voluminous corpus. It is estimated that he wrote over 350 treatises, though only about 115 exist in the original Greek.<sup>66</sup> Galenic works compose roughly ten percent of the extant Greek literature from before 300 AD.<sup>67</sup> Approximately 50 additional Galenic works survive in translated forms (primarily in Arabic or medieval Latin). Galen’s treatises are not only awe-inspiring in quantity; their breadth is also impressive. Most are on medical topics, but Galen also wrote extensively on

---

<sup>60</sup> Hankinson, “The man and his work,” 6.

<sup>61</sup> Boylan, “Galen (130-200 C.E.).”

<sup>62</sup> Nutton, “Logic, Learning, and Experimental Medicine,” 800.

<sup>63</sup> Boylan, “Galen (130-200 C.E.).”

<sup>64</sup> Nutton, “Logic, Learning, and Experimental Medicine,” 800; Boylan, “Galen (130-200 C.E.).”

<sup>65</sup> Nutton, “Galen,” 4; Boylan, “Galen (130-200 C.E.).”

<sup>66</sup> Nutton, “Logic, Learning, and Experimental Medicine,” 800; Nutton, “Galen,” 4.

<sup>67</sup> Nutton, “Logic, Learning, and Experimental Medicine,” 800.

philosophy, though most of his philosophical works were tragically lost in a fire in the Temple of Peace in 191.<sup>68</sup>

Galen believed that “the best doctor is also a philosopher.”<sup>69</sup> Therefore, even his medically focused writings often have philosophical bents. Though Galen studied under a Rationalist and an Empiricist, he did not totally subscribe to either – or any – contemporary school of medical thought.<sup>70</sup> Thomas Boylan has argued that Galen possessed an “inclination toward observation [that] moved his theory into the class of critical empiricism,” though his “‘cutting edge’ observational practice” did not render him a member of the Empiricist sect:<sup>71</sup>

Galen often characterizes himself as an eclectic belonging to no school. It is true that Galen was an innovator in observation... but his epistemology was grounded in his philosophical training. Over and over Galen relies on an over-arching medical theory to drive his aetiology. In this way his practice is closest to Aristotelian critical empiricism that requires careful observation and a comprehensive theory that will make those observations meaningful.<sup>72</sup>

Galen eschewed classification and instead established a new methodology, though no extant Galenic work explicitly records his full methodological system. He was, however, heavily influenced by Platonic and Aristotelian natural philosophy and by Hippocrates.<sup>73</sup>

Galen emphasized observation and *ascesis* (practice), which were necessary for both medical students and physicians. He particularly recommended continued dissection experience throughout a career; book-learning was insufficient.<sup>74</sup> Nutton described anatomy, for Galen, as “a *Forschungsinstrument*, essential for anyone who wishes to understand how the body

---

<sup>68</sup> Nutton, “Logic, Learning, and Experimental Medicine,” 800; Boylan, “Galen (130-200 C.E.).”

<sup>69</sup> Mary Lindemann, *Medicine and Society in Early Modern Europe* (New York: Cambridge University Press, 2010), 88.

<sup>70</sup> Boylan, “Galen (130-200 C.E.).”

<sup>71</sup> Boylan, “Galen (130-200 C.E.).”

<sup>72</sup> Boylan, “Galen (130-200 C.E.).”

<sup>73</sup> Boylan, “Galen (130-200 C.E.).”

<sup>74</sup> Vivian Nutton, “Humanist surgery,” in *The medical renaissance of the sixteenth century*, eds. A. Wear, R.K. French, and I.M. Lonie, 75-99 (New York: Cambridge University Press, 1985), 79.

works.”<sup>75</sup> Galen also regarded anatomy as practically useful in developing and improving one’s surgical technique, though he viewed dissection as a must for surgeons and physicians alike.<sup>76</sup> “Anatomy could be seen as the very centre of Galen’s experimental medicine.”<sup>77</sup>

After his death, “the Greek world accepted without restriction Galen’s authority, and the Galenic writings became its medical bible.”<sup>78</sup> During the medieval period, the bulk of the Galenic corpus was translated into Arabic. Some medieval Europeans located Galenic manuscripts in the original Greek, but the medieval West’s exposure to Galen was generally limited to Latin translations of Arabic translations. This indirect transmission surely led to transcription and translation errors. By the early fourteenth century, most Galenic works were available in a Latin translation, either from the Arabic or from the original Greek.<sup>79</sup> Throughout that century, Galen grew in influence until Galenism dominated medical education and practice.<sup>80</sup>

It was the sixteenth century, however, that “was predominantly the golden age of Galenism.”<sup>81</sup> The medical humanists, who will be discussed below, compiled, edited, and translated, Galenic manuscripts. “Galen’s works were more widely available, and in a more complete and accurate form, than previously, and thanks to the dedication of his followers they were also more highly admired, more thoroughly studied, and probably better understood, than at any time before or since.”<sup>82</sup>

---

<sup>75</sup> Nutton, “Humanist surgery,” 80.

<sup>76</sup> Nutton, “Humanist surgery,” 80; Nutton, “Prisci Dissectionum Professores,” 115.

<sup>77</sup> Nutton, “Prisci Dissectionum Professores,” 115.

<sup>78</sup> Sarton, *The Appreciation of Ancient and Medieval Science During the Renaissance*, 18.

<sup>79</sup> Sarton, *The Appreciation of Ancient and Medieval Science During the Renaissance*, 19.

<sup>80</sup> Sarton, *The Appreciation of Ancient and Medieval Science During the Renaissance*, 19-20.

<sup>81</sup> Jerome J. Bylebyl, “The School of Padua: humanistic medicine in the sixteenth century,” in *Health, medicine and mortality in the sixteenth century*, ed. Charles Webster, 333-370 (New York: Cambridge University Press, 1979), 340.

<sup>82</sup> Bylebyl, “The School of Padua,” 340.

The Hippocratic and Galenic corpuses and the medieval (especially Arabic) commentaries on them birthed the Galenic medical paradigm that controlled Renaissance medicine. Per Galen's *Ars medica*, the world was divided into three category headings: non-naturals, contra-naturals, and naturals. The six non-naturals were air, sleeping and waking, food and drink, rest and exercise, excretion and retention, and the passions or emotions.<sup>83</sup> The theory of the six non-naturals was expanded upon in Islamic and medieval medicine and was best expressed in Johannitius' *Introduction*, a standard medical school textbook in Caius' time.

The non-naturals were contrary to the normal functioning of the body and thus facilitated disease processes. They had to be carefully balanced so that they did not cause an excess of one humor. All diseases were contra-naturals. The naturals included the four elements (earth, air, fire, water); four humors; four complexions; parts of the body, including organs; animating *spiritus*, "a sort of air or pneuma produced in the heart and carried throughout the body by the arteries"; virtues, the functions of the bodily systems; and the operations, the functions of the individual organs.<sup>84</sup>

Per humorism, the fever experienced by Sweat victims could stem from an excess of any of the four humors: blood, phlegm, or black or yellow bile.<sup>85</sup> Each humor was paired with two qualities: blood was hot and wet, phlegm was cold and wet, black bile was cold and dry, and yellow bile was hot and dry.<sup>86</sup> Blood was regarded as "the vital juice of life" and given roles in nourishment, reproduction, and lactation; phlegm was clear; black bile was produced in the liver

---

<sup>83</sup> Lindemann, *Medicine and Society in Early Modern Europe*, 14.

<sup>84</sup> Lindemann, *Medicine and Society in Early Modern Europe*, 88.

<sup>85</sup> Porter, *The Greatest Benefit to Mankind*, 75.

<sup>86</sup> Lindemann, *Medicine and Society in Early Modern Europe*, 17.

but stored in the spleen; and yellow bile was produced in the liver but stored in the gall bladder.<sup>87</sup>

The three “Principal Members,” or main organs of the body, were the heart, liver, and brain.<sup>88</sup> There was no conception of organ systems, as there is in modern medicine; instead, each principal member governed its own group of organs, which were assigned to a group based on anatomical location and/or presumed physiological function.<sup>89</sup> The heart governed the thoracic organs; the brain, the spinal cord and nerves, which controlled the animal virtue; and the liver, all organs that were thought to control natural virtues, like “nutrition, growth, and reproduction.”<sup>90</sup>

The liver controlled all digestive organs, including the stomach, which converted food into chyle. This was then transported to the liver via the vena cava. The liver concocted, or cooked, the chyle, sequentially creating the four humors: blood, phlegm, yellow bile, and finally black bile.<sup>91</sup> Some blood was diverted to produce semen, but the rest was carried through the veins and used as nutrition.<sup>92</sup>

The fluid carried in the veins was referred to as blood, and was indeed primarily composed of the sanguis humor, but it also contained traces of the remaining three humors.<sup>93</sup> The heart did not pump blood; instead, each organ drew blood to itself when it required nourishment.<sup>94</sup> Invisible pores in the septum of the heart allowed the blood to mix with the *spiritus*. This *pneuma* was produced in the heart and carried in the arteries, which were part of a

---

<sup>87</sup> Lindemann, *Medicine and Society in Early Modern Europe*, 19; Nancy G. Siraisi, *Medieval & Early Renaissance Medicine: An Introduction to Knowledge and Practice* (Chicago: University of Chicago Press, 1990), 105.

<sup>88</sup> Lindemann, *Medicine and Society in Early Modern Europe*, 88.

<sup>89</sup> Lindemann, *Medicine and Society in Early Modern Europe*, 89.

<sup>90</sup> Lindemann, *Medicine and Society in Early Modern Europe*, 89.

<sup>91</sup> Lindemann, *Medicine and Society in Early Modern Europe*, 89; Jimi Wollumbin, “Galenic Medicine in the 21<sup>st</sup> Century,” *JATMS* 19, no. 2 (2013): 91.

<sup>92</sup> Lindemann, *Medicine and Society in Early Modern Europe*, 89.

<sup>93</sup> Siraisi, *Medieval & Early Renaissance Medicine*, 106.

<sup>94</sup> Lindemann, *Medicine and Society in Early Modern Europe*, 90.

distinct system.<sup>95</sup> It was “a subtle substance, mediating soul and matter.”<sup>96</sup> “This pneuma was the source of life; it animated the body and was a central part of the purposeful anatomy of Galenic medicine.”<sup>97</sup> It disappeared at death.

Though those striving for health attempted to balance their humors, at conception, each person developed an inherent complexion, meaning a predisposition to an extreme of one particular humor and thus a predisposition to certain illnesses.<sup>98</sup> The sanguine were hot and wet, with an excess of blood; the phlegmatic, cold and moist, with an excess of phlegm; the melancholy, cold and dry, with an excess of black bile; and the choleric, hot and dry, with an excess of yellow bile.<sup>99</sup> One’s temperament also dictated one’s behavior to a certain degree.<sup>100</sup>

Though one’s complexion was permanent, it could experience relative changes due to age and environmental factors. Youth were relatively hot and moist and grew cold and dry as they aged. Sex and race also dictated the complexion with which one was conceived. Women were relatively more moist and cold than men.<sup>101</sup> A physician could determine a patient’s complexion by touch. Identifying the complexion was essential in forming a treatment plan:

Complexion theory functioned as a system of explanation providing the rational link between disease and therapy; sickness occurred when the balance of qualities in an individual was upset; the physician might restore nature’s balance by prescribing medications in which the qualities were matched inversely to the patient’s disordered complexion.<sup>102</sup>

---

<sup>95</sup> Lindemann, *Medicine and Society in Early Modern Europe*, 90; Hilary Howard Lentz, “The King of England’s Sickness: A Description of the English Sweat and an Evaluation of the Gendered Nature and Treatment of This Early Modern Illness.” Master’s diss. College of Charleston and the Citadel, 2010: 54.

<sup>96</sup> Porter, *The Greatest Benefit to Mankind*, 174.

<sup>97</sup> Lindeman, *Medicine and Society in Early Modern Europe*, 89.

<sup>98</sup> Siraisi, *Medieval & Early Renaissance Medicine*, 101-102; Lentz, “The King of England’s Sickness,” 53; Lindemann, *Medicine and Society in Early Modern Europe*, 23.

<sup>99</sup> Wollumbin, “Galenic Medicine in the 21<sup>st</sup> Century,” 90-91.

<sup>100</sup> Lentz, “The King of England’s Sickness,” 53.

<sup>101</sup> Siraisi, *Medieval & Early Renaissance Medicine*, 102.

<sup>102</sup> Siraisi, *Medieval & Early Renaissance Medicine*, 102.

In early modern medicine, all maladies were divided into one of three classifications – congenital abnormalities, complexional imbalances, or traumatic injuries – meaning that almost all illnesses qualified as complexional imbalances.<sup>103</sup> The theory of complexion meant that early modern medicine was highly individualized; treatment plans were altered based on the patient’s overall complexion and current humoral balance.<sup>104</sup> Daily routines and prevention regimens were also individualized based on one’s complexion.<sup>105</sup> One’s regimen aimed to reduce or balance exposure to non-naturals, because spirits that were poisoned by repletion were vulnerable to the infectious air: “To such spirites when the aire infectiue cometh consonant, then be thei distempered, corrupted, sore handled, & oppressed, then nature is forced, & the disease engendred.”<sup>106</sup>

Galenic teachings were preserved to some degree through the medieval period, especially in Arab medicine. It was not until the medical humanist movement, however, that Galenic texts in the original Greek became widely available. The humanists ushered in a Galenic revival that dominated Renaissance medicine.

---

<sup>103</sup> Siraisi, *Medieval & Early Renaissance Medicine*, 120.

<sup>104</sup> Siraisi, *Medieval & Early Renaissance Medicine*, 121.

<sup>105</sup> Lindemann, *Medicine and Society in Early Modern Europe*, 242.

<sup>106</sup> John Caius, *A booke, or counseill against the disease commonly called the sweate or sweatyng sicknesse* (London, 1552), fol. 16r.

### 1.3 MEDICAL HUMANISM

The medical humanist movement began in late fifteenth-century Italy as men applied humanist concepts, like *ad fontes*, to medical study and practice.<sup>107</sup> As described by Jerome J. Bylebyl, the medical humanist movement was, in his terms, both conservative and reforming:

[It was] conservative because its guiding assumption was that medical theory and practice had reached unparalleled heights among the ancient Greeks, especially through the work of Hippocrates and Galen, and reforming because its proponents took a careful look at medicine as taught and practiced by contemporary physicians and found it to be distressingly corrupt and incomplete in relation to the surviving monuments of ancient Greek medicine... Despite its avowedly conservative intentions, medical humanism ushered in some of the most significant innovations in Renaissance medicine, both in didactic technique and substantive content.<sup>108</sup>

Medical humanism can be portrayed with its reactionary tendencies at war with its progressive. It seems more fitting to regard it as a unified movement that sought to reform contemporary medical practice by returning to ancient medical teachings. Humanism's *ad fontes* methodology was not an antiquarian exercise conducted for solely academic purposes. Returning to the ancient texts was done so that contemporary medical practice could be improved and reformed. Medical humanism's apparent conservatism was thus an inherently reforming activity. These impulses were united, not contradictory. To classify certain parts of medical humanism as reactionary and other progressive confuses the situation and places artificial, faulty categorizations on parts of the movement.

The Italian physician Nicolò Leonicensis (1428-1524) can be regarded as the first medical humanist. In his early education in his native Vicenza, he studied under humanists and

---

<sup>107</sup> Paul F. Grendler, *The Universities of the Italian Renaissance* (Baltimore: The Johns Hopkins University Press, 2002), 324. The phrase "*ad fontes*" is taken from Erasmus' "*sed in primis ad fontes ipsos properandum, id est graecos et antiquos.*" Desiderius Erasmus, *De ratione studii ac legendi interpretandique auctores* (Paris, 1511).

<sup>108</sup> Bylebyl, "The School of Padua," 339-341.



was taught Greek, in which he became very skilled. In 1446, he matriculated into the University of Padua, where he studied arts and medicine. He practiced medicine in the Este court and taught various subjects at the University of Ferrara for sixty years. He also taught at Padua and Bologna for brief periods. Leoniceno owned “the largest private collection of Greek medical, scientific, and philosophical works of his time.”<sup>109</sup>

Leoniceno trained under and communicated with many great humanists, including Desiderius Erasmus (1466-1536), but he directed his humanism toward medicine, specifically. In keeping with the humanist philological tradition, he initiated the search for Galenic manuscripts in the original Greek. Leoniceno edited the first printed Galenic publications (*Methodus medendi* and *De arte curative ad Glauconem*), but he also translated eleven Galenic treatises into Latin.<sup>110</sup>

The work of locating, editing, and translating Galenic texts was continued throughout the sixteenth century. “More than six hundred printings of one or more works of Galen in Latin appeared across Europe” in that century, but perhaps the most significant publication was the so-called Giunta Galen.<sup>111</sup> Printed in 1541 by Venice’s Giunti Press, it was a massive seven-volume, folio-sized Latin translation of many Galenic treatises. Collaborators included such greats as Montanus (Giovanni Battista Da Monte, 1498-1551) and Andreas Vesalius (1514-1564). “The new Latin translations steadily replaced medieval translations.”<sup>112</sup>

---

<sup>109</sup> Grendler, *The Universities of the Italian Renaissance*, 324-325.

<sup>110</sup> Grendler, *The Universities of the Italian Renaissance*, 325.

<sup>111</sup> Grendler, *The Universities of the Italian Renaissance*, 325. This nickname is certainly much more manageable than the book’s full title: *Galenii Omnia opera nunc primum in unum corpus redacta: quorum alia nunquam antea latinitate donata fuerant, alia aut novis interpretationibus, aut accuratis recognitionibus sunt illustrata: singulari summo studio excusa, atque manuscriptis Graecorum voluminibus infinitis pene locis restituta*. Charles Donald O’Malley, “The Relations of John Caius With Andreas Vesalius and Some Incidental Remarks on the Giunta Galen and on Thomas Geminus,” *Journal of the History of Medicine and Allied Sciences* (1955): 155.

<sup>112</sup> Grendler, *The Universities of the Italian Renaissance*, 325.

Leoniceno prioritized new printings and translations of classical medical works so highly because he believed that the medieval medical scholars, Arabic and Christian alike, had committed many errors and mistranslations. He sought to discard these medieval words and re-engage with the actual ancient sources and their concepts:

Invoking the familiar humanist distinction between “words” (verba) and “things” (res), Leoniceno insisted on concentrating on things, which meant freeing the ancient texts from the mistakes and confusion of the Arab commentators and giving greater emphasis to such practical aspects of medicine as anatomical structure, treatment of specific diseases, and medicinal herbs. Leoniceno wanted to make it possible to practice medicine as the ancients had. If they did so, he believed that modern physicians would more often cure disease and relieve suffering.<sup>113</sup>

The medical humanist movement that he birthed, and the medical education at Italian Renaissance universities, similarly emphasized philology, anatomy, and medicinal botany.

Finding and sometimes translating original Greek texts did not just allow medical humanists to identify medieval mistranslations; this endeavor also allowed them to perceive the nuanced differences between ancient works which had been concealed by the syntheses of the medieval Scholastics.<sup>114</sup>

Another concept that Leoniceno and later medical humanists emphasized was that of medical method. Leoniceno’s study of Galen’s *Ars medica* led him to realize that medieval scholars had diluted Galen’s three-pronged method of instruction into Aristotle’s demonstration and dialectic, the two methods of philosophic inquiry in the Aristotelian system. Leoniceno argued that Galen listed three methods of teaching and two methods of scientific or philosophic inquiry. The methods of instruction were “analysis according to the end or purpose of the topic, synthesis, or by creating a series of definitions.” The methods of inquiry were utilizing logical

---

<sup>113</sup> Grendler, *The Universities of the Italian Renaissance*, 327.

<sup>114</sup> Grendler, *The Universities of the Italian Renaissance*, 328.

demonstration (when dealing with a specific topic or question) and “a broader method... which might order the entire contents of a science.”<sup>115</sup>

Leoniceno argued for increased methodological freedom, which proved to be a popular concept. Furthermore, as Galen had argued, it was acceptable to reconfigure “the entire contents of a science” in a new manner.<sup>116</sup> Galen’s – and Leoniceno’s – views inspired change; “medical scholars increasingly wrote independent treatises on a topic, rather than commenting on a curricular text, the traditional approach.”<sup>117</sup> Paul F. Grendler gives Vesalius’ *Fabrica* as “a spectacular example” of this new trend.<sup>118</sup> Caius’ *A boke or counseill against the sweate*, which will be analyzed below, is also an independent treatise on a new topic.

In the early decades of the so-called Renaissance in medicine, the University of Ferrara, where Leoniceno taught, was the epicenter, but the medical humanist movement spread across Europe. By the 1540s, the University of Padua had become the primary center of the medical humanist movement. There occurred innovations in medical education, medical method, and anatomy. Padua became known as the greatest medical school in Europe, and many Englishmen studied there.<sup>119</sup>

In the traditional narrative, the University of Padua was founded in 1222 by a group of professors and students who decided to leave the University of Bologna.<sup>120</sup> By the early fourteenth century, there were paid professorships of law, medicine, and arts. Candidates for medical degrees were examined by committees composed of professors and local practicing physicians. “By the late fourteenth century, the university boasted some well-known scholars and

---

<sup>115</sup> Grendler, *The Universities of the Italian Renaissance*, 327.

<sup>116</sup> Grendler, *The Universities of the Italian Renaissance*, 327.

<sup>117</sup> Grendler, *The Universities of the Italian Renaissance*, 327.

<sup>118</sup> Grendler, *The Universities of the Italian Renaissance*, 327.

<sup>119</sup> Grendler, *The Universities of the Italian Renaissance*, 328.

<sup>120</sup> Grendler, *The Universities of the Italian Renaissance*, 21.

students from different parts of Europe.”<sup>121</sup> Padua was conquered and absorbed into the Venetian state in 1405. Two years later, the Republic of Venice decided to provide full financial support for the university, and “the Venetian Senate took a keen and constructive interest in attracting students by making faculty appointments and increasing salaries.”<sup>122</sup> Venetian nobles began to study at Padua and supported their *alma mater* after their graduations.<sup>123</sup>

After an enrollment crisis in the 1450s, the Venetian Senate worked to improve the university, in part through faculty expansion. In 1467, it added two new medical professorships. These “third places” were reserved for recent Paduan graduates, but the Senate also sought to recruit renowned scholars to fill the ordinary professorships, including that in medical theory.<sup>124</sup> Enrollment recovered, and the university entered the sixteenth century stronger than ever. In 1509, Padua experienced a brief period of independence during the War of the League of Cambrai. The Venetian State quickly recovered the city, and the university largely stopped functioning until 1517.

The resumption of large-scale instruction required new faculty appointments. Many of the new art and medicine professors were humanists. Within the next few decades, “the University of Padua rebuilt its faculty and regained its intellectual leadership, or co-leadership with Bologna, among Italian and other European universities. Numerous scholars whose research is still remembered today taught at Padua in the sixteenth century,” including many influential professors of medicine.<sup>125</sup> While Caius was a student and professor at Padua (1539-1541 and 1541-1543, respectively), the university had fourteen professors of medicine: five professors of

---

<sup>121</sup> Grendler, *The Universities of the Italian Renaissance*, 22.

<sup>122</sup> Grendler, *The Universities of the Italian Renaissance*, 22-23.

<sup>123</sup> Grendler, *The Universities of the Italian Renaissance*, 23.

<sup>124</sup> In decreasing order of rank, there was the ordinary professor, his concurrent, and, when relevant, a third professor. Grendler, *The Universities of the Italian Renaissance*, 27-29.

<sup>125</sup> Grendler, *The Universities of the Italian Renaissance*, 32-33.

medical theory (two ordinary and three extraordinary), five professors of medical practice (two ordinary and three extraordinary), two professors who taught Avicenna, one professor of surgery, and a professor of medical botany.<sup>126</sup> Professors of theory and of practice taught very similar things, but the latter taught students how to apply theoretical concepts to particular conditions. The three primary textbooks were the first ten of Avicenna's *Canon*, Hippocrates' *Aphorisms*, and Galen's *Ars medica*.<sup>127</sup>

Unfortunately, the university records from Caius' time at Padua are not extant.<sup>128</sup> In Caius' auto-bibliography *De libris propriis*, however, he mentioned two of his instructors: Montanus and Junius Paulus Crassus.<sup>129</sup> The former was "the most influential professor of medicine in all Europe," and described by Caius as a "preceptor... from whom... [he] learned much."<sup>130</sup> Montanus was a Veronese noble who studied various humanist topics at Padua before moving to Ferrara and studying under Leonicensis. He received a medical degree in 1520 and cultivated a great reputation by practicing medicine in Brescia. In 1539, he returned to Padua to serve as a first ordinary professor of practical medicine. He held that position for only a short time, however, becoming first ordinary professor of theoretical medicine in 1543.<sup>131</sup> Montanus

---

<sup>126</sup> Grendler, *The Universities of the Italian Renaissance*, 33.

<sup>127</sup> Bylebyl, "The School of Padua," 338-339.

<sup>128</sup> O'Malley, "The Relations of John Caius with Andreas Vesalius," 147. Caius' contemporary Riccobonus' list of Paduan professors of medicine from 1539 to 1541 included Oddus de Oddis, Franciscus Cassianus, Pamphilus Montius, Franciscus Cyrochus, Hieronymus Balneus, Josephus Salandrus, Julius Conradinus, Montanus, Octavianus Thomasinus, Alphonsus Lucanus, Antonius Secundus, Robertus Robertinus, and Franciscus Manfredus. At that time, Vesalius was Professor in Ordinary of Surgery. O'Malley speculated that Caius' other professors could include Victor Trincavellius and Simon Arborsellus. O'Malley, "The Relations of John Caius With Andreas Vesalius," 148.

<sup>129</sup> John Caius, *De libris propriis*, in *The Works of John Caius, M.D.*, edited by John Venn (Cambridge: Cambridge University Press, 1912), 75-76.

<sup>130</sup> Nutton, *John Caius and the Manuscripts of Galen*, 2; O'Malley, "The Relations of John Caius with Andreas Vesalius," 148.

<sup>131</sup> Grendler, *The Universities of the Italian Renaissance*, 341-342.

drew the admiration of contemporaries like Girolamo Fracastoro, who stated, “if I may speak like a Pythagorean, the soul of Galen seems to have migrated into [Montanus].”<sup>132</sup>

As professor of theoretical medicine, Montanus revolutionized medical instruction and practice through his emphases on clinical instruction and medical method, respectively.<sup>133</sup>

“Clinical medicine was Da Monte’s attempt to bridge what he saw as an artificial division between medical theory and practice. He tried to create a universal medicine uniting the two.”<sup>134</sup>

“Da Monte was the first to make clinical medicine a regular and integrated part of medical teaching,” though the Italian medical universities had previously required some precepting.<sup>135</sup>

Reiner Solenander, a German who observed such clinical instruction, stated that “whoever has visited Italy will be familiar with this highly praiseworthy custom, by reason of which [Italy] excels over all other nations in medical education.”<sup>136</sup>

In what became known as the “Collegium Montani,” Montanus took his students to visit both his public patients in the Hospital of Saint Francis and his private patients in their homes.<sup>137</sup> “He lectured to his students on the symptoms, diagnosis, pathology, and cure of diseases in the presence of a patient who could be examined.”<sup>138</sup> In addition, Montanus exchanged the traditional disputations for “free-ranging clinical discussions of cases.”<sup>139</sup>

Though some commentators imply that Montanus pioneered this method of clinical instruction, Jerome J. Bylebyl argued that “da Monte’s contemporaries seem to have regarded his

---

<sup>132</sup> Bylebyl, “Padua and humanistic medicine,” 346.

<sup>133</sup> C.D. O’Malley, *Andreas Vesalius of Brussels, 1514-1564* (Berkeley and Los Angeles: University of California Press, 1964), 75-76.

<sup>134</sup> Grendler, *The Universities of the Italian Renaissance*, 342.

<sup>135</sup> Grendler, *The Universities of the Italian Renaissance*, 342.

<sup>136</sup> Reiner Solenander, quoted in Bylebyl, “Padua and humanistic medicine,” 347.

<sup>137</sup> Grendler, *The Universities of the Italian Renaissance*, 342.

<sup>138</sup> Grendler, *The Universities of the Italian Renaissance*, 342.

<sup>139</sup> Grendler, *The Universities of the Italian Renaissance*, 342.

bedside discourses as superb examples of a common teaching method, rather than as fundamental innovations.”<sup>140</sup> However, Montanus’ impact should not be underestimated:

It seems clear that da Monte did appreciate the unique potentialities of the hospital for clinical instruction, and that by exploiting the Hospital of St Francis at Padua for this purpose he endowed the method with a new and lasting importance... Hence while hospital precepting was by no means without precedent, it does seem clear that in da Monte’s hands the method was raised to a new level of sophistication and importance.<sup>141</sup>

Montanus’ teaching methods made such an impression that students took detailed notes on his lectures and his bedside discourses alike. Some, like Caius, published these notes.<sup>142</sup>

## 1.4 JOHN CAIUS

### Timeline

|      |  |
|------|--|
| 1510 | Born to Robert Keys/Kees and Alice Wode/Woda on 6 October 1510. <sup>143</sup>   |
| 1529 | Matriculated as a theology student at Gonville Hall on 12 September 1529. <sup>144</sup>   |
| 1533 | Elected a fellow of Gonville Hall on 6 December 1533. <sup>145</sup>   |
| 1539 | Began medical studies under Montanus at the University of Padua. Initially roomed with Vesalius for several months. <sup>146</sup> |
| 1541 | Graduated from Padua as a MD on 13 May 1541. <sup>147</sup>  |

---

<sup>140</sup> Bylebyl, “Padua and humanistic medicine,” 347.

<sup>141</sup> Bylebyl, “Padua and humanistic medicine,” 348.

<sup>142</sup> Bylebyl, “Padua and humanistic medicine,” 347.

<sup>143</sup> Nutton, “Caius, John (1510-1573).”

<sup>144</sup> Nutton, “Caius, John (1510-1573).”

<sup>145</sup> Nutton, “Caius, John (1510-1573).”

<sup>146</sup> Nutton, “Caius, John (1510-1573).”

<sup>147</sup> Nutton, “Caius, John (1510-1573).”

|           |  |
|-----------|--|
| 1541-1542 | Lectured in Greek on Aristotle's logic as dialectics Græce professor at Padua. <sup>148</sup>  |
| 1543      | Left teaching post in July 1543. Travelled to Pisa to study with Matteo Corti. Then travelled Italy, collecting, copying, and later translating Greek manuscripts (especially those of Galen). <sup>149</sup>  |
| 1544      | Published <i>Galeni libri aliquot</i> , and <i>De methodo medendi</i> in Basel. Returned to England. <sup>150</sup>  |
| 1545      | Left Cambridge for London, where he practiced medicine. <sup>151</sup>   |
| 1546      | At Henry VIII's request, Caius began to conduct dissections for the London Barber-Surgeons, which he did for the next twenty years. <sup>152</sup>   |
| 1547      | Elected fellow of the College of Physicians of London. <sup>153</sup>  |
| 1549      | Published <i>De sanitate tuenda</i> (Basel). <sup>154</sup>  |
| 1551      | Treated patients in the last Sweating Sickness epidemic. Joined the council of the College of Physicians of London, on which he served until his death. <sup>155</sup>   |
| 1552      | Published <i>A boke or counseill against the sweate</i> (London). <sup>156</sup>   |
| 1555-1560 | Annually elected president of the College of Physicians of London. <sup>157</sup>  |
| 1556      | Published <i>De Ephemera Britannica</i> (London), <i>Opera aliquot et Versiones</i> (Louvain), <i>Hippocrates de Medicamentis</i> , and <i>De Ratione Victus</i> . <sup>158</sup>  |
| 1557      | Funded enlargement of Gonville Hall, which was refounded as Gonville and Caius college on 4 September 1557. Refurbished Thomas Linacre's tomb in St. Paul's Cathedral. Published <i>Galeni Pergameni libri</i> , a collection of minor Galenic works (Basel). <sup>159</sup> |
| 1559      | Unanimously elected master of Gonville and Caius College on 24 January 1559. <sup>160</sup>  |
| 1562-1563 | Annually elected president of the College of Physicians of London. <sup>161</sup>  |
| 1565      | Persuaded Elizabeth I to annually give two bodies of executed criminals to Gonville and Caius and four to the College of Physicians for dissection. <sup>162</sup>   |

<sup>148</sup> John Venn, *John Caius: Master of Gonville and Caius College in the University of Cambridge 1559-1573: A Biographical Sketch written in commemoration of the Four-hundredth Anniversary of his birth celebrated on the sixth day of October, 1910* (Cambridge: University of Cambridge Press, 1910): 6.

<sup>149</sup> Nutton, *John Caius and the Manuscripts of Galen*, 11.

<sup>150</sup> Nutton, "Caius, John (1510-1573)."

<sup>151</sup> Nutton, "Caius, John (1510-1573)."

<sup>152</sup> Nutton, "Caius, John (1510-1573)."

<sup>153</sup> Nutton, "Caius, John (1510-1573)."

<sup>154</sup> Nutton, "Caius, John (1510-1573)."

<sup>155</sup> Nutton, "Caius, John (1510-1573)."

<sup>156</sup> Nutton, "Caius, John (1510-1573)."

<sup>157</sup> Nutton, "Caius, John (1510-1573)."

<sup>158</sup> Raven, *English Naturalists from Neckam to Ray*, 139; Pettigrew, *Medical portrait gallery*, 8.

<sup>159</sup> Nutton, "Caius, John (1510-1573)."

<sup>160</sup> Nutton, "Caius, John (1510-1573)."

<sup>161</sup> Nutton, "Caius, John (1510-1573)."

<sup>162</sup> Harold Ellis, "History of Anatomy in the University of Cambridge, U.K." *Clinical Anatomy* 6 (1993): 188.



|           |  |
|-----------|--|
| 1565-1566 | Accused of atheism. <sup>163</sup>   |
| 1568      | Published <i>De antiquitate Cantabrigiensis academiae</i> (London).  |
| 1570      | Published <i>De Rariorum Animalium atque Stirpium Historia</i> , <i>De Canibus Britannicis</i> , and <i>De Libris propriis</i> together (London), and <i>Institutionum Liber Posterior de Rebus</i> separately (Louvain). <sup>164</sup> |
| 1571      | Elected president of the College of Physicians of London. <sup>165</sup>   |
| 1572      | Cambridge authorities found hoarded “popishe trumpery” in his room and burned it in the college court. Retired to London due to an abdominal ailment. <sup>166</sup>   |
| 1573      | Gave Mastership of Gonville and Caius College to Thomas Legge in June 1573. Died in London on 29 July 1573. Left his library and nearly all his property to Gonville and Caius College. <sup>167</sup>                                   |
| 1574      | Caius’ <i>De pronunciatione Graecae et Latinae linguae</i> and <i>Historia Cantabrigiensis academiae</i> were posthumously published. <sup>168</sup>   |

John Caius, born 6 October 1510 as John Keys, is best known as the second founder of Gonville and Caius College, Cambridge, originally Gonville Hall, at which he studied theology as an undergraduate. After earning his degree and serving as a fellow of Gonville Hall for six years, he left for Padua, his primary interest having become medicine.<sup>169</sup> It has been suggested that Caius also exchanged theological studies for medical because his conservative religious views were at odds with those of the reformers.<sup>170</sup> Regardless of his reasons for changing his educational plans, his choice of medical school was sound. Padua was then widely regarded as Europe’s best medical school, and Italy overall was renowned for its medical education and establishment, as well as its emphasis on public health. As a source of both excellent classical scholarship and

---

<sup>163</sup> Paul H. Kocher, *Science and Religion in Elizabethan England* (New York: Octagon Books, 1969), 18.

<sup>164</sup> Pettigrew, *Medical portrait gallery*, 210.

<sup>165</sup> Nutton, “Caius, John (1510-1573).”

<sup>166</sup> Nutton, “Caius, John (1510-1573).”

<sup>167</sup> Nutton, “Caius, John (1510-1573).”

<sup>168</sup> Nutton, “Caius, John (1510-1573).”

<sup>169</sup> Nutton, “Caius, John (1510–1573).”

<sup>170</sup> Nutton, *John Caius and the Manuscripts of Galen*, 11.

innovative medical developments, Italy was the destination of choice for a medical student, and most English humanist physicians spent some period of study there.<sup>171</sup>

From the teaching of Montanus, one of his professors at Padua, Caius composed his *De methodo medendi*, or *Method of Medicine*, which mixed Galenic medicine with a Padovan emphasis on medical method and provided physicians with an approach to practice that “combined philosophy, logic, and medicine in a way that suited their own needs... In his choice of therapeutic ideals Caius was as much in the forefront of his time as was Vesalius in anatomy, and, he could argue, was of more immediate benefit to the sick.”<sup>172</sup> Caius, Vesalius, and their work in anatomy will be discussed in a later chapter.

In Padua, Caius earned his M.D. and Latinized his surname. After earning his M.D. on 13 May 1541, Caius was made dialectices Græce professor, a rare honor, as foreigners were not typically granted professorships.<sup>173</sup> He subsequently spent two years lecturing in Greek on Aristotle’s logic.<sup>174</sup> In July 1543, he left that post and studied medicine in Florence and Pisa under the anatomist and Galenic scholar, Matteo Corti.<sup>175</sup> Caius then travelled through Italy, copying and later translating ancient Greek manuscripts, “particularly those of Galen, whom he

---

<sup>171</sup> Nutton, “John Caius and the Linacre tradition,” 374. “Humanist medicine may be defined as that movement in medicine in the sixteenth and seventeenth centuries which sought to purify medicine of complex and unnecessary accretions by a return to the classical sources of humoral therapy, and in particular to Hippocrates and his great systematic interpreter, Galen. It was a movement at one and the same time aesthetic, practical, academic, progressive, at least in the context of the first half of the sixteenth century, and emotional.”; Nutton, “John Caius and the Linacre tradition,” 377; Craig R. Thompson, *Universities in Tudor England* (Washington: The Folger Shakespeare Library, 1959), 14.

<sup>172</sup> Nutton, “John Caius and the Linacre tradition,” 383.

<sup>173</sup> Venn, *John Caius*, 6.

<sup>174</sup> Walter Langdon-Brown, “John Caius and the Revival of Learning,” *Proceedings of the Royal Society of Medicine* 35, no. 61 (1941): 63.

<sup>175</sup> Nutton, *John Caius and the Manuscripts of Galen*, 11.

idolized.”<sup>176</sup> His travails were rewarded by the discovery of several previously unknown Galenic manuscripts.<sup>177</sup>

Upon his return to England in 1544, Caius practiced as a physician in London and in court, which led to the acquisition of the fortune he donated to his Cambridge college over his lifetime.<sup>178</sup>

Since Galenic medicine was widely accepted as the most effective available – not least because its survival for more than a millennium appeared to guarantee its efficacy –, an expert in Galen, who knew Greek as well as medicine, would be the best physician to turn to for assistance when illness threatened... The rich citizens of London did not spend money idly on those they thought incompetent quacks, and the rewards earned by John Caius attest the reputation of Galenic medicine in general at least as much as his own abilities as a Galenist.<sup>179</sup>

Several sources report that Caius also served as royal physician to Edward IV, Mary I, and Elizabeth I, but evidence of this is lacking.<sup>180</sup> Alongside his clinical work, Caius continued to translate Galenic manuscripts. His passionate devotion to this exercise distinguishes him from his contemporaries.<sup>181</sup> He also pursued natural history and wrote a well-regarded book on English dogs.<sup>182</sup> His zoological work will be examined in a later chapter.

In 1547, shortly after his return to England, Caius was elected fellow of the College of Physicians, the organization chartered by Henry VIII in 1518 due to the requests of his physician, Thomas Linacre.<sup>183</sup> Caius became an Elect of the College and President in 1555, a

---

<sup>176</sup> Porter, *The Greatest Benefit to Mankind*, 185. See Vivian Nutton's *John Caius and the Manuscripts of Galen* for information on Caius' quest for Galenic works.

<sup>177</sup> Nutton, *John Caius and the Manuscripts of Galen*, 94.

<sup>178</sup> Venn, *John Caius*, 8; Nutton, *John Caius and the Manuscripts of Galen*, 12.

<sup>179</sup> Nutton, *John Caius and the Manuscripts of Galen*, 100.

<sup>180</sup> Venn, *John Caius*, 8; Nutton, *John Caius and the Manuscripts of Galen*, 18.

<sup>181</sup> Nutton, *John Caius and the Manuscripts of Galen*, 101.

<sup>182</sup> Nutton, "Caius, John (1510-1573)."

<sup>183</sup> Langdon-Brown, "John Caius and the Revival of Learning," 63-64; Lindemann, *Medicine and Society in Early Modern Europe*, 214.

role he maintained until 1560 and reprised in 1571.<sup>184</sup> The Fellows of the College investigated and prosecuted unlicensed medical providers practicing in London. Given that an Oxford medical degree, for instance, took fourteen years to earn and could only be commenced by those who had already earned bachelor's and master's degrees, one can empathize with the physicians' desire to guard their professional privileges.<sup>185</sup>

As President, Caius helped the College “advance beyond the design of Linacre. Caius regularized College affairs, instituted more exact record-keeping with his *Annales*, rationalized and strictly enforced the statutes, and elaborated the ceremonial functions of the College.”<sup>186</sup> He also worked to defend the supremacy of physicians as medical practitioners. Early modern English barber-surgeons were usually licensed to cut hair and perform only minor surgical interventions, e.g. cupping and leeching.<sup>187</sup> When the barber-surgeons of London argued that they, like physicians, could administer internal remedies, it was Caius' contradictory testimony that led the queen's commissioners to unanimously vote that the Barber-Surgeons were behaving illegally.<sup>188</sup>

The Geynes controversy, discussed in the Introduction of this work, is one example of a situation during Caius' presidency that has led to criticisms. Nutton's description of what I term progressivist history mirrors some of Butterfield's examples of Whig history:

The modern historiography of renaissance surgery resembles a moral fable concocted out of ignorance and tralatician prejudice. The story has its heroes... as well as its villains, [principally] the London College of Physicians... In this gory tale of vice and virtue, the surgeon emerges triumphant over the follies of the physicians and the prejudices of the fastidious, and his availability and the effectiveness of his treatments have been contrasted with the small numbers and

---

<sup>184</sup> Langdon-Brown, “John Caius and the Revival of Learning,” 63-64.

<sup>185</sup> Furdell, *The Royal Doctors 1485-1714*, 9.

<sup>186</sup> Pelling and Webster, “Medical practitioners,” 169.

<sup>187</sup> Lindemann, *Medicine and Society in Early Modern Europe*, 267.

<sup>188</sup> Venn, *John Caius*, 9-10.

useless therapies of the physicians.<sup>189</sup>

Nutton concluded that some aspects of the traditional account were accurate but that it did not present the full picture.<sup>190</sup> As he argued, “while one might... consider the regulations inspired by... Caius as an unfair intrusion by physicians with the ear of a powerful sovereign, one cannot mistake the burning sincerity of their crusade.”<sup>191</sup>

*Counseill* displays the same defense of his profession; Caius emphasized that preventing the Sweat cannot be guaranteed without the help of a physician, and even his treatise remained secondary to an actual consultation:<sup>192</sup>

For as in thys, so in alle others before rehearsed, I remytte you to the discretion of a learned manne in phisike, who maye judge what is to be done... Therefore seke you out a good Phisicien, and knowen to haue skille, and at the leaste be so good to your bodies, as you are to your hosen or shoes, for the wel making or mending wherof, I doubt not but you wil diligently searche out who is knowen to be the best hosier or shoemaker in the place where you dwelle: and flie the vnlearned as a pestilence in a comune wealth.<sup>193</sup>

He proceeded to condemn various types of quacks and their tricks.<sup>194</sup>

Though Caius supported the College of Physicians, his true passion was Gonville Hall, to which, in 1557, he donated almost all his possessions. Gonville became a college, renamed Gonville and Caius, and unanimously elected Caius as its Master in 1559. This made Caius, College and man, abnormalities; most colleges elected only clerics as their Masters.<sup>195</sup> He refused a salary, instead choosing to continue to donate as he strove to improve and expand the

---

<sup>189</sup> Nutton, “Humanist surgery,” 75.

<sup>190</sup> Nutton, “Humanist surgery.”

<sup>191</sup> Nutton, “Humanist surgery,” 98.

<sup>192</sup> Caius, *A boke, or counseill*, fol. 26v.

<sup>193</sup> Caius, *A boke, or counseill*, fols. 27v-28r.

<sup>194</sup> Caius, *A boke, or counseill*, fols. 28r-28v.

<sup>195</sup> Vivian Nutton, “A history of Gonville and Caius College,” *Medical History* 30, no. 3 (1986): 360.

College.<sup>196</sup> Though Caius' Mastership was far from peaceful, due to clashes with the Fellows and students, he greatly improved his college, which developed a great medical reputation.<sup>197</sup> During his time as Master, Caius kept meticulously detailed records. These *Annals* have made Gonville and Caius "crucial to our modern understanding of the development of Cambridge over the centuries."<sup>198</sup>

Caius' frequent clashes with his Fellows and undergraduate students were likely due to several factors, including large differences in religion, conduct, and age (most Fellows being roughly twenty-two, and first-year undergraduates, fifteen).<sup>199</sup> From Caius' perspective, they were "unruly junior fellows and boisterous undergraduates given to games and drinking, who preferred to spend their money on fashionable clothes that would soon wear out rather than on books that would endure."<sup>200</sup> Frustrated by frequent conflict, he expelled twenty Fellows and even placed some in stocks.<sup>201</sup> "Elizabethan undergraduates had a reputation for incorrigible unruliness and insubordination," but Caius was lenient enough with his students to permit ball-catching as a leisure activity.<sup>202</sup>

Caius' critical attitude toward self-indulgence is also reflected in *Counseill*. In addition to his sententious condemnations of repletion, especially excessive drinking, Caius even denounced contemporary child-rearing, which rendered children overly delicate and pampered:

---

<sup>196</sup> Langdon-Brown, "John Caius and the Revival of Learning," 64-65.

<sup>197</sup> Langdon-Brown, "John Caius and the Revival of Learning," 66-68. However, "the evidence for a strong tradition of medical instruction within the College is not substantial before the second half of the last century." Nutton, "A history of Gonville and Caius College," 360.

<sup>198</sup> Nutton, "A history of Gonville and Caius College," 360.

<sup>199</sup> Venn, *John Caius*, 3-4.

<sup>200</sup> Nutton, *John Caius and the Manuscripts of Galen*, 1.

<sup>201</sup> Thompson, *Universities in Tudor England*, 25.

<sup>202</sup> Thompson, *Universities in Tudor England*, 28-29.

“Children be so brought vp, that if they be not all daie by the fire with a toste and butire, and in their fures, they be streight sicke.”<sup>203</sup>

Despite his disagreements with his Cambridge Fellows, Caius could apparently be personable. In a very dangerous religious/political climate, he managed to maintain friendships with men across the Christian spectrum. His personal religious views were conservative, he was close friends with the Catholic John Clement, and had been surrounded by Catholics during his time in Italy.<sup>204</sup> However, his friends Gesner, William Butts, and Archbishop Matthew Parker were Protestant, and he was acquainted with the reformers Philipp Melancthon, Joachim Camerarius, and Sebastian Munster.<sup>205</sup> He also managed to remain largely in the good graces of every Tudor monarch from Henry VIII onward, which was no small accomplishment. Caius’ approach to religion is perhaps comparable to that of Thomas Legge, his friend and chosen successor to the Mastership of Caius College.<sup>206</sup> Both men were religiously conservative but tolerant of people of all religious persuasions.<sup>207</sup>

Caius apparently readily signed the royal supremacy and was at least outwardly content serving as a Gonville Hall Fellow among colleagues with close ties to Anne Boleyn. Yet, Caius flourished during the reign of Mary I, during which he obtained a royal charter refounding Gonville Hall as Gonville and Caius College.<sup>208</sup> It was also during Mary’s reign that Caius’

---

<sup>203</sup> Caius, *A boke, or counseill*, fol. 22v.

<sup>204</sup> Nutton, *John Caius and the Manuscripts of Galen*, 12.

<sup>205</sup> Christopher Brooke, *A History of Gonville and Caius College* (Bury St Edmunds: Edmundsbury Press Ltd., 1985), 47 and 73-74; Raven, *English Naturalists from Neckam to Ray*, 139. Archbishop Parker’s friendship with Caius led him to found the first medical scholarship in Cambridge at Gonville and Caius. This is historical event takes on a greater significance when one considers that it was only because of this scholarship that a young William Harvey was able to attend Cambridge and observe his first human dissections. Nutton, *John Caius and the Linacre Tradition*, 391.

<sup>206</sup> Brooke, *A History of Gonville and Caius College*, 77.

<sup>207</sup> C.N.L. Brooke, “Legge, Thomas (c.1535–1607),” *Oxford Dictionary of National Biography*, Oxford University Press, 2004.

<sup>208</sup> Brooke, *A History of Gonville and Caius College*, 50-51 and 61.

College of Physicians was at its most powerful, as their regulatory actions received official sanction.<sup>209</sup>

Despite Caius' reputation for being theologically conservative, his contemporaries regarded him as a physician in the vanguard of medical developments.<sup>210</sup> His time in Padua gave him an appreciation of the innovative continental public health system. Italian and German cities frequently had municipal physicians who could ensure proper medical provision for their citizens, but England had no such system.<sup>211</sup> Also, through his *De methodo medendi*, Caius disseminated Montanus' innovative medical method to a wider audience.<sup>212</sup>

As Master of Gonville and Caius, President of the College of Physicians of London, and anatomical lecturer for the Barber-Surgeons, Caius emphasized hands-on anatomical learning.<sup>213</sup> His empirical bent is also reflected by his naturalistic work and the research behind *Counseill*. He chose to personally witness the 1551 epidemic rather than depend on others' accounts.

When considering Caius' overall approach to medicine, it is important to not make a progressivist dismissal of his Galenism. The majority of his contemporaries were also medical humanists, similarly committed to the tenets of classical medicine. Most debates were over small matters, like the virtues of particular ancient authors or whether the teachings of medieval Arabian physicians like Avicenna were still useful or needed, given the rediscovery of original

---

<sup>209</sup> Harold J. Cook, "Good Advice and Little Medicine: The Professional Authority of Early Modern English Physicians," *Journal of British Studies* 33, no. 1 (1994): 8.

<sup>210</sup> Nutton, *John Caius and the Manuscripts of Galen*, 1.

<sup>211</sup> John L. Flood, "'Safer on the battlefield than in the city': England, the 'sweating sickness,' and the continent," *Renaissance Studies* 17, no. 2 (2003): 162-163.

<sup>212</sup> Nutton, *John Caius and the Manuscripts of Galen*, 1.

<sup>213</sup> Nutton, "Caius, John."



Galenic manuscripts.<sup>214</sup> Furthermore, before the 1560s, Galenic medicine seemed to be the only option.<sup>215</sup>

Caius was thus following the almost universally accepted medical paradigm of his day. His Galenism was far from static dogmatism, however; his quest to rediscover the original Greek texts of Galen and translate them into Latin for the benefit of his less linguistically gifted colleagues was an attempt to improve contemporary medical practice. Of all contemporary individuals who published Galenic texts or Latin translations of them, Caius had the largest output.<sup>216</sup> More accurate translations, it was thought, would increase understanding of the rationale of Galenic interventions, helping physicians apply these treatments more appropriately, and ultimately creating better clinical outcomes.<sup>217</sup> “If Galenic therapeutics and Galenic physiology continued to form the basis of medical practice, then a greater understanding of what Galen had said was more likely to lead to progress than an outright rejection of their Galenic base.”<sup>218</sup>

---

<sup>214</sup> Nutton, *John Caius and the Manuscripts of Galen*, 2.

<sup>215</sup> Nutton, *John Caius and the Manuscripts of Galen*, 2-3.

<sup>216</sup> Nutton, *John Caius and the Manuscripts of Galen*, 13. Caius’ output was only exceeded by a team that published the Aldine first edition of the Greek Galen.

<sup>217</sup> Nutton, *John Caius and the Manuscripts of Galen*, 3.

<sup>218</sup> Nutton, *John Caius and the Manuscripts of Galen*, 101.

## 2.0 PROGRESSIVE REACTIONARY

### 2.1 NATURALISM

As will be discussed below, John Caius pioneered the study of human anatomy in England. He was also an innovator in zoology in England, “with whom the great succession of field-naturalists in Britain may properly be said to begin.”<sup>219</sup> Caius conducted observational studies of both domestic and exotic animals. The accounts of his investigations “show how good and accurate an observer he was even of tiny details. The tinker’s cur is described with as much care as a greyhound, the fish of Yarmouth with precision given to a white raven or an exotic civet.”<sup>220</sup> Caius sent notes, sketches, and specimens to his dear friend Conrad Gesner, who included much of Caius’ work in the famous *Historia Animalium*.<sup>221</sup> The two met in 1544, during Caius’ indirect trip back to England after his time in Italy, and corresponded frequently for the rest of Gesner’s life.<sup>222</sup>

Caius conducted some field work. During a visit to the coast of West Sussex, he caught a “Variata” fish, possibly a Wrasse. He also caught an osprey that he dissected after it apparently died of starvation in a week. In Cumbria, he saw two white ravens trained like falcons

---

<sup>219</sup> Raven, *English Naturalists from Neckam to Ray*, 138 and 48.

<sup>220</sup> Nutton, “Caius, John (1510-1573).”

<sup>221</sup> Nutton, “Caius, John (1510-1573).”

<sup>222</sup> Vivian Nutton, “Conrad Gesner and the English Naturalists,” *Medical History* 29 (1985): 96.

to fly to one's hand.<sup>223</sup> He occasionally reported interesting specimens that he encountered while travelling to treat eminent patients, including the horns of a wild bull that he saw displayed in Warwick Castle.<sup>224</sup> Most of his observational studies, however, were conducted in London. On occasion, interesting creatures were sold in the London fish market. Caius described several such animals, including a sixty-foot-long "Maculo," a shark, a dolphin, and a "Ceruchus" (likely a sturgeon). The sturgeon's head was brought to him for examination.<sup>225</sup>

Caius' zoological research was greatly aided by the royal menagerie in the Tower of London. Caius described the animals' appearances and behavior, drew sketches, and provided accounts of how the staff managed them.<sup>226</sup> For instance, in his account of the pair of "Ounces" (probably leopards or cheetahs) imported from Mauretania, he stated that they were so uncontrollably wild that keepers had "to strike them so hard on the head that they would lie half dead" before the "most cruel beast[s]" could be moved.<sup>227</sup>

One of the Ounces laid still enough for Caius to successfully sketch it, but the lynx was not as cooperative. Caius remained at the menagerie for some time, frustrated, as the animal prowled through his enclosure, moving too quickly to accommodate sketching. Eventually, a man carrying a woodpecker in a basket happened to walk by the cage. The lynx noticed the bird and stopped to watch it. When the man with the bird walked away, the lynx's attention was broken, and he, too, walked off. Caius, realizing the bird's unique ability to captivate the lynx,

---

<sup>223</sup> Raven, *English Naturalists from Neckam to Ray*, 140 and 143.

<sup>224</sup> Raven, *English Naturalists from Neckam to Ray*, 142.

<sup>225</sup> Raven, *English Naturalists from Neckam to Ray*, 145.

<sup>226</sup> Raven, *English Naturalists from Neckam to Ray*, 141.

<sup>227</sup> John Caius, quoted in Raven, *English Naturalists from Neckam to Ray*, 141.

sent his servant to purchase the bird. After Caius placed the bird and basket near the lynx's cage, "the beast stood still until its portrait was completed."<sup>228</sup>

The subsequent fate of the helpful woodpecker is unknown, but Caius described purchasing other animals for study. For eight pounds, he bought a civet from an African merchant. It was tame, though it growled when provoked. Another similarly tame specimen was his puffin, which he kept for eight months. Caius described its behavior in great detail, providing interesting insight into the care and keeping of his exotic pet. It refused cooked meat, and even when offered a more appetizing meal, "cheerfully bit those who gave it food or touched it, but in kindly and harmless fashion."<sup>229</sup>

Though Caius studied many exotic animals, he conducted a particular study of English dogs. He compiled his findings into a treatise sometime before April 1565 and hoped that, like all his naturalistic investigations, it would prove useful for Gesner.<sup>230</sup> Unfortunately, before the year's end, Gesner died of plague, prompting Caius to pen a touching tribute to his dearest friend in *De Libris Propriis*.<sup>231</sup> The treatise on English dogs was ultimately published in London in 1570 as *De Canibus Britannicis*. It was dedicated to Gesner, who was addressed as "charissime Gesnere."<sup>232</sup> James VI and I apparently admired the work, though Sir George Clark stated that it is "the first methodical book on English dogs... [but] not notable for anything in its scientific approach and not a dog-lover's book, but useful."<sup>233</sup>

---

<sup>228</sup> John Caius, quoted in Raven, *English Naturalists from Neckam to Ray*, 141.

<sup>229</sup> Raven, *English Naturalists from Neckam to Ray*, 143; John Caius, quoted in Raven, *English Naturalists from Neckam to Ray*, 143.

<sup>230</sup> Raven, *English Naturalists from Neckam to Ray*, 147.

<sup>231</sup> Cynthia M. Pyle, "Gesner, Conrad (Also Konrad Gesner, 1516-1565)." *Europe, 1450 to 1789: Encyclopedia of the Early Modern World*, volume 3, ed. Jonathan Dewald (New York: Charles Scribner's Sons, 2004), 60. *Gale Virtual Reference Library*. Web. July 2015; Nutton, "Caius, John (1510-1573)."

<sup>232</sup> John Caius, *De Canibus Britannicis*, in *The Works of John Caius, M.D.*, ed. John Venn (Cambridge: Cambridge University Press, 1912), 3. I used the page numbers from the original publication (London, 1570).

<sup>233</sup> Nutton, "Caius, John (1510-1573)"; Clark, *A History of the Royal College of Physicians of London*, 108.

Caius also apparently engaged in a rare bit of botanical investigation. A letter from Caius to Gesner was quoted in Joachim Camerarius the younger's *Hortus medicus et philosophicus*. Caius described the sundew or sun-rose (*Drosera rotundifolia*), which physicians sometimes used in a decoction for consumption patients. Overall, however, it was not very popular among medical providers (physicians and empirics alike), because it was believed that populations of sheep that ate it often suffered from hepatic and pulmonary diseases.<sup>234</sup> There is other evidence that Caius occasionally wrote to Gesner about plants he encountered in his travels. He described peas (*Lathyrus maritimus*) found on the Oxford beach and ilex grown in the royal gardens at Westminster Palace.<sup>235</sup>

A letter from Gesner to Caius offers some fascinating insights into their friendship and how they acquired zoological information. Gesner expressed his gratitude for a gift of shells, fish skulls or jaws, the foot of an osprey, and “new and very beautiful pictures and descriptions” of several animals and accounts of several more, including a chameleon.<sup>236</sup> He enclosed gifts with his letter, including a copy of a recent book and a prescription for his Oxymelitis medicine. Gesner also proposed a trade. Should Caius' Barbary Sheep die, Gesner wanted its horns; he would offer those of an Ibex in exchange. In the interim, he expressed his thanks for the sketches and requested more of the rook and duck.

The letter also continued apparently ongoing naturalistic discussions between the two men. Gesner speculated about the identity of the “Alces” and “Machlis” animals and the Elleborine plant, which had sparked recent debates. He enclosed a sample of a possible Elleborine for Caius' examination. Gesner also mentioned the treatises on baths and spas that

---

<sup>234</sup> Raven, *English Naturalists from Neckam to Ray*, 148.

<sup>235</sup> Raven, *English Naturalists from Neckam to Ray*, 145-146.

<sup>236</sup> Conrad Gesner, quoted in Raven, *English Naturalists from Neckam to Ray*, 146.

both men intended to write, though Caius' *De thermis britannicis*, the oldest known treatise on the topic, was never published.<sup>237</sup> Their mutual acquaintance, the naturalist William Turner of *New Herball* fame, is mentioned three times.<sup>238</sup>

Gesner's letter also referenced the debate regarding the legs of the elk, which provides interesting insight into him and his correspondent. When describing the "Hippelaphus" in his *De Rariorum Animalium*, Caius stated that people in its native Norway "call it an Elke or Elend, but in this they are plainly mistaken; for it has not the legs of an Elk since they never bend."<sup>239</sup> Caius accepted Julius Caesar's account of elks in his *Gallic Wars*, book six. Caesar stated that elk legs have no joints, so the animals must sleep by leaning their weight against trees.<sup>240</sup> In the letter, however, Gesner stated that belief in elks' unjointed legs had passed into oblivion.<sup>241</sup> This is but one isolated example, but it does seem consistent with Caius' tendency to accept the authority of the ancients over contemporary learning in medical contexts. It is this conservative tendency, this "attachment to the infallible utterances of the ancients," that has earned him much criticism.<sup>242</sup>

However, as I have striven to demonstrate throughout this paper, the situation is more nuanced than it may initially appear. "In reporting on these creatures Caius is not only being an up-to-date, serious, and scholarly naturalist, familiar both with texts and with practical observation; he is also contributing to the European community of scholars."<sup>243</sup> Caius did place great trust in classical texts, but this was not ridiculous, and Caius was certainly not alone in doing so. As for folklore, Caius was "not very often gulled by stories of the marvellous, such as

---

<sup>237</sup> Raven, *English Naturalists from Neckam to Ray*, 146; O'Malley, *English Medical Humanists*, 45.

<sup>238</sup> Raven, *English Naturalists from Neckam to Ray*, 146.

<sup>239</sup> Raven, *English Naturalists from Neckam to Ray*, 142; John Caius, quoted in Raven, *English Naturalists from Neckam to Ray*, 142.

<sup>240</sup> Raven, *English Naturalists from Neckam to Ray*, 142.

<sup>241</sup> Raven, *English Naturalists from Neckam to Ray*, 146.

<sup>242</sup> Raven, *English Naturalists from Neckam to Ray*, 140.

<sup>243</sup> Nutton, "Caius, John (1510-1573)."

that of the ‘barnacle goose.’”<sup>244</sup> He was similarly dismissive of the tale that an osprey’s glare caused fish to turn belly-up and offer themselves as prey.<sup>245</sup>

Caius’ research methodology was essentially the same as that of Gesner and Turner. All three synthesized ancient sources, folklore, and observational evidence, both derived from contemporary authorities and personally obtained.<sup>246</sup> “Gesner... was a fellow Galenist, equally concerned to expand on the truths of the past by incorporating new information on the natural world.”<sup>247</sup> In the *Historia Animalium*, Gesner cited both ancient and contemporary authorities (e.g. Aristotle and Sebastian Münster, respectively), folklore (e.g. tales about unicorns), and contemporary naturalists with whom he corresponded (e.g. Caius and Turner).<sup>248</sup> “Bookish references – that is, the ‘historical’ part of the enquiry – directly support empirical observations.”<sup>249</sup>

Regarding the elk, for instance, Gesner regarded Caesar’s *Gallic Wars* as a serious, credible document and worked hard to match his zoological descriptions to those of observable creatures. He eventually decided that the creature most comparable to Caesar’s *alces* was the elk, though the latter did not have unjointed legs, as Caesar claimed the former did.<sup>250</sup> After deliberation, Caius decided that the elk and the *alces* were too different to be the same creature (because the former had jointed legs and the latter reportedly did not), whereas Gesner decided

---

<sup>244</sup> O’Malley, *English Medical Humanists*, 44.

<sup>245</sup> Raven, *English Naturalists from Neckam to Ray*, 143.

<sup>246</sup> Nutton, “Caius, John (1510-1573)”; “Conrad Gesner: *Historia animalium* libri I-IV. Cum iconibus. Lib. I. De quadrupedibus uiuiparis. Zurich: C. Froschauer, 1551. N\*.1.19(A),” *Cambridge University Library*, July 2015, <http://www.lib.cam.ac.uk/deptserv/rarebooks/gesner.html>.

<sup>247</sup> Nutton, “Caius, John (1510-1573).”

<sup>248</sup> “Conrad Gesner,” *Cambridge University Library*; “*Historiae animalium* (Histories of the Animals),” *The Metropolitan Museum of Art*, July 2015, <http://metmuseum.org/exhibitions/view?exhibitionId={9302f8ac-f691-48ff-a8e0-030b3299e284}&oid=479692>; Raven, *English Naturalists from Neckam to Ray*.

<sup>249</sup> Laurent Pinon, “Conrad Gessner and the Historical Depth of Renaissance Natural History,” in *Introduction to Historia: Empiricism and Erudition in Early Modern Europe*, edited by Gianna Pomata and Nancy G. Siraisi, 241-268 (Cambridge: The MIT Press, 2005), 263.

<sup>250</sup> Pinon, “Gessner and the Historical Depth of Renaissance Natural History,” 251-252.

that the elk and the *alces* were too similar to not be the same creature (despite the former's jointed legs and the latter's reportedly unjointed). Despite their different conclusions, both Caius and Gesner took Caesar and his book seriously:

One may assume in this case that natural observation is constrained by a historical approach: Renaissance scholars are observing the fauna... not exactly with Caesar's eyes, but at least with his words in mind... [Pinon] would be inclined to describe this as the 'historical filter' through which Renaissance natural historians examine the natural world.<sup>251</sup>

This filter was shared by Caius the reactionary and Gesner the progressive.

Gesner's analysis of the unicorn is a good example of the brilliant naturalist's fallibility, from a progressivist standpoint. He strove to reconcile the apparent lack of any living unicorns with biblical, classical, and medieval texts describing them and the existence of supposed unicorn horns in collections. "Such is the reputation of the unicorn that its image cannot be excluded," Gesner wrote.<sup>252</sup> He did not explicitly state whether he believed that unicorns existed or not, but apparently, such was the evidence in favor of its existence that he took the claims seriously enough to offer advice on how to distinguish real unicorn horns from fake and to describe the horns' medicinal powers.<sup>253</sup> He hypothesized that the lack of living unicorns stems from their destruction in the biblical Flood.<sup>254</sup> Gesner's inclusion of the unicorn was "not an exception: many other animals that figure in Gessner's books are very difficult to observe or to identify with certainty."<sup>255</sup>

---

<sup>251</sup> Pinon, "Gessner and the Historical Depth of Renaissance Natural History," 253.

<sup>252</sup> Conrad Gesner, quoted in "*Historiae animalium* (Histories of the Animals)," *The Metropolitan Museum of Art*; "*Historiae animalium* (Histories of the Animals)," *The Metropolitan Museum of Art*.

<sup>253</sup> Pinon, "Gessner and the Historical Depth of Renaissance Natural History," 249-250; "*Historiae animalium* (Histories of the Animals)."

<sup>254</sup> "*Historiae animalium* (Histories of the Animals)," *The Metropolitan Museum of Art*.

<sup>255</sup> Pinon, "Gessner and the Historical Depth of Renaissance Natural History," 251.



Like Caius, Gesner engaged in extensive philological activity. In each entry in the *Historia Animalium*, he offered names for the animal in various languages. At the end of each chapter, he discussed the animal's appearances in language, literature, and art.<sup>256</sup> No philological matter was too small to escape his interest. In the aforementioned letter from Gesner to Caius, the author apologized for his "grammatical trifling" but felt it necessary to discuss the significance of the first "s" in "Buselaphus."<sup>257</sup>

The methodology of William Turner conforms to the same pattern. Turner, a physician, is better known as "the father of English botany and of ornithology."<sup>258</sup> He is rightfully praised for his works, particularly his *New Herball* and *Turner on Birds* (1544).<sup>259</sup> He conducted extensive field work, provided English names of plants, excellent woodcuts, offers medical and culinary advice, etc. However, he nevertheless sometimes accepts folklore, e.g. the belief that *Nepeta cataria* is a feline aphrodisiac.

Even in a fairly praiseworthy – or at least balanced – account of Caius, like Christopher Brooke's *A History of Gonville and Caius College*, Caius' naturalistic work is underestimated and his respect for ancient authorities ridiculed. Caius is praised for writing some "fine descriptions," and *De Canibus Britannicis* is called "a neat little treatise," but Caius' belief in Caesar's assertion that elks' legs are unjointed is met with some disdain.<sup>260</sup> "His contributions to natural history show an extraordinary combination of shrewd observation and learning with

---

<sup>256</sup> "Conrad Gesner," *Cambridge University Library*.

<sup>257</sup> Conrad Gesner, quoted in Raven, *English Naturalists from Neckam to Ray*, 146; Raven, *English Naturalists from Neckam to Ray*, 146.

<sup>258</sup> F.D. Hoeniger and J.F.M. Hoeniger, *The development of natural history in Tudor England* (Charlottesville: University Press of Virginia, 1973), 21.

<sup>259</sup> The *New Herball* was published in three parts in 1551, 1562, and 1568. Whitney R.D. Jones, "Turner, William (1509/10-1568)," *Oxford Dictionary of National Biography*, Oxford University Press, 2008. <http://www.oxforddnb.com/pitt.idm.oclc.org/view/article/27874>.

<sup>260</sup> Brooke, *A History of Gonville and Caius College*, 58.

much credulity and philological pedantry,” Brooke says, “and even in natural history, Caius advanced little beyond the experience of the early and mid 1540s.”<sup>261</sup>

Yet, Gesner, who, as demonstrated above, also possessed “much credulity and philological pedantry,” is referred to as “the great Swiss naturalist.”<sup>262</sup> The praise of Gesner is not immediately followed by criticism, as is the praise of Caius, yet both fell prey to the same mistakes (from a progressivist perspective). Brooke understandably focuses on Caius and not on Gesner, but his book is but one example of an overall trend. Accounts of Caius often focus on his offensive “credulity and philological pedantry” to the expense of his keen observations, while accounts of Gesner and Turner, progressivist heroes, focus on the reverse. Yet the three men share the same strengths and the same mistakes.

I do not intend to fall into a *tu quoque* fallacy. The fact that some scholars put undue emphasis on Gesner and Turner’s positive attributes and undue emphasis on Caius’ negative does not mean that the accomplishments of Gesner and Turner should not be lauded and that all future accounts of Caius should be hagiographical. Rather, I merely want to emphasize that the methodology of Caius, whom progressivists mock, is very similar to that of Gesner and Turner, the progressivist heroes. Perhaps it would be more appropriate to regard the three men as occupying different places on a spectrum, rather than regarding Caius as falling into the reactionary category and Gesner and Turner as falling into the discrete progressive category. That dichotomy is untenable.

As described by Laurent Pinon, combining information from classical sources with empirical evidence was essential to Gesner’s enterprise. Though Pinon was writing about Gesner in particular, his conclusions also apply to Caius. The ancients helped Gesner identify rare

---

<sup>261</sup> Brooke, *A History of Gonville and Caius College*, 58-59.

<sup>262</sup> Brooke, *A History of Gonville and Caius College*, 58.

species, particularly when he was unable to obtain observational evidence of them. In such cases, “the natural historian had to rely on historical and antiquarian knowledge.”<sup>263</sup>

Even when Gesner or one of his correspondents could personally observe an animal, Gesner’s comparisons of empirical evidence and ancient wisdom provided his *Historia Animalium* with valuable “historical depth.”<sup>264</sup> “The *ars excerpendi*, the art of selecting relevant sections from texts in order to rearrange them and later use them in other contexts, was a fundamental aspect of training in early modern scholarship.”<sup>265</sup> It was an art in which Gesner excelled – and, obviously, one that required an extensive knowledge of classical works. Familiarity with ancient sources also aided Gesner’s nomenclature: “It was important to know the ancient animal lore so that an old species (one that already had a name) would not be renamed arbitrarily.”<sup>266</sup>

Knowledge of ancient texts was particularly important when one encountered a potentially novel species:

If a modern species was not known to be recorded in an ancient reference work, the naturalist had to establish whether it was a new animal or merely one whose ancient description had not yet been discovered. Any claim to novelty in the identification of a species requires therefore a thorough historical/philological investigation of the ancient texts for possible references to the supposedly unidentified species. In this respect, every Renaissance naturalist had to master ancient knowledge, and therefore needed the skills of the historian and the antiquarian.<sup>267</sup>

In such cases, when observation could not occur, “the methods of natural historians are precisely those of historians.”<sup>268</sup>

---

<sup>263</sup> Gianna Pomata and Nancy G. Siraisi, Introduction to *Historia: Empiricism and Erudition in Early Modern Europe*, eds. Gianna Pomata and Nancy G. Siraisi, 1-38 (Cambridge: The MIT Press, 2005), 18.

<sup>264</sup> Pomata and Siraisi, Introduction, 18.

<sup>265</sup> Pomata and Siraisi, Introduction, 19.

<sup>266</sup> Pomata and Siraisi, Introduction, 18.

<sup>267</sup> Pomata and Siraisi, Introduction, 18.

Renaissance naturalism thus required a combination of “progressive” (e.g. personal observation) and “reactionary” (e.g. antiquarian) skills: “every Renaissance naturalist has to master the ancient knowledge and somehow act as a historian.”<sup>269</sup> Naturalism is thus a good example of why a progressive-reactionary dichotomy is fallacious. As suggested above, it would be more appropriate to consider Renaissance naturalists on a spectrum, with adherence to ancient texts at one end and adherence to personal observation at the other.

## 2.2 ANATOMY

### Timeline

NB: Unless stated otherwise, “dissection” refers to human dissection.

|                                   |   |
|-----------------------------------|---|
| 5 <sup>th</sup><br>century<br>BCE | Alcmæon dissected animals, leaving the earliest known records of direct anatomical investigation. <sup>270</sup>                                  |
| 4 <sup>th</sup><br>century<br>BCE | Aristotle dissected animals and left extensive records of his findings. <sup>271</sup>  |
| 3 <sup>rd</sup><br>century<br>BCE | The first human dissections in recorded history were performed in Alexandria. It is possible that human vivisection also occurred. <sup>272</sup> |

<sup>268</sup> Pinon, “Gessner and the Historical Depth of Renaissance Natural History,” 256.

<sup>269</sup> Pinon, “Gessner and the Historical Depth of Renaissance Natural History,” 263.

<sup>270</sup> Singer, *A Short History*, 9.

<sup>271</sup> Singer, *A Short History*, 17-20 and 23-28.

<sup>272</sup> Andrea Carlino, *Books of the Body: Anatomical Ritual and Renaissance Learning*, trans. John Tedeschi and Anne C. Tedeschi (Chicago: University of Chicago Press, 1999), 121-122.

|        |   |
|--------|---|
| 1286   | Record of Italian autopsy. <sup>273</sup>   |
| 1340   | Dissection officially permitted in Montpellier. <sup>274</sup>  |
| 1391   | Dissection officially permitted in Lerida. <sup>275</sup>   |
| 1405   | Dissection officially permitted in Bologna. <sup>276</sup>  |
| 1407   | First autopsy in Paris. <sup>277</sup>  |
| 1429   | Dissection officially permitted in Padua. <sup>278</sup>  |
| 1435   | Dissection officially permitted in Vienna. <sup>279</sup>   |
| 1477-8 | First record of a dissection at the University of Paris – possibly not the first to occur. <sup>280</sup>   |
| 1485   | Dissection officially permitted in Tübingen. <sup>281</sup>   |
| 1505-6 | The Edinburgh surgeons were granted one criminal corpse annually for dissection. <sup>282</sup>   |
| 1531   | First record of a dissection in England. <sup>283</sup>   |
| 1532   | Publication of David Edguardus' (Edwardes') <i>In Anatomien Introductio Luculenta et Brevis (A Brief but Excellent Introduction to Anatomy)</i> , the first anatomical book written in England. <sup>284</sup>                                  |
| 1540   | The United Company of Barber-Surgeons was formed. The union was granted four criminal corpses annually for dissection. <sup>285</sup>   |
| 1543   | Publication of Vesalius' <i>De humani corporis fabrica</i> . <sup>286</sup>   |
| 1545   | At the prompting of Henry VIII, Geminus (Thomas Lambricit) published a text with plagiarized plates and text from Vesalius' <i>Fabrica</i> and <i>Epitome</i> . <sup>287</sup> Vesalius' brother blamed the innocent John Caius. <sup>288</sup> |
| 1546   | John Caius was appointed the barber-surgeons' Reader of Anatomy. <sup>289</sup>   |
| 1548   | Publication of Thomas Vicary's <i>A Profitable Treatise of the Anatomie of Mans Body</i> , a lost English vernacular treatise. <sup>290</sup>   |
| 1549   | Oxford statutes changed. Bachelor of Medicine candidates had to observe two   |

<sup>273</sup> C.D. O'Malley and K.F. Russell, Introduction to *Introduction to Anatomy*, eds. C.D. O'Malley and K.F. Russell (Oxford: Oxford University Press, 1961), 4.

<sup>274</sup> O'Malley and Russell, "Introduction," 4.

<sup>275</sup> O'Malley and Russell, "Introduction," 4.

<sup>276</sup> O'Malley and Russell, "Introduction," 4.

<sup>277</sup> O'Malley and Russell, "Introduction," 3.

<sup>278</sup> O'Malley and Russell, "Introduction," 4.

<sup>279</sup> O'Malley and Russell, "Introduction," 4.

<sup>280</sup> O'Malley and Russell, "Introduction," 3.

<sup>281</sup> O'Malley and Russell, "Introduction," 4.

<sup>282</sup> The magistrates granted a Seal of Cause to the Edinburgh Guild of Surgeons and Barbers on 1 July 1505, but King James IV did not confirm it until 13 October 1506. O'Malley and Russell, "Introduction," 13.

<sup>283</sup> O'Malley and Russell, "Introduction," 6.

<sup>284</sup> O'Malley and Russell, "Introduction," 6.

<sup>285</sup> O'Malley and Russell, "Introduction," 14-15.

<sup>286</sup> O'Malley and Russell, "Introduction," 20.

<sup>287</sup> O'Malley and Russell, "Introduction," 18.

<sup>288</sup> O'Malley, "The Relations of John Caius With Andreas Vesalius," 171-172.

<sup>289</sup> O'Malley and Russell, "Introduction," 16.

<sup>290</sup> O'Malley and Russell, "Introduction," 18-19.

|      |  |
|------|--|
|      | dissections and perform two. Doctor of Medicine candidates had to observe two or three additional dissections. However, these statutes were possibly rarely enforced. <sup>291</sup> |
| 1555 | Publication of the second edition of Vesalius' <i>Fabrica</i> . <sup>292</sup>   |
| 1557 | In the statutes of the refounded Gonville and Caius College, Caius required that all members of the College watch an annual human dissection. <sup>293</sup>                         |
| 1559 | Publication of Columbus' <i>De Re Anatomica</i> . <sup>294</sup>   |
| 1565 | Caius persuaded Elizabeth I to annually give two bodies of executed criminals to Gonville and Caius College and four to the College of Physicians for dissection. <sup>295</sup>     |

The natural philosopher Alcmaeon dissected animals in fifth century BCE, leaving the earliest known records of direct anatomical investigation.<sup>296</sup> In the next century, Aristotle conducted his animal dissections, leaving extensive records of his findings.<sup>297</sup> The first human dissections in recorded history occurred in third century BCE Alexandria. These are cited in the writings of Galen and Aulus Cornelius Celsus (c. 25 BCE – c. 50 CE).<sup>298</sup> It is possible that human vivisection (in addition to dissection) also occurred in Alexandria.<sup>299</sup>

There was subsequently a gap in human dissection. In the West, the practice initially resumed in medieval Italy. The first recorded post-mortem occurred in Bologna in 1302, though Sarton speculated that others occurred before that.<sup>300</sup> As acceptance of autopsies grew, the concept of human dissection became less disturbing, and dissection became officially permitted in several European cities throughout the fourteenth and fifteenth centuries.<sup>301</sup>

---

<sup>291</sup> O'Malley and Russell, "Introduction," 21.

<sup>292</sup> O'Malley and Russell, "Introduction," 20.

<sup>293</sup> Pelling and Webster, "Medical practitioners," 202.

<sup>294</sup> O'Malley and Russell, "Introduction," 4.

<sup>295</sup> O'Malley and Russell, "Introduction," 17; Ellis, "History of Anatomy in the University of Cambridge, U.K.," 188.

<sup>296</sup> Singer, *A Short History*, 9.

<sup>297</sup> Singer, *A Short History*, 17-20 and 23-28.

<sup>298</sup> Carlino, *Books of the Body*, 121.

<sup>299</sup> Carlino, *Books of the Body*, 122.

<sup>300</sup> Sarton, *The Appreciation of Ancient and Medieval Science During the Renaissance*, 119.

<sup>301</sup> O'Malley and Russell, "Introduction," 3-4.

During the fifteenth century, as anatomical demonstrations were gaining in popularity in European medical schools, medical scholars realized the importance of classical anatomical works. If only such works could be found in the original Greek, they reasoned, the quality of contemporary dissections could greatly increase. Following Leoniceno's example, subsequent medical humanists searched for, edited, and translated original Greek anatomical manuscripts.<sup>302</sup> However, "the predilection for direct observations over textual references steadily increased" through the Renaissance.<sup>303</sup>

In the early sixteenth century, the medical humanists created Latin translations of several Galenic anatomical texts. "By this time... significant original [anatomical] observations were being made, but Galen's anatomy was so much more sophisticated, in terms of both detailed content and dissection technique, that it effectively rendered obsolete even the best of what are usually called the pre-Vesalian anatomists."<sup>304</sup> In such a climate, when physicians were awed by Galen's anatomical expertise, trusting the word of Galen above that of an anatomist in disagreement was not unreasonable.

Unlike in Italy, human dissection in the British Isles did not begin until 1506, when James IV granted bodies of executed criminals to the Edinburgh Guild of Surgeons and Barbers.<sup>305</sup> Similarly, the English Barbers and Surgeons were the first medical practitioners to be granted bodies for dissection in their country. In 1540, Henry VIII united the Surgeons' Guild and the Barbers' Company and granted the joint company four criminal corpses annually.<sup>306</sup> Dissection, in both countries, was punitive. It was "a fate worse than death," with the punishment

---

<sup>302</sup> Sarton, *The Appreciation of Ancient and Medieval Science During the Renaissance*, 116.

<sup>303</sup> Sarton, *The Appreciation of Ancient and Medieval Science During the Renaissance*, 116.

<sup>304</sup> Bylebyl, "Padua and humanistic medicine," 357.

<sup>305</sup> Ruth Richardson, *Death, Dissection and the Destitute* (Chicago: University of Chicago Press, 2000), 32.

<sup>306</sup> Richardson, *Death, Dissection and the Destitute*, 32.

compounded by the very public execution and subsequent dissection. “Dissection was added to the array of punishments available to the bench, and rendered public by royal desire, so that the punishment inflicted upon the body of the murderer should publicly be seen to transcend that already inflicted on the scaffold.”<sup>307</sup>

English dissection was the sole providence of the Company of Barbers and Surgeons until 1564, when John Caius persuaded Elizabeth I to annually grant two criminal corpses for dissection to Gonville and Caius and four to the College of Physicians.<sup>308</sup> For about twenty years, initially by Henry VIII’s request, Caius lectured during the barber-surgeons’ dissections.<sup>309</sup> Through these dissections, Caius revealed “the hidden iuelles and precious threasours’ of Galen.”<sup>310</sup> As inscribed on his portrait in Gonville and Caius College, he “gave enlightenment and great solace to the surgeons, that they might know your parts, O Anatomy.”<sup>311</sup>

In the 1557 Gonville and Caius College statutes, created during the refounding process, Caius required that all members of the College watch an annual human dissection and that the College host two annual dissections. Interestingly, the statutes also mandated that the Master ensure that the body be treated respectfully until its burial.<sup>312</sup> All members of the College, from students to the Master himself, were required to attend the funeral. Caius also instituted two medical fellowships. Gonville and Caius was then one of only five Cambridge colleges with medical fellowships.<sup>313</sup>

---

<sup>307</sup> Richardson, *Death, Dissection and the Destitute*, 32 and 34.

<sup>308</sup> Nutton, “Humanist surgery,” 96-97; O’Malley and Russell, “Introduction,” 17; Ellis, “History of Anatomy in the University of Cambridge, U.K.,” 188.

<sup>309</sup> Nutton, “Humanist surgery,” 97.

<sup>310</sup> Nutton, *John Caius and the Manuscripts of Galen*, 1.

<sup>311</sup> Nutton, “Humanist surgery,” 96-97.

<sup>312</sup> Nutton, “Caius, John (1510–1573)”;  
Nutton, “John Caius and the Linacre tradition,” 377; Pelling and Webster, “Medical practitioners,” 202; Ellis, “History of Anatomy in the University of Cambridge, U.K.,” 188.

<sup>313</sup> Nutton, “Caius, John (1510–1573)”;  
Nutton, “John Caius and the Linacre tradition,” 377; Pelling and Webster, “Medical practitioners,” 202.



Caius' interest in human anatomy presumably began during his medical studies. By the mid-sixteenth century, Padua was one of the major centers of human anatomical study. Its humanist professors were enthusiastic about the Galenic anatomical revival.<sup>314</sup> In Padua, Caius met Realdo Colombo (c. 1515/6-1559), a contemporaneous student and colleague. Andrea Carlino speculates that Caius brought Colombo's *De re anatomica libri XV* (Venice, 1559) with him when he returned to England. This text ultimately "exerted an enormous influence on the development of anatomy in England."<sup>315</sup>

During his time in Italy, Caius was present while Colombo managed to locate the hymen during a dissection.<sup>316</sup> This was a significant moment, as female corpses – and, presumably, especially those of young virgins – were rarely available for dissection, given that the only corpses legally available for dissection were those of executed criminals. The statutes of many Italian universities, including Padua, required the annual dissection of at least one female corpse, so at least one was annually available.<sup>317</sup>

However, even Vesalius, who privately acquired corpses to dissect, is only known to have dissected two women before coming to Padua and seven during his five years of preparing the *Fabrica*. Vesalius greatly benefitted from his reputation, as authorities worked to provide him with the bodies he desired. The Venetian State timed executions to suit Vesalius' intended dissection schedule, and upon learning that Vesalius wanted to dissect a female cadaver, Duke Cosimo I de' Medici (1519-1574) exhumed the body of a nun for his usage.

---

<sup>314</sup> Bylebyl, "Padua and humanistic medicine," 358.

<sup>315</sup> Carlino, *Books of the Body*, 59.

<sup>316</sup> O'Malley. Columbus is most famous for having discovered the pulmonary circulation, which refuted the Galenic claim that blood travelled from right ventricle to left through invisible pores in the cardiac septum. Grendler, *The Universities of the Italian Renaissance*, 336.

<sup>317</sup> Grendler, *The Universities of the Italian Renaissance*, 329.

Anatomists were also permitted to take unclaimed bodies from hospitals, and authorities tolerated the rampant bodysnatching of Vesalius and his students.<sup>318</sup> Italian states did not often utilize capital punishment, but they also highly valued the role of dissection in medical education, so they tolerated alternative sources of body procurement.<sup>319</sup> Anatomy was so highly prioritized that, in 1556, the Riformatori dello Studio, upon hearing that Paduan students were leaving for Bologna and Ferrara due to a lack of cadavers to dissect, explicitly permitted the assistants of the anatomist Gabriele Falloppia (1523-1562) to “covertly” steal a corpse.<sup>320</sup> They did, however, specify that it be that of someone “lowborn and unknown,” so that there would be no mourners to complain.<sup>321</sup>

Who was this Andreas Vesalius (1514-1564), to whom no body, be it criminal or holy, was off-limits? The Belgian Vesalius initially studied at Louvain before beginning medical studies in Paris in 1533. There, he was greatly influenced by the Paris Schools’ Galenism and emphasis on anatomy. He trained under the anatomists Jacobus Sylvius (Jacques Dubois, 1478-1555) and Johannes Guinther (Johann Winter von Andernach and other variants, 1505-1574). However, politics forced Vesalius back to Louvain, where, though only a medical student, he conducted the annual public dissection. The relatively low quality of medical education in Louvain allowed Vesalius to conduct the dissections, gaining valuable experience, but it also meant that he ought to complete his degree at a more prestigious institution. Consequently, in 1537, he left for Padua.<sup>322</sup>

---

<sup>318</sup> Grendler, *The Universities of the Italian Renaissance*, 333.

<sup>319</sup> Grendler, *The Universities of the Italian Renaissance*, 333.

<sup>320</sup> Grendler, *The Universities of the Italian Renaissance*, 333-334.

<sup>321</sup> Grendler, *The Universities of the Italian Renaissance*, 333-334.

<sup>322</sup> Bylebyl, “Padua and humanistic medicine,” 358.

Vesalius' reputation as a promising young anatomist preceded him. He was given a medical degree and then both surgical lectureships in only a matter of months. Given that Vesalius was not known as a surgeon and was technically unqualified for the position because he possessed only a medical degree, Jerome J. Bylebyl speculated that he was given the position so he could have priority in the annual dissections.<sup>323</sup>

In 1539, Vesalius entered a longstanding debate over whether bloodletting was an appropriate treatment for pleurisy. The issue revolved around Hippocrates' meaning of "kat'ixin." When the textual tradition was compared to the anatomical evidence, either Hippocrates was wrong, or Galen, his commentator, had erred. Vesalius argued that the latter was the case, but per his own account, he did not seek to oppose Galen, but to emulate his methodology. "He was doing a very Galenic thing: he was working from the evidence of the body – from the incidence and distribution of the veins, as he found them in the dissection of human bodies."<sup>324</sup>

The next year, Vesalius was asked to perform the demonstrations (i.e. the physical dissections) during Matteo Corti's lectures in Bologna. Corti "might look to us like an anatomical reactionary and ignoramus, for it was his unlucky fate to have had Vesalius as his demonstrator on this occasion... Vesalius was busy transgressing all the boundaries of what a demonstrator should do. He was thus challenging Curtius [Corti] on an issue of etiquette, respect and authority. And in so doing the 25-year-old Vesalius was to subject the 65-year-old Curtius to the most outrageous public humiliation."<sup>325</sup>

Corti's lectures with Vesalius followed a pattern. Vesalius began to teach as he demonstrated. Corti repeatedly asked him to return to simply demonstrating. Vesalius complied

---

<sup>323</sup> Bylebyl, "The School of Padua," 359.

<sup>324</sup> Andrew Cunningham, *The Anatomical Renaissance: The Resurrection of the Anatomical Projects of the Ancients* (Aldershot: Scolar Press, 1997), 101.

<sup>325</sup> Cunningham, *The Anatomical Renaissance*, 103.

for a time but soon could not resist speaking again and, worse, disagreeing with Galen. Corti would ask if Vesalius really meant that he knew better than Galen, and Vesalius would evade the direct question but indicate the anatomical evidence favoring his position. Though the demonstrator was not supposed to express any opinions, Vesalius clearly did not regard himself as bound by convention; he openly disagreed with both ancient and contemporary authorities.<sup>326</sup> Indeed, he was “possessed of a talent, an ego, and a lack of false modesty comparable only to the great Galen himself.”<sup>327</sup>

Vesalius continued to perform human and animal dissections as well as dramatic public animal vivisections in the Galenic tradition. He proved a popular teacher, who urged his students to personally participate in dissections and to trust observational evidence above textual.<sup>328</sup> One of Vesalius’ many students was John Caius.

For eight months of Caius’ Paduan education, he housed with Vesalius, who was occupied with translating Galen’s *De anatomicis administrandis* into Latin for the Giunta Galen. Vesalius was also working on what would become his famous *De humani corporis fabrica* (1543).<sup>329</sup> Caius was simultaneously editing a Greek version of *De anatomicis*, which he published in 1544.<sup>330</sup> Caius stated that he and Vesalius “used to compare... [their] anatomical studies.”<sup>331</sup> “One may wonder to what extent Vesalius (the strength of whose ability in Greek is

---

<sup>326</sup> Cunningham, *The Anatomical Renaissance*, 104, 110-111, 113.

<sup>327</sup> Cunningham, *The Anatomical Renaissance*, 106.

<sup>328</sup> Cunningham, *The Anatomical Renaissance*, 115.

<sup>329</sup> Nutton, “John Caius and the Linacre tradition,” 383; O’Malley, “The Relations of John Caius With Andreas Vesalius,” 148-149 and 153.

<sup>330</sup> O’Malley, “The Relations of John Caius With Andreas Vesalius,” 153 and 162.

<sup>331</sup> John Caius, quoted in O’Malley, “The Relations of John Caius With Andreas Vesalius,” 162.

open to doubt) employed Greek texts for his revision, and to what extent he relied upon John Caius,” who possessed “unusually sound knowledge of Greek and Latin.”<sup>332</sup>

Despite the men’s months of cohabitation and collaboration, their friendship ultimately unravelled. Charles O’Malley speculated that debate over which Greek version of *De anatomicis administrandis* was more accurate might have ended the friendship between the men.<sup>333</sup> They also disagreed over the accuracy of Galen’s medical knowledge. Caius believed that, “except in trivial matters, nothing was overlooked by [Galen].”<sup>334</sup> He argued that any apparent errors in Galenic texts were scribal and/or translation mistakes; Galen himself had not erred, except in minutia.<sup>335</sup>

Vesalius, conversely, is famous as the man who discovered that Galen had seriously erred – and who dared to announce this revolutionizing truth to the world. He is known as “the founder of modern anatomy” and even as “the founder of human anatomy” in general and is given credit for making anatomy “scientific.”<sup>336</sup> “It has been taken for granted that this necessarily and laudably involved the repudiation of Galen and all he stood for; to become modern and scientific, anatomy (in the historians’ eyes) had to be ‘liberated’ from the authority of Galen, and to be based on experience and observation.”<sup>337</sup> According to the traditional narrative, “Galenic anatomy... rapidly sank into oblivion, and those who opposed Vesalius were quickly shown to be charlatans and fools.”

---

<sup>332</sup> O’Malley, “The Relations of John Caius With Andreas Vesalius,” 159 and 147.

<sup>333</sup> O’Malley, “The Relations of John Caius With Andreas Vesalius,” 153-154.

<sup>334</sup> Quoted in Charles D. O’Malley, “Medical Education During the Renaissance,” in *The History of Medical Education*, ed. Charles O’Malley (Berkeley and Los Angeles, 1970), 73.

<sup>335</sup> O’Malley, “The Relations of John Caius With Andreas Vesalius,” 152.

<sup>336</sup> O’Malley, “The Relations of John Caius With Andreas Vesalius,” 152; Max H. Fisch, “Vesalius and His Book,” *Bulletin of the Medical Library Association* 31, no. 3 (1943): 208; L.R. Lind, Introduction to *The Epitome of Andreas Vesalius*, trans. L.R. Lind, ed. L.R. Lind (New York: The MacMillan Company, 1949), xvii; Cunningham, *The Anatomical Renaissance*, 88.

<sup>337</sup> Cunningham, *The Anatomical Renaissance*, 88.

Caius and Vesalius can be viewed as antitheses: the humanist anachronism versus the vanguard of the Scientific Revolution; the man who regarded Galen as practically infallible versus the man who tore the fallible Galen from his undeserved seat in the heavens; the dogmatic philologist, credulously believing ancient authorities and searching for mouldy old manuscripts, versus the free-thinking anatomist, bravely challenging ancient and contemporary authorities alike and stealing cadavers from gibbets and graves. In short, the reactionary versus the progressive, the villain versus the hero, the sinner versus the saint.

Though the progressive-reactionary dichotomy seems to fit this situation well, it is ultimately unsatisfying. Vesalius did not perceive himself as rejecting Galen. Despite his reputation as a revolutionary, Vesalius generally pointed out only minor Galenic anatomical errors. “He did not lead the way in making discoveries alien to Galenic anatomy, nor did he ever intend an onslaught upon it. He had no greater learning, or more vivid freshness of mind, than his more experienced contemporaries,” e.g. Fallopio, who offered more original theories.<sup>338</sup>

Furthermore, Vesalius’ *Fabrica* was largely a compilation of material from two recently discovered Galenic tracts, *Use of Parts* and *Anatomical Administrations*.<sup>339</sup> Charles Singer described the work as, “in effect, Galen with certain highly significant Renaissance additions.”<sup>340</sup> Whole pages of the *Fabrica* are paraphrases of Galenic text. “Galen is both hero and villain of the *Fabrica*. His errors are carefully noted, yet the substantial borrowings Vesalius made from him are passed over in silence.”<sup>341</sup> Though Vesalius openly criticized Galen, he

---

<sup>338</sup> A.R. Hall, *The Scientific Revolution 1500-1800: The Formation of the Modern Scientific Attitude* (Boston: The Beacon Press, 1966), 46.

<sup>339</sup> Hall, *The Scientific Revolution*, 46.

<sup>340</sup> Charles Singer, quoted in Hall, *The Scientific Revolution*, 47.

<sup>341</sup> Nutton, “Introduction.” Northwestern University.

criticized only specific Galenic claims, not the overall Galenic medical theory or methodology.<sup>342</sup>

Indeed, Vesalius consciously adopted a Galenic methodology:

All the striking and seemingly innovative things we have so far seen in Vesalius's approach to anatomy can... be laid directly at the door of Galen himself... Vesalius was not saying (for instance) that we need to find out about anatomy in some way, or in some terms *other* than those Galen used. Far from it. For the anatomical project of Galen is precisely what Vesalius was following. What he was criticizing was not Galen, nor Galen's project, but the points at which Galen himself had not fulfilled it properly. No one since Galen himself had followed the practice of Galen in anatomy as precisely as Vesalius... Vesalius wanted to be, and felt himself to be, a second Galen. He was the first person since Galen's time to try to live out the experience of *being* Galen the anatomist.<sup>343</sup>

Vesalius' accomplishment was not rejecting Galen, but in successfully replicating Galen's anatomical practice.<sup>344</sup> In a sense, he even sought to "out-Galen Galen" by dissecting human cadavers, thus taking advantage of an opportunity that Galen had greatly desired but apparently lacked.

This allowed Vesalius to identify some of the more obvious Galenic errors that arose when Galen extrapolated animal findings to humans.<sup>345</sup> Almost all the over 300 Galenic errors noted in the *Fabrica* stemmed, claimed Vesalius, from Galen's dissection of animals.<sup>346</sup>

If Vesalius rejected Galenism in a sense, it was only to adopt what he regarded as the "*prisca medicina*" of Hippocrates and the Alexandrian (human) anatomists, who were even more ancient than Galen.<sup>347</sup> The Alexandrians, e.g. Herophilus, had dissected humans, what Galen only wished he could do. "Vesalius the Modern has become an Ancient: he has recreated an

---

<sup>342</sup> Cunningham, *The Anatomical Renaissance*, 113.

<sup>343</sup> Cunningham, *The Anatomical Renaissance*, 115-116.

<sup>344</sup> Cunningham, *The Anatomical Renaissance*, 131.

<sup>345</sup> Hall, *The Revolution in Science*, 48.

<sup>346</sup> Cunningham, *The Anatomical Renaissance*, 120.

<sup>347</sup> Nutton, *John Caius and the Manuscripts of Galen*, 2.

ancient practice – the practice of *human* anatomy.”<sup>348</sup> In the preface to the *Fabrica*, Vesalius explicitly stated that he sought to revive Alexandrian human anatomy.<sup>349</sup> In this regard, from a strictly definitional perspective, Vesalius was the reactionary, not Caius.

Caius was less than impressed with Vesalius’ claims that Galen had seriously erred. As described by Nutton, Caius attacked Vesalius in three ways. First, he carefully read Galenic texts and isolated the passages that seemingly revealed that Galen had personally dissected humans. If Galen had dissected humans – which Vesalius denied – then each of Galen’s anatomical claims would merit careful investigation. Had he not dissected humans, all his anatomical statements could be doubted.

Second, Caius compiled another list, this one of Vesalius’ Galenic mistranslations and misunderstandings. He found several errors, both textual and anatomical.<sup>350</sup> For instance, in the second edition of the *Fabrica*, Vesalius added an illustration of a second type of hinge joint, having apparently learned of Caius’ criticism in *Galeni libri aliquot* (1544) that Vesalius had conflated two types of joints in the first edition.<sup>351</sup> Given his own years of anatomical experience, Caius could challenge Vesalius regarding anatomical errors. This tactic had the advantage of challenging observational evidence with contrasting evidence of the same nature.<sup>352</sup>

As Nutton’s study of marginalia revealed, Caius took detailed notes on Vesalius’ texts and planned to publish a book that would employ his anatomical and philological experience in defense of Galen. Unfortunately, this text was never published.<sup>353</sup> “This part of the argument had a great deal of plausibility to commend it,” as Caius and others kept finding older, more accurate

---

<sup>348</sup> Cunningham, *The Anatomical Renaissance*, 124.

<sup>349</sup> Nutton, Introduction. Northwestern University.

<sup>350</sup> Nutton, “Prisci dissectionum professores,” 119-120.

<sup>351</sup> O’Malley, *Vesalius*, 174.

<sup>352</sup> Nutton, “Introduction.” Northwestern University.

<sup>353</sup> Nutton, “Prisci dissectionum professores,” 121.



versions of existing manuscripts and even Galenic texts that had been lost.<sup>354</sup> Third, Caius returned to the Galenic manuscripts, as the available printed versions were of dubious quality.<sup>355</sup>

From a modern perspective, this emphasis on philology may seem odd. “Empiricism and book learning have conventionally been seen as almost antithetical.”<sup>356</sup> Gianna Pomata and Nancy G. Siraisi aptly described the situation:

Scholars have found it hard to reconcile the emphasis on direct observation, in Renaissance anatomy for instance, with the enormous baggage of philological skill and antiquarian learning that Vesalius and his peers brought to the dissecting table. This philological and antiquarian apparatus has been seen mostly as a handicap, an oppressively constraining theoretical filter that limited and distorted observation – and in some cases it undoubtedly did. But there is also evidence to the contrary, evidence, namely, that the linguistic sophistication and tremendous familiarity with ancient texts that were the hallmark of humanist training could be harnessed to the cognitive goals of direct observation so as to complement or even enhance them.<sup>357</sup>

Certainly, the Galenic anatomical revival of the early and mid-sixteenth century, which fostered Vesalius and his accomplishments, stemmed directly from the philological work of the humanists who located, edited, and translated into Latin several newfound Galenic texts.<sup>358</sup>

In the sixteenth century, medical philology was essentially a form of medical research. Instead of acting as opposing forces, “empirical observation and philological reconstruction complemented one another,”<sup>359</sup> and “practical problems could easily be categorized as textual problems.”<sup>360</sup> As they translated Galenic texts in the original Greek, the medical humanists

---

<sup>354</sup> Nutton, “Introduction.” Northwestern University.

<sup>355</sup> Nutton, “Prisci dissectionum professores,” 119-120.

<sup>356</sup> Pomata and Siraisi, Introduction, 17.

<sup>357</sup> Pomata and Siraisi, Introduction, 17.

<sup>358</sup> Nutton, “Introduction.” Northwestern University.

<sup>359</sup> Pomata and Siraisi, Introduction, 17.

<sup>360</sup> Pomata and Siraisi, Introduction, 17; Vivian Nutton, “Greek science in the sixteenth-century Renaissance,” in *Renaissance and Revolution: Humanists, scholars, craftsmen and natural philosophers in early modern Europe*, ed. J.V. Field, 15-28 (Cambridge: Cambridge University Press, 1993), 26-27.

discovered many errors in the medieval Latin translations. To eliminate these errors, they had to attempt to discover Galen's true words by locating manuscripts in the original Greek.<sup>361</sup>

In his philological investigations, which he used to defend Galen, Caius emulated Galen himself, who employed the same methods in his commentaries on his own hero, Hippocrates.<sup>362</sup>

In his own commentaries, Galen had increasingly emphasized the need to approach the wording of the Hippocratic text with great care, and to be alert to interpolations, misreadings, and misunderstandings. In his view, the true meaning of Hippocrates had frequently been obscured by textual corruption and even by forgery.<sup>363</sup>

Galen believed that a philologist studying a traditional text should connect the written material to his clinical experience, endeavour to ensure that the text was as close as possible to the original, and then proceed with analysis.<sup>364</sup> Similarly, when confronted with apparent Galenic errors, Caius argued that they stemmed from mistakes in transcription, translation, and/or interpretation; Galen himself had not erred, at least not in any major matters.<sup>365</sup>

Studying newly found Galenic texts and more accurate versions of previously known texts provided several benefits. Scholars could utilize Galen's wisdom and practical experience. When new Galenic therapies were discovered, they could be immediately utilized to help patients. Scholars did not need to wait to rediscover the fruits of Galen's wisdom and practical experience; they could learn new therapies directly from the source. As for previously known Galenic therapies, given that they had been utilized, apparently successfully, for hundreds of years, improving one's understanding of Galen by studying improved Galenic texts would lead to improved clinical outcomes. "Seen from this perspective, the removal of a misprint or, still

---

<sup>361</sup> Nutton, "Introduction." Northwestern University.

<sup>362</sup> Nutton, "Greek science in the sixteenth-century Renaissance," 17.

<sup>363</sup> Nutton, "Greek science in the sixteenth-century Renaissance," 18-19.

<sup>364</sup> Nutton, "'Prisci dissectionum professores,'" 119.

<sup>365</sup> Nutton, *John Caius and the Manuscripts of Galen*, 3.

more, the discovery of a lost Galenic tract, such as *On Bones*, was equally as progressive as anything Vesalius had done in anatomy, and, what is not always appreciated, of potentially greater relevance to medical practice.”<sup>366</sup> Though Vesalius’ work in descriptive anatomy was important, it had little or no immediate impact on medical practice and thus did little or nothing to improve the plight of sixteenth-century patients.<sup>367</sup>

Ultimately, both men were emulating Galen’s methodology, with Vesalius emphasizing the observational aspects and Caius the philological. Yet, they should not be placed in discrete “body” and “book” groups no more than they should be placed in discrete “progressive” and “reactionary” categories.<sup>368</sup> Despite their contention, both physicians emphasized hands-on anatomical study and its necessary place in medical education, and Vesalius’ accomplishments could not have been possible were it not for his philological training.<sup>369</sup> Furthermore, as discussed above, Vesalius still put a lot of faith in Galen and other ancient authorities. Rather than employing the progressive-reactionary dichotomy, it would be better to consider Caius, Vesalius, and their contemporaries on spectrums, e.g. a spectrum of trust in ancient authorities and a spectrum of success in accurately emulating Galen’s own methodology.

---

<sup>366</sup> Nutton, “Prisci Dissectionum Professores,” 122.

<sup>367</sup> Nutton, “Prisci Dissectionum Professores,” 115.

<sup>368</sup> Cunningham, *The Anatomical Renaissance*, 133.

<sup>369</sup> Langdon-Brown, “John Caius and the Revival of Learning,” 66; Nutton, *John Caius and the Manuscripts of Galen*, 2; Nutton, “Introduction.”

## 2.3 SWEATING SICKNESS

The progressive actions of the “reactionary” John Caius are further revealed by his vernacular treatise on the Sweating Sickness. To understand that book and its significance, it is useful to compare the Sweat to another contemporary epidemic disease, the plague.

In the Tudor period (1485-1603), there were numerous epidemics of the bubonic plague and the Sweating Sickness. There were three pandemic waves of plague. The first, the Plague of Justinian, spanned the sixth through eighth centuries. The second began with the infamous Black Death (approximately 1347-51) and persisted until 1665-6 in England and until the 1720s in the rest of Europe. From the end of the nineteenth century through the twentieth, there was a third pandemic, but it did not greatly affect Europe.<sup>370</sup> During the second pandemic, the plague intermittently struck England until the 1665-6 Great Plague of London.<sup>371</sup>

In August through October 1485, right around the time of Henry Tudor’s victory over Richard III in the Battle of Bosworth, the English Sweating Sickness suddenly appeared.<sup>372</sup> Contemporaries believed that the Sweat was distinct from any disease they had previously encountered.<sup>373</sup> It can thus be considered an emerging epidemic disease:

Emerging diseases may be defined as any infectious or pathogenic agent that is capable of causing disease and/or has newly appeared in a population. The infectious agent may have not been previously discovered, or it may be a new variant of an existing disease. Additionally, an emerging disease may be one that has previously existed in a population but is rapidly increasing in incidence or in geographic range. An increased incidence, or the number of new cases of a disease, over the course of a 20 year period is considered to be an emerging disease by

---

<sup>370</sup> Paul Slack, *The Impact of Plague in Tudor and Stuart England* (Boston: Routledge & Kegan Paul plc., 1985), 14.

<sup>371</sup> Slack, *The Impact of Plague*, 311.

<sup>372</sup> There is contention over the exact month in which the disease appeared. Flood, ““Safer on the battlefield than in the city,”” 148; R. S. Roberts, “A Consideration of the Nature of the English Sweating Sickness,” *Medical History* 9 (1965): 386; Lentz, “The King of England’s Sickness,” 16-20.

<sup>373</sup> Caius, *A booke, or counseill*, fols. 8v-95; Raphael Holinshed, *The firste volume of the chronicles of England, Scotlande, and Irelande* (London, 1577), 1425.

epidemiological standards.<sup>374</sup>

This new disease gained many titles, including *sudor angelicus*, “the sweate,” “the ‘hote ylles,’ the ‘hote sicknes,’ ‘stopgallant’ (because it stopped young gallants in their tracks), and ‘the posting sweat.’ (because it seemed to jump, or “post,” from one location to another).”<sup>375</sup> After the initial 1485 epidemic, the Sweat returned in 1508, 1517, 1528, and finally 1551, after which it apparently disappeared just as suddenly and mysteriously as it arose.<sup>376</sup> The 1528 English epidemic seemingly sparked a 1529 continental epidemic, but the disease was otherwise largely limited to England.<sup>377</sup>

Some hypothesize that the disease disappeared because the pool of susceptible individuals had become so small.<sup>378</sup> Others believe that the disease struck after 1551 but was given other names. For instance, the French Picardy Sweat of the eighteenth and nineteenth centuries has sometimes been retrospectively identified as the English Sweating Sickness.<sup>379</sup> There is also speculation about the Sweat’s causative agent. There are theories that it was caused by a hantavirus, arbovirus, or anthrax.<sup>380</sup> Unfortunately, these theories cannot be directly tested,

---

<sup>374</sup> Darin P. Gonzalez, “Emerging Diseases,” in *Encyclopedia of Health Services Research*, ed. Ross M. Mullner (Thousand Oaks: SAGE Publications, Inc., 2009), 351.

<sup>375</sup> Caius, *A boke, or counseill*, fol. 1r; Flood, “Safer on the battlefield than in the city,” 148.

<sup>376</sup> Flood, “Safer on the battlefield,” 148; Dyer, “The English Sweating Sickness of 1551,” 382; Lindemann, *Medicine and Society in Early Modern Europe*, 83.

<sup>377</sup> John Christiansen, “The English Sweat in Lübeck and North Germany, 1529,” *Medical History* 53 (2009); Flood, “Safer on the battlefield.”

<sup>378</sup> Flood, “Safer on the battlefield,” 148; Dyer, “The English Sweating Sickness of 1551,” 382; Lindemann, *Medicine and Society in Early Modern Europe*, 83.

<sup>379</sup> Llywelyn Roberts, “Sweating Sickness and Picardy Sweat,” *British Medical Journal* (1945); Henry Tidy, “Sweating Sickness and Picardy Sweat,” *British Medical Journal* (1945); Creighton, *A History of Epidemics in Britain*.

<sup>380</sup> Paul Heyman, Leopold Simons, and Christel Cochez, “Were the English Sweating Sickness and the Picardy Sweat Caused by Hantaviruses?” *Viruses* 6, no. 1 (2014); Guy Thwaites, Mark Taviner, and Vanya Gant, “The English sweating sickness, 1485 to 1551,” *The New England Journal of Medicine* 336, no. 8 (1997); Mark Taviner, Guy Thwaites, and Vanya Gant, “The English Sweating Sickness, 1485-1551: A Viral Pulmonary Disease?” *Medical History* 42 (1998); Dyer, “The English Sweating Sickness of 1551”; J.A.H. Wylie and L.H. Collier, “The English sweating sickness (*sudor angelicus*): a reappraisal,” *Journal of the History of Medicine* 36 (1981); Edward McSweeney, “Anthrax and the etiology of the English sweating sickness,” *Medical Hypotheses* 62 (2004).

as obtaining usable DNA or viral RNA from the remains of a victim is unlikely.<sup>381</sup> The identity of the responsible organism will thus likely remain unknown, and those speculating in this area should be cautious. As expressed by historian Mary Lindemann, “Retrospective diagnosis, or retro-diagnosis, is filled with perils and often leads to serious and sometimes laughable misreadings.”<sup>382</sup>

This paper is not concerned with retrodiagnoses; my aim is to engage with the Tudor conceptions of the plague and the Sweat and thus contextualize Caius’ *Counseill*. There are many similarities between the Tudor responses to the two diseases. Indeed, scholars have noted consistent trends in human responses to all epidemics, regardless of temporal and cultural contexts and the particular diseases involved. In the Introduction to *Epidemics and Ideas: Essays on the Historical Perception of Pestilence*, Paul Slack summarized some of these trends. Explanations of the cause of the disease generally followed a pattern:

Almost all epidemics were seen by contemporaries, for example, as being transmitted from person to person and as arising from particular, usually filthy, local conditions: notions of ‘contagion’ and ‘miasma,’ of a more or less undefined kind, were combined. Again and again ‘stench’ lay at the root of disease.<sup>383</sup>

Given the permeability between contagionist and miasmatic explanations of disease, people often fled from infected places in an attempt to escape the contagion and/or local miasma. However, this required “intellectual justification,” as flight required abandoning one’s duties, including the

---

<sup>381</sup> Dyer, “The English Sweating Sickness of 1551,” 362; Thwaites, Taviner, and Gant, “The English sweating sickness, 1485 to 1551,” 582.

<sup>382</sup> Lindemann, *Medicine and Society in Early Modern Europe*, 31.

<sup>383</sup> Paul Slack, “Introduction,” *Epidemics and Ideas: Essays on the Historical Perception of Pestilence*, eds. Terence Ranger and Paul Slack (New York: Cambridge University Press, 1999), 3.

duty of charity toward the sick left behind.<sup>384</sup> Epidemics also generally led to the designation of scapegoats, either foreigners or social inferiors.<sup>385</sup>

Religion always tends to play a significant role in epidemics:

From the plague of Athens onwards, people either sought solace in religious practices or fled from Gods which had failed them... At one extreme was the view that God sent plague as a punishment or a martyrdom which could not be resisted, an attitude which went hand in hand with a popular fatalism in the face of disaster. At the other pole were collective ritual practices... [e.g.] Renaissance processions... which held out the promise of effective action.<sup>386</sup>

Yet, despite these broad commonalities, the responses to epidemics do differ somewhat due to their particular contexts.<sup>387</sup> As discussed above, there are parallels in all epidemics. One might thus expect the Tudor responses to the plague and the Sweat to be practically synonymous, given that they occurred in the same cultural and temporal context. However, though the responses were similar, there were significant differences between them.

One possible explanation is that they differ because, by 1485, the plague was an established disease, whereas the Sweat was emerging. Whether a disease was familiar or new could greatly impact the response to it, as “the intellectual challenges posed by epidemics were greatest when they plainly came fresh and new from outside.”<sup>388</sup> *Epidemics and Ideas* and similar works “suggest that the most radical responses may be expected to follow epidemics which are novel, violent and intense, random (at least as initially perceived), and associated with

---

<sup>384</sup> Slack, “Introduction,” 4.

<sup>385</sup> Slack, “Introduction,” 4.

<sup>386</sup> Slack, “Introduction,” 4.

<sup>387</sup> Slack, “Introduction,” 5.

<sup>388</sup> Slack, “Introduction,” 5.

other social disturbances.”<sup>389</sup> It takes years of experience with a disease to create “a developed reaction, such as a public health ‘campaign.’”<sup>390</sup>

I have noted four primary differences between the Tudor responses to the plague and the Sweat. (i). There is a large difference between the number of vernacular medical treatises on each disease. There were twenty-three on the plague but only two on the Sweat. (ii). Both medical practitioners and laymen typically viewed human sin and resultant divine wrath as the root cause of the plague, but the Sweat was not frequently described in a theological manner. (iii). The popular perception was that the plague struck the poor, whereas the Sweat killed rich, middle-aged Englishmen. (iv). Despite the plague’s horrific nature, the Sweat was frequently described as being the more fearsome disease. I do not believe that all the differences stem from the plague’s familiarity and the Sweat’s novelty, but it seems likely that the latter’s emerging nature contributed to the disparity in the numbers of treatises.

Manuscripts on the plague did not appear in England until the reign of Richard II (1377-1399). These were copies of continental works, however. “The first medical descriptions of... [the plague] by native British writers are comparatively late,” and medical works comprised only approximately three percent of English printers’ output.<sup>391</sup> In the Tudor period, twenty-three vernacular plague treatises and forty-two editions of these works were published in England. This comprised fifteen percent of the total number of vernacular medical works (one-hundred fifty-three total).<sup>392</sup>

---

<sup>389</sup> Slack, “Introduction,” 7.

<sup>390</sup> Slack, “Introduction,” 7.

<sup>391</sup> Creighton, *A History of Epidemics in Britain*; Paul Slack, “Mirrors of health and treasures of poor men: the uses of the vernacular medical literature of Tudor England,” in *Health, medicine and mortality in the sixteenth century*, ed. Charles Webster (London: Cambridge University Press, 1979), 239-240.

<sup>392</sup> Slack, “Mirrors of Health,” 243 and 238.



The first vernacular British work on plague that stemmed from personal experience with the disease, Dr. Gilbert Skeyne's *Ane Breve Descriptioun of the Pest Quhair in the Causis, Signis and sum special preseruatioun and cure thairof ar contenit*, was printed in Edinburgh in 1568.<sup>393</sup> Vernacular English plague publications (excluding translations and works focusing on multiple diseases) include Thomas Brasbridge's *The poore mans ieuuel, that is to say, A treatise of the pestilence* (1578), Anthony Anderson's *An approved medicine against the deserued plague* (1593), Simon Kellwaye's *A defensatiue against the plague* (1593), and Thomas Lodge's *A treatise of the plague containing the nature, signes, and accidents of the same* (1603).<sup>394</sup>

As evidenced by the publication dates of these treatises, "the reign of plague in Britain was approaching an end before the native medical profession began to write upon it."<sup>395</sup> Nevertheless, the twenty three vernacular plague treatises published in Tudor England far exceed the number of vernacular Sweat treatises published in the same. Only two men wrote medical treatises on the Sweat, Thomas Le Forestier and John Caius. The disparity in the number of treatises on the plague versus the Sweat likely stems from Tudor medics' familiarity with the plague. Medical authors who focused on the plague benefitted from previous tracts and,

---

<sup>393</sup> Creighton, *A History of Epidemics*; Gilbert Skeyne, *Ane Breve Descriptioun of the Pest Quhair in the Causis, Signis and sum special preseruatioun and cure thairof ar contenit* (Edinburgh, 1568).

<sup>394</sup> Thomas Brasbridge, *The poore mans ieuuel, that is to say, A treatise of the pestilence unto the which is annexed a declaration of the vertues of the hearbs Carduus Benedictus, and angelica, which are very medicinable, both against the plague, and also against many other diseases gathered out of the bookes of diuers learned physitians* (London, 1578); Anthony Anderson, *An approved medicine against the deserued plague* (London, 1593); Simon Kellwaye, *A defensatiue against the plague contayning two partes or treatises: the first, shewing the meanes how to preserue vs from the dangerous contagion thereof: the second, how to cure those that are infected therewith. Whereunto is annexed a short treatise of the small poxe: shewing how to gouerne and helpe those that are infected therewith* (London, 1593); Thomas Lodge, *A treatise of the plague containing the nature, signes, and accidents of the same, with the certaine and absolute cure of the feuers, botches and carbuncles that raigne in these times: and about all things most singular experiments and preseruatiues in the same, gathered by the obseruation of diuers worthy trauailers, and selected out of the writing of the best learned phisitians in this age* (London, 1603).

<sup>395</sup> Creighton, *A History of Epidemics*

presumably, knowledge orally transferred from one generation of practitioners and potential victims to another.

The Sweat, conversely, was a new disease that practitioners were still striving to understand. Perhaps this is why only Le Forestier and Caius wrote on the disease. The former was a late medieval Frenchman. He was purportedly a physician, though I have yet to find evidence of his medical degree. He traveled extensively and was practicing medicine in London when the Sweat first appeared in 1485.<sup>396</sup> Robert S. Gottfried postulated that he came to England with Henry Tudor's army, but this seems impossible, as Richard III awarded Le Forestier a lifetime annuity in January 1485.<sup>397</sup> After treating Sweat patients, Le Forestier wrote an English manuscript on the disease, which he dedicated to Henry VII, presumably in an attempt to win the new king's favor. Only one copy of this *Venyms feuer of pestilens* survives.<sup>398</sup>

Within a few years, however, Le Forestier left England, apparently forever.<sup>399</sup> The last English mention of him is in the Calendar of the Patent Rolls of Henry VII. On 1 February 1488, Le Forestier was given a general pardon for all offenses up to 29 January, though his crimes were not named.<sup>400</sup> Lori Jones speculates that the pardon was for Le Forestier's possible support of Richard III when Henry Tudor was attempting to claim the throne.<sup>401</sup> Regardless of Le Forestier's specific crimes, it appears that he left England soon after the pardon and returned to his native land.<sup>402</sup>

---

<sup>396</sup> Gustave Panel, "Introduction," in *Traité de la Peste*, ed. Gustave Panel (Rouen, 1909).

<sup>397</sup> Robert S. Gottfried, *Epidemic Disease in Fifteenth Century England: The Medical Response and the Demographic Consequences* (New Brunswick: Rutgers University Press, 1978), 68; *Register of Grants for the Reigns of Edward V and Richard III*, eds. Rosemary Horrox and P.W. Hammond (Gloucester: Alan Sutton, 1979), 256.

<sup>398</sup> Lori Jones, "Exploring Concepts of Contagion and the Authority of Medical Treatises in 14th-16th Century England" (MA diss., University of Ottawa, 2012), 44.

<sup>399</sup> Panel, "Introduction."

<sup>400</sup> *Calendar of the Patent Rolls: Henry VII Volume I* (London, 1914).

<sup>401</sup> Jones, "Exploring Concepts of Contagion," 82-83.

<sup>402</sup> Panel, "Introduction."

In Rouen, his brother Jacques printed the manuscript in Latin and French, as *Tractatus contra pestilentiam thenasmonem et dissinteriam* (1490) and *Traité de la Peste* (1495), respectively.<sup>403</sup> Le Forestier stated that his work was devoted to the Sweating Sickness, but he also discussed other illnesses, including the plague and the flux. Original sin was the root cause of all earthly woes, he argued, but he did not make any further theological claims.<sup>404</sup> Instead, he discussed natural causes of disease, namely astrological phenomena and poor sanitation in London, which caused miasmas.<sup>405</sup> He cited “the stynkyng of the erthes... dede bestes or... stynkyn waters for these be grete causes of putrefaction and these corrupteth the ayre, and so our bodies are infect.”<sup>406</sup> Le Forestier criticized both London filth and the many alternative medical practitioners, whom he usually called “lechys,” perhaps in reference to bloodletting, of which he disapproved.<sup>407</sup> He lamented that it was “shaful to se so nobel psons to pyrsh and to dye for the errese of som false lechys.”<sup>408</sup>

The second and last Tudor medical practitioner to publish on the Sweat was John Caius, who treated patients during the 1551 (last) epidemic. His *A boke, or counseill against the disease commonly called the sweate, or sweatyng sicknesse* is both the first medical treatise on a single disease to be written in English and the best primary source record on the Sweat.<sup>409</sup> Published in London in 1552, the year after the final epidemic, the work did not fulfill Caius’ stated purpose – helping English laypeople prevent or treat the Sweat – but it remains an

---

<sup>403</sup> Thomas Le Forestier, *Tractatus contra pestilentiam thenasmonem et dissinteriam* (Rouen, 1490); Thomas Le Forestier, *Traité de la Peste*, ed. Gustave Panel (Rouen, 1909).

<sup>404</sup> Jones, “Exploring Concepts of Contagion,” 78.

<sup>405</sup> Jones, “Exploring Concepts of Contagion,” 45 and 46.

<sup>406</sup> Thomas Le Forestier, *The venyms feuer of pestilens* (1485), fol. 71r.

<sup>407</sup> Jones, “Exploring Concepts,” 66; Le Forestier, *The venyms feuer of pestilens*, fol. 70r; Gottfried, *Epidemic Disease*, 68.

<sup>408</sup> Le Forestier, *The venyms feuer of pestilens*, fol. 70r.

<sup>409</sup> John Black, “Medical Classics: *A boke, or counseill against the Disease Commonly Called the Sweate or the Sweating Sickness* By John Caius,” *British Medical Journal* 335 (2007): 1159.

important piece of scholarship thanks to its insights on the Sweating Sickness, early modern English medicine, and Caius, himself.

As Caius noted in the introduction to *Counseill*, it was strange that he would write a vernacular work written “onely for Englishe men not lerned.”<sup>410</sup> He extensively explained his choice to deviate from his usual Latin or Greek.<sup>411</sup> In his younger years, he translated some works into English, “because at that tyme men ware not so geuen all to Englishe, but that they dyd fauoure & mayteine good learning contened in tongues & sciences, and did also study and apply diligently the same them selues. Therefore I thought no hurte done.”<sup>412</sup>

However, Caius reconsidered his position and resolved to never again write in English. As he reasoned, works published in English would be limited to English readership, half of whom “sette not by learning.” These people, described with understated contempt as “the multitude,” inevitably held opinions that proved the opposites of those of learned men. His contemporaries felt similarly: “there was a reluctance on the part of the [sixteenth century] doctors to impart the secrets of their sacred art to those who had a lesser education and no Greek or Latin.”<sup>413</sup> Caius also believed that foolish English publications “dimishe the grace of thynges learned set furth in the same.”<sup>414</sup> He thought that learning other languages would benefit all:

I wolde geue noue example or comforte to my cuntrye men, (whom I wolde to be now, as here tofore they haue bene, comparable in learnyng to men of other countries) to stonde onely in the Englishe tongue, but to leaue the simplicite of thesame, and to procede further in many and diuerse knoweleges bothe in tongues and sciences at home and in vniuersities, to the adournyng of the common welthe, better seruice of their kyng, & great pleasure and commodite of their owne selues, to what kinde of life soeuer they shold applie them.<sup>415</sup>

---

<sup>410</sup> Caius, *A boke, or counseill*, fol. 2r.

<sup>411</sup> Nutton, “John Caius and the Linacre tradition,” 385.

<sup>412</sup> Caius, *A boke, or counseill*, fol. 4r.

<sup>413</sup> Nutton, “Humanist surgery,” 82.

<sup>414</sup> Caius, *A boke, or counseill*, fol. 4v.

<sup>415</sup> Caius, *A boke, or counseill*, fols. 4v-5r.

Despite his strong inclination against writing in English, during the 1551 epidemic, Caius found himself required by “necessite of the matter, & good wyl” to write a treatise in the vernacular.<sup>416</sup> He noted that the disease struck, with a few individual exceptions, only Englishmen, and therefore the work did not need to be produced in any language but English (though he could not resist later writing an expanded version of the treatise in Latin).<sup>417</sup> With that established, he presented his thesis:

Mindyng therefore with as good a will to geue my counseil in this, and trusting for no lesse gentlenes in the same, I wyll plainly and in English for their better vnderstandynge to whome I write, firste declare the beginnyng, name, nature, and signes of the sweatynge sickenes. Next, the causes of the same. And thirdly, how to preserue men from it, and remedy them when they haue it.<sup>418</sup>

Caius first described the origin of the Sweat, subsequent outbreaks and their limitation to the summer months, similarities to Greek epidemics, and the disease’s spread.<sup>419</sup> He noted that, despite its name, the Sweating Sickness presented with not just its titular diaphoresis, but also with fever.<sup>420</sup> With great detail, he described the other signs and symptoms of the disease:

First by the peine in the backe, or shoulder, peine in the extreme partes, as arme, or legge, with a flusshing, or wind, as it semeth to certeine of the pacientes, flieng in the same. Secondly by the grief in the liuer and the nigh stomacke. Thirdely, by the peine in the head, & madnes of the same. Fourthly by the passion of the hart... Wherupon also foloweth a marueilous heauinesse, (the fifthe token of this disease,) and a desire to sleape, neuer contented, the senses in al partes beyng as they were bounde or closed vp, the partes therfore left heuy, vnliuishe, and dulle. Laste foloweth the shorte abidinge... [It] lasteth but one natural day.<sup>421</sup>

As translated into modern medical terminology:

Caius was describing a typical viral prodrome of myalgia and headache,

---

<sup>416</sup> Caius, *A boke, or counseill*, fol. 7r.

<sup>417</sup> Caius, *A boke, or counseill*, fol. 7v, fol. 2v.

<sup>418</sup> Caius, *A boke, or counseill*, fol. 8v.

<sup>419</sup> Caius, *A boke, or counseill*, fol. 8v, fol. 10v, fols. 10v-11r, fols. 8v-9v, fol. 11r.

<sup>420</sup> Caius, *A boke, or counseill*, fol. 11r.

<sup>421</sup> Caius, *A boke, or counseill*, fols. 12r-12v.

progressing to abdominal pain, vomiting, increasing headache, and delirium. There followed cardiac palpitation, tachycardia, and worsening tachypnea with chest pain, prostration, possible paralysis with agonal breathlessness, and death – sometimes within 12 to 24 hours of the onset of symptoms.<sup>422</sup>

Indeed, the similarities between Caius' description of the Sweat and a viral prodrome led to the aforementioned speculation that the disease was a virus, e.g. a hanta- or arbovirus.

For Caius, the locations of the pain suffered during the Sweat corresponded to the locations of the body in which infected spirits resided. The æthereal spirits of Englishmen, poisoned by repletion, was uniquely susceptible to disease.<sup>423</sup> "Caius was certain the sweating sickness 'consisteth in the spirites' because the initial pains flushed through the body like a wind, a characteristic of the pneuma."<sup>424</sup> Once infected, the pneuma spread the disease to the rest of the body.<sup>425</sup>

Caius also argued that the spirits were clearly infected because, like the Ephemera described by Galen, the Sweat "lasteth but one natural day."<sup>426</sup> He contrasted this rapid onset of symptoms – and, often, death – with the plague:

[The plague] commonly geueth .iij. or .iiii. often .vij. sumtyme ix... sumtyme .xj. and sumtyme .xiiij. dayes respecte to whome it vexeth. But that [the Sweat] immediatly killed some in opening theire windowes, some in plaieng with children in their strete dores, some in one hour, many in two it destroyed, & at the longest, to them that merilye dined, it gaue a sorowful Supper. As it founde them so it toke them, some in sleape some in wake, some in mirthe some in care, some fasting & some ful, some busy and some idle, and in one house sometyme three sometime fiue, sometyme seuen sometyme eyght, sometyme more some tyme all, of the whyche, if the haulfe in euerye Towne escaped, it was thoughte great fauour.<sup>427</sup>

---

<sup>422</sup> Thwaites, Taviner, and Gant, "The English sweating sickness, 1485 to 1551," 580.

<sup>423</sup> J.F.C. Hecker, *The epidemics of the middle ages*, trans. B.G. Babington (London: George Woodfall and Son, 1844): 302.

<sup>424</sup> Lentz, "The King of England's Sickness," 45.

<sup>425</sup> Caius, *A boke, or counseill*, fol. 11r, 12r.

<sup>426</sup> Caius, *A boke, or counseill*, fol. 12v.

<sup>427</sup> Caius, *A boke, or counseill*, fols. 8v-9r.

Caius also noted that the plague and the Sweat had different causes and signs. The plague only required “euill humores and corrupte aier alone,” whereas the Sweat would only arise if the spirits were also corrupt.<sup>428</sup> He was certain the sweating sickness ‘consisteth in the spirites’ because the initial pains flushed through the body like a wind, a characteristic of the pneuma.”<sup>429</sup> Once infected, the pneuma spread the disease to the rest of the body:

This disease is not a Sweat onely, (as it is thought & called) but a feuer, as I saied, in the spirites by putrefaction venemous, with a fight, trauaile, and laboure of nature againste the infection receyued in the spirites, whervpon by chaunce foloweth a Sweate, or issueth an humour compelled by nature... For the flusshing or wynde comming in the vtter and extreame partes, is nothing els but the spirites of those same gathered together, at the first entring of the euell aire, agaynste the infection therof, & flyeng the same from place to place, for their owne sauegarde. But at the last infected, they make a grief where thei be forced, whiche commonly is in tharme or legge (the fartheste partes of their refuge) the backe or shulder: trieng ther first a bruit as good souldiers, before they wil let their enemye come further into their dominion. The other grefes be therefore in thother partes aforseid & sorer, because the spirites be there most plentuous as in their founteines, whether alwaies thinfection desireth to go. <sup>430</sup>

Furthermore, observed Caius, “although it [the Sweat] spareth no age of bothe kyndes... yet for the most parte... it vexed them of the middle age, beste luste, and them not moch vnder that.”<sup>431</sup> This, he attributed to a poor diet and lifestyle that rendered Englishmen “so vnwisely fine, and womanly delicate,” that they were susceptible to the causes of the Sweat: “infection, & impure spirits in bodies corrupt by repletion.”<sup>432</sup> Caius believed that those with hot and moist complexions were most susceptible to the disease, which struck in hot and moist (i.e. unnatural) summers and autumns. These people were susceptible because their dispositions

---

<sup>428</sup> Caius, *A boke, or counseill*, fol. 20v.

<sup>429</sup> Lentz, “The King of England’s Sickness,” 45.

<sup>430</sup> Caius, *A boke, or counseill*, fol. 11r, 12r.

<sup>431</sup> Caius, *A boke, or counseill*, fol. 18r.

<sup>432</sup> Caius, *A boke, or counseill*, fol. 22v, fol. 13v.

matched the pathologic weather: “For nothing can naturally haue power to do ought against any thing, excepte the same haue in it selfe a disposicion by like qualities to receiue it.”<sup>433</sup> Those with opposite complexions were largely safe.<sup>434</sup>

It vexed them... of complexions hote & moiste, as fitteste by their naughty & moche subtiltie of blode to fede the spirites: or nigh and lyke to the same in some one of the qualities, as cholerike in hete, phlegmatike in moister, excepte thother their qualities, as drinesse in cholerike, & cold in phlegmatike, by great dominion ouer thother, did lette. For the clene contrarie complecions to the infected aier, alwaies remaine helthful, saulfe and better then tofore, the corrupte and infected aier notwithstanding. Therefore cold and drie persones either it touched not at all, or very fewe, and that wyth no dangers such I say as beside their complexion.<sup>435</sup>

The elderly, who were relatively cold and dry, were spared.<sup>436</sup>

Infections could stem from “euel disposition by coustellation, whiche hath a great power & dominion in al erthly thinges,” but are more often caused “by the time of the yere vnnatural, & by the nature & site of the soile & region.” Hot and moist summers are “a fit time for sweates.”<sup>437</sup> Caius identified five terrestrial sources of infections: “euel mistes & exhalations drawn out of the grounde by the sunne in the heate of the yeare;” “dampes out of the earth;” “putrefication or rot in groundes aftre great flouddes, in carions, & in dead men;” “the pent aier, breaking out of the ground in yearthquakes;” and “stirred aire, & therefore putrifid or corrupt, out of old welles, holes in ye groud made for grain.”<sup>438</sup>

It is interesting that Caius only made one explicit astrological reference, though astrology was well-respected and popular during the sixteenth century.<sup>439</sup> Caius was, however, interested in the ancient Greek concept of critical days or judicial hours, which are sometimes

---

<sup>433</sup> Caius, *A boke, or counseill*, fol. 18v.

<sup>434</sup> Caius, *A boke, or counseill*, fol. 18r.

<sup>435</sup> Caius, *A boke, or counseill*, fol. 18r.

<sup>436</sup> Caius, *A boke, or counseill*, fol. 20r.

<sup>437</sup> Caius, *A boke, or counseill*, fol. 13v.

<sup>438</sup> Caius, *A boke, or counseill*, fol. 13v, fol. 14r, fol. 15r.

<sup>439</sup> Lindemann, *Medicine and Society in Early Modern Europe*, 29.



classified as astrological.<sup>440</sup> It was believed that the prognosis of a patient infected with an acute disease was controlled by critical days, days on which the patient's condition could drastically change.<sup>441</sup> Because the Sweat usually only affected patients for one day, Caius believed that the disease was associated with "houres iudicial" instead of critical days:

Always taking hede to them in the fourth, seuenth, nineth, & eleuenth houres speciallye, and fourteenth also, as the laste of triall and daungier, but of lesse in bothe. For these be most perilous, as I haue obserued this yere in this disease, hauing ye houres iudicial, as others haue their dayes, and therefore worse to geue anye thinge in, for troubling nature standyng in trialle.<sup>442</sup>

The Oxford English Dictionary defines "repletion" as "The action of eating or drinking to satiation or excess; the state or condition of being full of food or drink," but Caius' definition is much more colourful:<sup>443</sup>

Repletion I cal here, abundance of humores euel & maliciouse, from long time by litle & litle gathered by euel diete, remaining in the bodye, coming either by to moche meate, or by euel meate in qualitie, as infected frutes, meates of euel iuse or nutriment: or both ioyntly.<sup>444</sup>

Repletion gives a man a hot and moist nature, the same nature as the infectious air, a kinship that allows the latter to enter the body.<sup>445</sup> Thus, most Sweat victims fit one of two profiles:

They which had this sweat sore with perille or death, were either men of welthe, ease, & welfare, or of the poorer sorte such as wer idle persones, good ale drinkers, and Tauerne haunters. For these, by ye great welfare of the one sorte, and large drinkyng of thether, heped vp in their bodies moche euill matter: by their ease and idlenes, coulde not waste and consume it.<sup>446</sup>

---

<sup>440</sup> Lindemann, *Medicine and Society in Early Modern Europe*, 27. One must remember that there was not a sharp division between the natural and supernatural, and astrological influences were actually regarded as natural.

<sup>441</sup> *Hippocratic Writings*, trans. J. Chadwick, W.N. Mann, I.M. Lonie, and E.T. Withington, ed. G.E.R. Lloyd (New York: Penguin Books, 1983), 32.

<sup>442</sup> Caius, *A boke, or counseill*, fols. 11r-11v, 32v-33r.

<sup>443</sup> "Repletion, n." OED Online. September 2014. Oxford University Press.

<http://www.oed.com/view/Entry/162858?redirectedFrom=repletion&> (accessed September 18, 2014).

<sup>444</sup> Caius, *A boke, or counseill*, fol. 15v.

<sup>445</sup> Caius, *A boke, or counseill*, fol. 18v, fol. 20r.

<sup>446</sup> Caius, *A boke, or counseill*, fols. 20r-20v.

This supports Caius' assertion that most who died of the Sweat were middle-aged and upper-class.<sup>447</sup> Modern scholars have confirmed that, in early modern England, the health of the rich suffered from excessive meat consumption, and that of the poor suffered from under-nourishment.<sup>448</sup>

Fortunately, by maintaining a healthy diet and lifestyle, one could prevent the Sweat, for the infection required repletion before it could enter the body. "In humoral medicine prevention (or *prophylaxis*) assumed as much importance as treatment (or *therapeutics*)."<sup>449</sup> Physician and patient were to work together to create a personalized plan regarding the proper balances of diet, exercise, bodily evacuations, and environmental conditions.<sup>450</sup>

For Caius, as it was for the early Greek physicians, prophylaxis, or prevention of an illness, was just as crucial as, and perhaps even more important than, therapeutics or treatment. Because the successful treatment of the sweating sickness was never assured, Caius believed prevention was the key to survival.<sup>451</sup>

If one did not successfully prevent the disease, however, Caius offered many Galenic treatment options, including an exhaustive list of dietary options for those hoping to avoid the disease.<sup>452</sup> There is a common misconception that early modern medicine viewed fruit-eating as dangerous and unhealthy.<sup>453</sup> However, the research of Paul S. Lloyd has revealed the prevalence of fruit-eating in Tudor England and discussed many medical treatises that recommend fruit-eating to some degree, even medicinally.<sup>454</sup>

---

<sup>447</sup> Caius, *A boke, or counseill*, fol. 18r.

<sup>448</sup> Keith Thomas, *Religion & the Decline of Magic* (New York: Macmillan Publishing Company, 1971), 6-7.

<sup>449</sup> Lindemann, *Medicine and Society in Early Modern Europe*, 14.

<sup>450</sup> Siraisi, *Medieval & Early Renaissance Medicine*, 120; Lindemann, *Medicine and Society in Early Modern Europe*, 242.

<sup>451</sup> Lentz, "The King of England's Sickness," 55.

<sup>452</sup> Caius, *A boke, or counseill*, fols. 20r-26r.

<sup>453</sup> Paul S. Lloyd, "Dietary Advice and Fruit-Eating in Late Tudor and Early Stuart England," *Journal of the History of Medicine* 67, no. 4 (2012): 562.

<sup>454</sup> Lloyd, "Dietary Advice and Fruit-Eating."

The apparent conflict is resolved when one reads the early modern medical texts' discussions of fruit. As is revealed in the above section on repletion, Tudor physicians recommended moderation generally; they seemingly harbored no extreme agenda against fruit. Any excess in food or drink was condemned. Beyond the moralizing aspect, this was practical advice motivated by the theory of the non-naturals.<sup>455</sup> Fruits (cold and moist) were complexionate; if not consumed in moderation, they could cause a humoral imbalance and thus disease.<sup>456</sup>

Yet, fruits' ability to alter the humors could be harnessed in the treatment of disease, i.e. pre-existing humoral imbalances. Depending on the setting, a given fruit could be regarded as a food (and thus potentially dangerous) or as a medicine (and thus potentially life-saving).<sup>457</sup> Avicenna (Abu 'Ali al-Husayn ibn Sina), the influential Persian medieval physician and philosophical commentator on Aristotle, taught that "the formal distinction between them was that food was assimilated by the body, whereas medicine assimilated the body to itself."<sup>458</sup>

In *Counseill*, Caius spent several pages listing fruits that could be medically consumed to cure the Sweat. The fruits could be eaten raw or cooked, with or without sugar or spices, or even used to create medicinal drinks.<sup>459</sup> The Sweat, which involved fever and headache, seemingly reflected an excess of sanguis.<sup>460</sup> The titular sweating was caused by phlegm, the cold and moist humor.<sup>461</sup> Presumably, Caius recommended various fruits as treatments for the Sweating Sickness because he believed that extensive sweating was necessary for victims to

---

<sup>455</sup> N. Yaguchi, "'Non naturals' in Islamic medicine," *Nihon Ishigaku Zasshi* 56, no. 1 (2010): 53-66.

<sup>456</sup> Lloyd, "Dietary Advice and Fruit-Eating," 560; Siraisi, *Medieval & Early Renaissance Medicine*, 121; Lentz, "The King of England's Sickness," 52.

<sup>457</sup> Siraisi, *Medieval & Early Renaissance Medicine*, 121.

<sup>458</sup> Siraisi, *Medieval & Early Renaissance Medicine*, 121.

<sup>459</sup> Caius, *A boke, or counseill*, fols. 20r-26r.

<sup>460</sup> Wollumbin, "Galenic Medicine in the 21<sup>st</sup> Century," 90.

<sup>461</sup> Wollumbin, "Galenic Medicine in the 21<sup>st</sup> Century," 91.

recover, as it purged the poisons from the body.<sup>462</sup> Among the fruits recommended by Caius were apples, pears, quinces, and figs.<sup>463</sup> Lloyd's research revealed at least seven early modern scholars who regarded figs as medicinal, though all (and Caius) agreed that those particular fruits had to be eaten before the rest of the meal.<sup>464</sup> The complexionate power of fruits could also be buffered by eating them with other foods, boiling them, or adding sugar or spices, rendering the food fairly benign.<sup>465</sup>

Caius also recommended exercise, various activities for men and the more stately bowling for women.<sup>466</sup> Sexual intercourse, though acknowledged as "natural exercise," was forbidden during the Sweat "for feare of opening the bodye and resoluing the spirites."<sup>467</sup> However, despite recommendations of moderate diet and exercise, his primary concern was that patients sweat out the infection. If they did not sweat enough, they would inevitably die.<sup>468</sup> The body must "longe continuethe burnynge and sweatynge, as their is matter apte therefore in the spirites, and then leaueth, when the corrupcion taken of the finest of the euill blode is consumed."<sup>469</sup> Once this occurs, the spirits were "lefte pure and cleane as they were before the tyme of their corruption," and the patient was cured.<sup>470</sup>

Inducing diaphoresis was the most important step, as this purged the poison from the body. The patient was to lie in bed, fully dressed, and remain still. However, sleeping was prohibited, as it allowed venom to run toward the heart. The patient's companions had to keep

---

<sup>462</sup> Caius, *A boke, or counseill*, fols. 33r, 35r-35v, 36v.

<sup>463</sup> Caius, *A boke, or counseill*, fols. 22r-22v.

<sup>464</sup> Lloyd, "Dietary Advice and Fruit-Eating," 579-580.

<sup>465</sup> Lloyd, "Dietary Advice and Fruit-Eating," 583.

<sup>466</sup> Caius, *A boke, or counseill*, fols. 28r-28v.

<sup>467</sup> Caius, *A boke, or counseill*, fol. 30v.

<sup>468</sup> Caius, *A boke, or counseill*, fols. 35v-35r.

<sup>469</sup> Caius, *A boke, or counseill*, fol. 37r.

<sup>470</sup> Caius, *A boke, or counseill*, fol. 37r.

him awake by pulling at his ears, nose, or hair.<sup>471</sup> Negative thoughts were to be avoided, “for suche surrender and geue ouer to the disease without resistence.” For the critical 24-hour period, “kepers, friendes and louers” had to ensure that the patient remained clothed, covered, awake, and still.<sup>472</sup> The fourth, seventh, ninth, eleventh, and fourteenth hours were especially dangerous.<sup>473</sup> In the fifth hour, the patient could be administered ale with doulcet and sugar from a cruet with a nebbe, so he need not move too much.<sup>474</sup>

If the patient were not sweating sufficiently, nature required assistance.<sup>475</sup> A friend or family member had to gently rub the patient and administer warm drinks. Caius provided a few suggestions of herbal infusions, which he believed induced fevers and thus sweating.<sup>476</sup> If the patient fainted, one was to open a window; put vinegar and rose water to his nose; place him on his right side, bent forward; call his name, “and beate them with a rosemary braunche, or some other swete like thyng.”<sup>477</sup> A sweet-smelling fire in the chamber could also help, though it should be reduced once the patient finished sweating. If the patient disobeyed these instructions, he risked death or, in the best case, having to sweat at least one more time.<sup>478</sup> If he successfully sweated out the infection, however, he could wear warm clothes, rest in bed, and eat. Two days later, he could venture outside.<sup>479</sup>

The sweating could be aided by a purifying fire, especially one with fragrant components: “Make a litle fire in the chamber of clene woode, as ashe & oke, with the perfume

---

<sup>471</sup> Caius, *A boke, or counseill*, fol. 36v.

<sup>472</sup> Caius, *A boke, or counseill*, fol. 32r.

<sup>473</sup> Caius, *A boke, or counseill*, fol. 32v.

<sup>474</sup> Caius, *A boke, or counseill*, fol. 33r.

<sup>475</sup> Caius, *A boke, or counseill*, fol. 33r.

<sup>476</sup> Caius, *A boke, or counseill*, fol. 35r.

<sup>477</sup> Caius, *A boke, or counseill*, fol. 36r.

<sup>478</sup> Caius, *A boke, or counseill*, fol. 37r.

<sup>479</sup> Caius, *A boke, or counseill*, fols. 38r-38v.

of bdellium: or swiet woode, as Iuniper, fyrrer, or pine, by theimselfes: remembrynge to withdrawe the fire, when they sweat fully.”<sup>480</sup> One could emulate Hippocrates and put “to the fires wel smelling garlandes, floures, & odoures.”<sup>481</sup>

Odors, pleasant or otherwise, were of great concern to early modern patients and physicians. “There is no thinge more comfortable to the spirites then good and swiet odoures.”<sup>482</sup> Caius gave long descriptions of various fragrance combinations that included everything from “afewe cloues stepped in rose water and vinegre rosate” to “sorel.”<sup>483</sup> He also recommended keeping a perfumed handkerchief on one’s person at all times.<sup>484</sup> In the early modern era, fragrant remedies, burnt or not, were used to purify the infectious air.<sup>485</sup> Maintaining a sweet-smelling environment was essential, as foul odors, stemming from corruption, caused disease.<sup>486</sup> “The very airs and waters of foul places were deemed to be dangerous and fatal.”<sup>487</sup>

Despite his extensive advice regarding prevention and treatment, Caius emphasized that live consultation with a physician was always preferable. He could not account for the particular circumstances in which each patient might find himself, though an in-person physician could.<sup>488</sup> Caius implored the reader to “at the leaste be so good to your bodies, as you are to your hosen or shoes.”<sup>489</sup> One would undoubtedly “searche out who is knowen to be the best hosier or

---

<sup>480</sup> Caius, *A boke, or counseill*, fol. 35v.

<sup>481</sup> Caius, *A boke, or counseill*, fol. 24v.

<sup>482</sup> Caius, *A boke, or counseill*, fol. 38v.

<sup>483</sup> Caius, *A boke, or counseill*, fols. 24r-24v.

<sup>484</sup> Caius, *A boke, or counseill*, fol. 24r.

<sup>485</sup> Mary J. Dobson, *Contours of death and disease in early modern England* (New York: Cambridge University Press, 1997): 29-30.

<sup>486</sup> Mary J. Dobson, *Contours of death*, 10.

<sup>487</sup> Dobson, *Contours of death*, 11.

<sup>488</sup> Caius, *A boke, or counseill*, fol. 27v.

<sup>489</sup> Caius, *A boke, or counseill*, fol. 27v.

shoemaker.”<sup>490</sup> If one let only professionals repair his shoes, he should certainly let only professionals – physicians – treat his body.<sup>491</sup>

Unfortunately, counseled Caius, there were many unskillful and conniving quacks. Consulting a physician was the only safe way to guarantee health.<sup>492</sup> In Caius’ time, there was indeed a diverse body of medical practitioners. Here, a medical practitioner is defined “as any individual whose occupation is basically concerned with the care of the sick.”<sup>493</sup> This includes both “professional” practitioners – the learned physicians, surgeons, apothecaries, and arguably midwives – and alternate practitioners.<sup>494</sup>

These unlicensed practitioners included both men and “wise women.”<sup>495</sup> As a group, they account for a large amount of the medical care provided in Tudor England and were often the only medical practitioners that the poor could afford.<sup>496</sup> These providers ranged from well-educated elites like Sir Thomas Elyot to lower-class, fairly uneducated tradesmen.<sup>497</sup> They were also spread across spectrums of talent and integrity, as were, surely, their “professional” colleagues.<sup>498</sup> In *Counseill* and in his time as president of the College of Physicians, however, Caius maintained that physicians were superior to alternate providers.

In his conclusion, Caius summarized what he had covered in the treatise, as is typical. However, in his last sentence, he noted what he had omitted: “If other causes ther be supernatural, them I leue to the diuines to serche, and the diseases thereof to cure, as a matter

---

<sup>490</sup> Caius, *A boke, or counseill*, fol. 27v.

<sup>491</sup> Caius, *A boke, or counseill*, fol. 27v.

<sup>492</sup> Caius, *A boke, or counseill*, fols. 28r-28v.

<sup>493</sup> Pelling and Webster, “Medical Practitioners,” 166.

<sup>494</sup> Pelling and Webster, “Medical Practitioners,” 166 and 179.

<sup>495</sup> Pelling and Webster, “Medical Practitioners,” 182.

<sup>496</sup> Pelling and Webster, “Medical Practitioners,” 182.

<sup>497</sup> Pelling and Webster, “Medical Practitioners,” 185.

<sup>498</sup> Pelling and Webster, “Medical Practitioners,” 188 and 182.

with out the compasse of my facultie.”<sup>499</sup> This focus on strictly natural causes seems strange, given both the prevalence of theological explanations of plague and Caius’ personal faith.

Paul Slack argues that the authors of all sixteenth century plague treatises regarded divine wrath (stimulated by human sin) as the ultimate cause of all illnesses.<sup>500</sup> Paul H. Kocher concurs that most physicians held this belief through the end of the Elizabethan period, though some medical treatises place more emphasis on theology than others.<sup>501</sup> He does note that there are a few treatises that do not discuss theology or mention it so briefly “as to be negligible,” but they are few in number.<sup>502</sup> Tracts on epidemics were usually even more religious than books on other diseases: “Devout feelings of the Elizabethan people clustered more passionately around these great universal diseases which seemed like overwhelmingly fearful revelations of the wrath of God.”<sup>503</sup>

Given the fear and devastation caused by Sweating Sickness epidemics, the lack of religion in Caius’ treatise seems strange and is worth consideration. Jones has suggested that Caius intentionally avoided discussing religion because he was a secret Catholic who wished to keep his views as secret as possible, given that he published *Counseill* during Edward VI’s reign.<sup>504</sup> Many commentators, both historical and modern, speculated that Caius remained a lifelong Catholic. The Church of England broke with Rome in 1534, when Caius was twenty-four-years-old, so it would not be surprising if he retained his original faith.<sup>505</sup>

---

<sup>499</sup> Caius, *A boke, or counseill*, fol. 39r.

<sup>500</sup> Slack, “Mirrors of health,” 269.

<sup>501</sup> Kocher, “The Idea of God,” 10.

<sup>502</sup> Kocher, “The Idea of God,” 11.

<sup>503</sup> Kocher, “The Idea of God,” 12.

<sup>504</sup> Jones, “Explaining Concepts,” 78.

<sup>505</sup> Nutton, “John Caius (1510-1573).”



Vivian Nutton believes that Caius was a Henrician Anglican, but regardless of whether he were Catholic or a Henrician Protestant, he was clearly a religious conservative.<sup>506</sup> There is a common but unverified legend that Elizabeth I dismissed Caius from her service due to his Catholicism. It is known, however, that many were suspicious of the conservatism of Gonville and Caius under Caius' Mastership. In the nominally Protestant college chapel, for instance, prayers for the dead were said.

In 1572, the Fellows of Caius College accused him of Catholicism. A search of his rooms revealed "popishe trumpery" – hoarded vestments and Mass books, the medieval Catholic treasures of the college – which were promptly confiscated and burned in the college court.<sup>507</sup> This was a devastating blow to Caius, who was already suffering from a worsening abdominal ailment. Soon after the sacking of his rooms, he retired from the university and faded away, dying the next year.<sup>508</sup> Given the possible consequences, it is reasonable that Caius, though a deeply religious man, would prudently refrain from discussing religion in *Counseill*.

Caius' treatise is the best primary source record of the Sweat. Le Forestier's work is only partially devoted to the Sweat, whereas Caius wrote an entire monograph on the disease. Furthermore, Le Forestier wrote in the aftermath of the first epidemic. Caius potentially benefitted from the knowledge and observations accumulated in previous outbreaks. Also, the fact that he described the 1551 epidemic is of particular value to modern historians because that was the only epidemic after the keeping of parish records became compulsory. This allows Caius' epidemiological observations to be compared with the parish records.

---

<sup>506</sup> Nutton, "John Caius and the Linacre tradition," 373; Venn, *John Caius*, 23; Nutton, *John Caius and the Manuscripts of Galen*, 14.

<sup>507</sup> Venn, *John Caius*, 8; Nutton, *John Caius and the Manuscripts of Galen*, 18; Thompson, *Universities in Tudor England*, 17; Nutton, "Caius, John (1510-1573)"; Quoted in Nutton, *John Caius and the Manuscripts of Galen*, 1; Thompson, *Universities in Tudor England*, 17.

<sup>508</sup> Nutton, "John Caius (1510-1573)."

Unfortunately, the records are not always extant or reliable. In 1538, Thomas Cromwell, then “lorde privie seal, Vicegerent,” made parish records of “the day and yere of every weddyng christening and burying” compulsory.<sup>509</sup> Regrettably, few of these parish registries survive from before Elizabeth I’s reign (1558-1603), and there is no guarantee that the surviving records are reliable. Many of the Elizabethan records are copies of previous documents, so transcription errors are possible.

More generally, the clerks managing the records could make mistakes, and the crisis of an epidemic could cause clerical errors and even gaps in record-keeping.<sup>510</sup> Furthermore, parish records were only meant to note burials; the causes of deaths were often omitted, and there is no guarantee that clerks’ “diagnoses” were correct.<sup>511</sup> Historians must attempt to correlate parish records with other written references to epidemics to determine whether a rise in mortality stemmed from a particular disease.<sup>512</sup> Before 1538 and for times and locations in which surviving records are available, one must estimate mortality based on testamentary records, which is much less reliable enterprise.<sup>513</sup>

Historical reconstruction of mortality from Tudor epidemics is thus always difficult, but it particularly problematic for the Sweating Sickness. Only one Sweat epidemic occurred after Cromwell made parish records compulsory, entries that specifically refer to that disease “are very rare.”<sup>514</sup> J. Charles Cox speculated that references to the Sweat were probably omitted

---

<sup>509</sup> Thomas Cromwell, quoted in Cox, *The Parish Registers of England*, 2.

<sup>510</sup> Paul Slack, “Mortality crises and epidemic disease in England 1485-1610,” in *Health, medicine and mortality in the sixteenth century*, ed. Charles Webster (New York: Cambridge University Press, 1979), 11.

<sup>511</sup> Slack, “Mortality crises,” 23.

<sup>512</sup> Slack, “Mortality crises,” 24.

<sup>513</sup> Slack, “Mortality crises,” 12.

<sup>514</sup> Cox, *The Parish Registers of England*, 142.

when original records were transcribed during Elizabeth's reign.<sup>515</sup> There are also instances in which a Sweat epidemic (as determined via context clues) is mistakenly recorded as plague, and the term "Plague, or Pestis, used to be given to almost any epidemic disease which resulted in considerable mortality but by the time that registration began in England the term had begun to be chiefly applied to" the bubonic plague, exclusively.<sup>516</sup>

Alan Dyer studied the parish records for the 1551 Sweat epidemic. He ascertained that, unlike the plague, the Sweat predominated in the rural setting.<sup>517</sup> Nationally, victims tended to be young rather than old.<sup>518</sup> When Dyer tested the contemporary assumption, shared by Caius, that more males than females were affected, the results were very interesting.

In London, there was a dramatic disparity, with 115 male victims and 33 female. In the nearby St. Margaret, Westminster, there were 29 males to 8 females. Outside of London, 29 provinces had significantly more male than female victims, with the reverse in 21 provinces. However, out of these 50 locations, the disparity was only modest in 31. In the 22 provinces with large imbalances, 17 had more male victims and 5 more female. Thus, it seems that the contemporary assumption that more males than females died of the Sweat was sometimes correct, most dramatically in London.<sup>519</sup> Hilary Howard Lentz hypothesizes that fewer women than men fell ill because they lived more isolated lives and were thus less likely to encounter a source of infection.<sup>520</sup> Regardless of the explanation, it seems that the Tudor assumption that more men than women fell ill stemmed from the gender disparity in London. There is no evidence that the disease predominated in the upper classes.

---

<sup>515</sup> Cox, *The Parish Registers of England*, 142.

<sup>516</sup> Cox, *The Parish Registers of England*, 144.

<sup>517</sup> Dyer, "The English Sweating Sickness of 1551," 378.

<sup>518</sup> Dyer, "The English Sweating Sickness of 1551," 377.

<sup>519</sup> Dyer, "The English Sweating Sickness of 1551," 375-376.

<sup>520</sup> Lentz, "The King of England's Sickness," 59.

Though Caius was perhaps wrong in assuming that the Sweat disproportionately struck upper class victims, his overall epidemiological account is surprisingly accurate:

The pattern produced by the [parish] register data confirms Caius' general account, and strengthens our respect for his analytical and observational powers, for the construction of a reliable picture of events scattered all over provincial England at this date must have been extraordinarily difficult.<sup>521</sup>

Caius was also correct in noting that the Sweat was limited to the summer months, and his estimate of the mortality in London coincides well with the burial records.<sup>522</sup>

Though Caius' clinical descriptions cannot be compared with modern ones, given the uncertainty regarding the cause of the Sweat, they are notably lucid.<sup>523</sup> They are also valuable because they are derived from his personal observations while treating Sweat patients. The fact that Caius treated Sweating Sickness patients is itself impressive. In the early modern period, there was extensive debate regarding the morality of fleeing a place infected by disease versus staying to exercise one's duties and/or to practice Christian charity.<sup>524</sup> There was a general consensus that clergymen and magistrates had a duty to stay, but it was rarely asserted that physicians had an ethical obligation to stay, and a compelling case could be made that they were obligated to flee to save their lives.<sup>525</sup> Clergymen and magistrates had commitments to their parishes or cities, and their obligations were not rescinded during epidemics.<sup>526</sup>

Conversely, few writers argued that physicians had a moral obligation to treat the sick. There was no concept of medical ethics that would be recognizable to a modern scholar. It was

---

<sup>521</sup> Dyer, "The English Sweating Sickness of 1551," 370.

<sup>522</sup> Thwaites, Taviner, and Gant, "The English sweating sickness," 581; Dyer, "The English Sweating Sickness of 1551," 379.

<sup>523</sup> Nutton, *John Caius and the Manuscripts of Galen*, 1.

<sup>524</sup> Patrick Wallis, "Plagues, Morality and the Place of Medicine in Early Modern England," *English Historical Review* 121, no. 490 (2006): 1 and 4. The Introduction to Boccaccio's fourteenth-century *Decameron* is perhaps the most famous of many examples of medieval and early modern literature discussing the morality of flight. Giovanni Boccaccio, *The Decameron*, trans. Carmelo Gariano (Potomac: Scripta Humanistica, 1986), 16-18.

<sup>525</sup> Wallis, "Plagues," 4 and 6-7.

<sup>526</sup> Wallis, "Plagues," 8.

sometimes argued that physicians were obligated to treat existing patients, but most patient-patrons were wealthy and would flee, thus freeing their physicians from the obligation to stay in a diseased city.<sup>527</sup>

Given Dyer's demonstration of the accuracy of Caius' epidemiological observations, and the fact that only Caius' descriptions and recommendations stemmed from his professional experience treating the disease, Charles Creighton's doubt that Caius "really knew the facts about the disease in the country" is clearly unfounded.<sup>528</sup> It is also unclear why Creighton would consider himself a better authority on the facts of the Sweat than a physician who actually treated the disease and observed the epidemic. His *History of Epidemics in Britain* contains several more criticisms. Caius' "gloomy rhetoric" is blamed for inspiring Justus Hecker to produce an apparently fallacious description of the Sweat's progression.<sup>529</sup> His statement that he treated Sweat patients in Shrewsbury is deemed false.

Caius' epidemiology is dismissed as "generalities... which amount to no more than a funeral essay, in the scholastic manner, upon the theme of sudden death."<sup>530</sup> Creighton also assumes that Caius' grief, as expressed in his Latin treatise, extended only to upper-class victims and mourners.<sup>531</sup> Whether Caius grieved over the death of any victims cannot be verified, but Creighton's other criticisms are definitely unjustified and are overly personal.

Regardless of Creighton's opinion, Caius' *Counseill* is definitively an important document. Caius' decision to not flee Shrewsbury when the Sweat struck, despite flight being the contemporary norm, was not only a brave action; it also allowed him to obtain essential

---

<sup>527</sup> Wallis, "Plagues," 10-11.

<sup>528</sup> Creighton, *A History of Epidemics in Britain*.

<sup>529</sup> Creighton, *A History of Epidemics in Britain*.

<sup>530</sup> Creighton, *A History of Epidemics in Britain*.

<sup>531</sup> Creighton, *A History of Epidemics in Britain*.

empirical evidence of the disease's signs, symptoms, and progression and of the effectiveness of treatments (and, indeed, what treatments others were utilizing). Caius thus preserved valuable information about an important historical disease.

*Counseill* reveals Caius' "learned empiricism," to use Pomata and Siraisi's term.<sup>532</sup> As revealed by the combination of classical citations and empirical evidence contained in the treatise, Caius possessed "a capacity for switching nimbly back and forth between book and direct observation."<sup>533</sup> Caius' accurate epidemiology and naturalistic account of a fearsome disease are similarly progressive.

Caius seems an unlikely author of such a text, but when Caius is viewed as a dynamic person and not merely as a static reactionary, his authorship does not seem as odd. His staunch Galenism has earned him harsh criticisms, yet it seems that, when faced with novel phenomena, such as the Sweat, Caius employed a Galenic methodology by synthesizing theoretical, textual knowledge with observational evidence. Given Caius' Galenism, his empirical approach to the Sweat is actually entirely in character.

---

<sup>532</sup> Pomata and Siraisi, Introduction, 25.

<sup>533</sup> Pomata and Siraisi, Introduction, 25.

### 3.0 CONCLUSION

As expressed by Vivian Nutton, “Caius’s zoological interests add a certain humanity to the severe portrait of a short man with a long beard and a squeaky voice, somewhat pompous and addicted to ceremonial, at times autocratic and overbearing.”<sup>534</sup> His naturalistic work “shows Caius at his most attractive, and even humorous.”<sup>535</sup> It is difficult to reconcile the image of Caius, the dignified (and dictatorial, critics might say) President of the College of Physicians and Master of Gonville and Caius College, with that of Caius, the naturalist, who housed exotic pets and spent hours in the royal menagerie, waiting for a lynx to lie down for a nap. It is similarly difficult to reconcile Caius’ reputations. In his interactions with the Fellows of Caius College, he is regarded as “high-handed” or worse, his actions as President of the College of Physicians have been harshly criticized, and his emphasis on philology and his dedicated Galenism have been ridiculed.<sup>536</sup>

Yet, though John Caius is sometimes condemned as a reactionary, even as the man to be blamed for slowing the progress of English medicine due to his unrelenting support of Galen, he was much more nuanced. As revealed in the sections on naturalism and anatomy, Caius’

---

<sup>534</sup> Nutton, “Caius, John (1510-1573).”

<sup>535</sup> Nutton, “Caius, John (1510-1573).”

<sup>536</sup> Raven, *English Naturalists from Neckam to Ray*, 147; Pelling and Webster, “Medical practitioners,” 168-173 and 183-189; Furdell, *The Royal Doctors 1485-1714*, 46; O’Malley, *English Medical Humanists*, 26 and 44; Singer, *A Short History of Anatomy from the Greeks to Harvey*, 171.

methodology was similar to that of his “progressive” contemporaries and was far from anachronistic or irrational. Those chapters demonstrated that the “reactionary” Caius was closer to the “progressives” like Conrad Gesner and Andreas Vesalius than progressivist accounts imply. The analysis of Caius’ work on the Sweating Sickness revealed him engaged in several “progressive” activities, e.g. utilizing observational evidence to write a vernacular treatise on a new disease, which seemingly clash with his otherwise “reactionary” behaviors.

Altogether, the three analysis chapters on Caius’ work in naturalism and anatomy and on the Sweating Sickness revealed the weakness of the progressive-reactionary dichotomy, which has been utilized to denigrate Caius in progressivist accounts of the history of science. Properly contextualizing Caius and his contemporaries reveals that they are all men of their time, not a mix of anachronisms and moderns subsisting in a period in which none of them belong. Progressivist villains like Caius and heroes like Gesner and Vesalius all built their works on a shared humanist foundation and employed related methodologies. They should not be divided into discrete “reactionary” and “progressive” categories, but rather analyzed in other ways. For instance, it would be much more appropriate to place Caius, Gesner, and Vesalius on a spectrum dictating their adherence to textual versus observational evidence.

Attempting to divide the men of the sixteenth century into two discrete groups is not sensible. Dividing Caius’ accomplishments and behaviors into dichotomous groups is even less appropriate. Stating that, for instance, he was a progressive in his work on the Sweat but a reactionary in his philological endeavours is an artificial activity that hinders our understanding of Caius and his context and motivations. He was not x percent progressive and y percent reactionary. He was neither progressive nor reactionary. “Fuit Caius.”<sup>537</sup>

---

<sup>537</sup> This ending is inspired by the epithet that Caius chose for his tomb: “Fui Caius.”



## BIBLIOGRAPHY

### Primary Sources

- Boccaccio, Giovanni. *The Decameron*, translated by Carmelo Gariano. Potomac: Scripta Humanistica, 1986.
- Bullein, William. *Bulleins bulwarke of defense*. London, 1562. [http://gateway.proquest.com/pitt.idm.oclc.org/openurl?ctx\\_ver=Z39.88-2003&res\\_id=xri:eebo&rft\\_id=xri:eebo:image:7528](http://gateway.proquest.com/pitt.idm.oclc.org/openurl?ctx_ver=Z39.88-2003&res_id=xri:eebo&rft_id=xri:eebo:image:7528).
- Bullein, William. *A dialogue bothe pleasaunte and pietifull wherein is a goodly regimete against the feuer pestilence with a consolacion and comfort against death*. London, 1564. [http://gateway.proquest.com/pitt.idm.oclc.org/openurl?ctx\\_ver=Z39.88-2003&res\\_id=xri:eebo&rft\\_id=xri:eebo:image:25195](http://gateway.proquest.com/pitt.idm.oclc.org/openurl?ctx_ver=Z39.88-2003&res_id=xri:eebo&rft_id=xri:eebo:image:25195).
- Caius, John. *The Annals of Gonville and Caius College*, edited by John Venn. Cambridge: George Bell and Sons, 1904.
- Caius, John. *A boke or counseill against the disease commonly called the sweate or sweatyng sicknesse*. London, 1552. [http://gateway.proquest.com/openurl?ctx\\_ver=Z39.88-2003&res\\_id=xri:eebo&rft\\_id=xri:eebo:citation:99840599](http://gateway.proquest.com/openurl?ctx_ver=Z39.88-2003&res_id=xri:eebo&rft_id=xri:eebo:citation:99840599).
- Caius, John. *De Canibus Britannicis*. In *The Works of John Caius, M.D.*, edited by John Venn. Cambridge: Cambridge University Press, 1912.
- Caius, John. *De libris propriis*. In *The Works of John Caius, M.D.*, edited by John Venn. Cambridge: Cambridge University Press, 1912.
- Caius, John. *De Pronunciatione Graecae et Latinae Linguae Cum Scriptione Nova Libellus*, edited and translated by John Butler Gabel. Menston: Scolar Press Limited, 1968.
- Calendar of the Patent Rolls: Henry VII Volume I*. London, 1914.
- Cox, *The Parish Registers of England*.
- Erasmus, Desiderius. *De ratione studii ac legendi interpretandique auctores*. Paris, 1511.

- Fabyan, Robert. *The chronicle of Fabian whiche he nameth the concordance of histories, newly perused. And continued from the beginnyng of Kyng Henry the seuenth, to thende of Queene Mary*. London, 1559. [http://gateway.proquest.com.pitt.idm.oclc.org/openurl?ctx\\_ver=Z39.88-2003&res\\_id=xri:eebo&rft\\_id=xri:eebo:image:23407](http://gateway.proquest.com.pitt.idm.oclc.org/openurl?ctx_ver=Z39.88-2003&res_id=xri:eebo&rft_id=xri:eebo:image:23407).
- Galen. "On Medical Experience." Translated by R. Walzer. In *Three Treatises on the Nature of Science*, edited by M. Frede, 49-106. Indianapolis: Hackett Publishing Company, 1985.
- Galen. "On the Sects for Beginners." Translated by R. Walzer. In *Three Treatises on the Nature of Science*, edited by M. Frede, 1-20. Indianapolis: Hackett Publishing Company, 1985.
- Galen. "An Outline of Empiricism." Translated by R. Walzer. In *Three Treatises on the Nature of Science*, edited by M. Frede, 21-46. Indianapolis: Hackett Publishing Company, 1985.
- Hippocrates. "Airs, Waters, Places." In *Hippocratic Writings*. Translated by J. Chadwick and W.N. Mann. Edited by G.E.R. Lloyd, 148-169. New York: Penguin Books, 1983.
- Hippocrates. "Aphorisms." In *Hippocratic Writings*. Translated by J. Chadwick and W.N. Mann. Edited by G.E.R. Lloyd, 206-236. New York: Penguin Books, 1983.
- Hippocrates. "Epidemics, Book I." In *Hippocratic Writings*. Translated by J. Chadwick and W.N. Mann. Edited by G.E.R. Lloyd, 87-112. New York: Penguin Books, 1983.
- Hippocrates. "Epidemics, Book III." In *Hippocratic Writings*. Translated by J. Chadwick and W.N. Mann. Edited by G.E.R. Lloyd, 113-138. New York: Penguin Books, 1983.
- Hippocrates. "The Nature of the Child." In *Hippocratic Writings*. Translated by I.M. Lonie. Edited by G.E.R. Lloyd, 324-346. New York: Penguin Books, 1983.
- Hippocrates. "The Nature of Man." In *Hippocratic Writings*. Translated by J. Chadwick and W.N. Mann. Edited by G.E.R. Lloyd, 260-271. New York: Penguin Books, 1983.
- Hippocrates. "The Oath." Translated by J. Chadwick and W.N. Mann. In *Hippocratic Writings*, edited by G.E.R. Lloyd, 324-346. New York: Penguin Books, 1983.
- Hippocrates. "On Ancient Medicine." In *Hippocratic Writings*. Translated by J. Chadwick and W.N. Mann. Edited by G.E.R. Lloyd, 70-86. New York: Penguin Books, 1983.
- Hippocrates. "Prognosis." In *Hippocratic Writings*. Translated by J. Chadwick and W.N. Mann. Edited by G.E.R. Lloyd, 170-185. New York: Penguin Books, 1983.
- Hippocrates. "Regimen in Acute Diseases." In *Hippocratic Writings*. Translated by J. Chadwick and W.N. Mann. Edited by G.E.R. Lloyd, 186-205. New York: Penguin Books, 1983.

- Hippocrates. "A Regimen for Health." In *Hippocratic Writings*. Translated by J. Chadwick and W.N. Mann. Edited by G.E.R. Lloyd, 272-276. New York: Penguin Books, 1983.
- Hippocrates. "The Sacred Disease." In *Hippocratic Writings*. Translated by J. Chadwick and W.N. Mann. Edited by G.E.R. Lloyd, 237-251. New York: Penguin Books, 1983.
- Hippocrates. "The Science of Medicine." In *Hippocratic Writings*. Translated by J. Chadwick and W.N. Mann. Edited by G.E.R. Lloyd, 139-147. New York: Penguin Books, 1983.
- Holinshed, Raphael. *The firste volume of the chronicles of England, Scotlande, and Irelande*. London, 1577. [http://gateway.proquest.com.pitt.idm.oclc.org/openurl?ctx\\_ver=Z39.88-2003&res\\_id=xri:eebo&rft\\_id=xri:eebo:image:29044:1211](http://gateway.proquest.com.pitt.idm.oclc.org/openurl?ctx_ver=Z39.88-2003&res_id=xri:eebo&rft_id=xri:eebo:image:29044:1211).
- Le Forestier, Thomas. *Tractatus contra pestilentiam thenasmonem et dissinteriam* (Rouen, 1490).
- Le Forestier, Thomas. *Traité de la Peste*. Edited by Gustave Panel (Rouen, 1909).
- Le Forestier, Thomas. *The venyms feuer of pestilens* (1485).
- Register of Grants for the Reigns of Edward V and Richard III*. Edited by Rosemary Horrox and P.W. Hammond. Gloucester: Alan Sutton, 1979.
- The love letters of Henry VIII to Anne Boleyn: with notes*. Edited by J.O. Halliwell Phillips. Boston: J.W. Luce, 1906.

#### Secondary Sources

- Ackroyd, Peter. *The Life of Thomas More*. New York: Nan A. Talese, 1998.
- Allen, Don Cameron. *The Star-Crossed Renaissance: The Quarrel about Astrology and Its Influence in England*. New York: Octagon Books, Inc., 1966.
- Appleby, Andrew B. "Diet in sixteenth-century England: sources, problems, possibilities." In *Health, medicine and mortality in the sixteenth century*, edited by Charles Webster, 97-116. New York: Cambridge University Press, 1979.
- Armitage, Christopher Mead. "Dr Caius: Cambridge Scholar, Shakespearian Buffon." *Notes and Queries* 56, no. 1 (2009): 72-75.
- Ash, Edward C. *Dogs: Their History and Development*, volume two. London: Ernest Benn Limited, 1927.

- Ashplant, T.G. and Adrian Wilson. "Present-Centered History and the Problem of Historical Knowledge." *The Historical Journal* 31, no. 2 (1988): 253-274.
- Bates, Don. "Scholarly ways of knowing: an introduction." In *Knowledge and the scholarly medical tradition*, edited by Don Bates, 1-23. Cambridge: Cambridge University Press, 1995.
- Bates, Donald G. "Sydenham and the Medical Meaning of 'Method.'" *Bulletin of the History of Medicine* 51 (1977): 324-338.
- Bernard, G.W. *Anne Boleyn: Fatal Attractions*. New Haven: Yale University Press, 2010.
- Binski, Paul. "Humfrey Lovell and the Gates of Gonville and Caius College: A Note on the Sources." *JBA* 166 (2013): 179-188.
- Black, John. "Medical Classics: A Boke or Counseill against the Disease Commonly Called the Sweate or the Sweating Sickness By John Caius." *British Medical Journal* 335 (2007): 1159.
- Boutcher, Warren. "Vernacular humanism in the sixteenth century." In *The Cambridge Companion to Renaissance Humanism*, edited by Jill Kraye, 189-202. Cambridge: Cambridge University Press, 1996.
- Boylan, Michael. "Galen (130-200 C.E.)." *Internet Encyclopedia of Philosophy*. May 2015. <http://www.iep.utm.edu/galen>.
- Brockliss, Laurence and Colin Jones. *The Medical World of Early Modern France*. Oxford: Clarendon Press, 1997.
- Brooke, Christopher. *A History of Gonville and Caius College*. Bury St Edmunds: St Edmundsbury Press Ltd., 1985.
- Brooke, C.N.L. "Legge, Thomas (c. 1535-1607)." *Oxford Dictionary of National Biography*, Oxford University Press, 2004. <http://www.oxforddnb.com.pitt.idm.oclc.org/view/article/16357>.
- Burnham, John C. *How the Idea of Profession Changed the Writing of Medical History*. London: Wellcome Institute for the History of Medicine, 1998.
- Burn, Ian and Chris Buckland-Wright. "The Teaching of Anatomy." In *The Company of Barbers and Surgeons*, edited by Ian Burn, 87-109. London: Farrand Press, 2000.
- Butterfield, H. *The Whig Interpretation of History*. London: G. Bell and Sons, 1931.
- Bylebyl, Jerome J. "The School of Padua: humanistic medicine in the sixteenth century." In *Health, medicine and mortality in the sixteenth century*, edited by Charles Webster, 333-

370. New York: Cambridge University Press, 1979.
- Bylebyl, Jerome J. "Teaching *Methodus Medendi* in the Renaissance." In *Galen's Method of Healing: Proceedings of the 1982 Galen Symposium*, edited by Fridolf Kudlien and Richard J. Durling, 157-189. Leiden: E.J. Brill, 1991.
- Carlino, Andrea. *Books of the Body: Anatomical Ritual and Renaissance Learning*. Translated by John Tedeschi and Anne C. Tedeschi. Chicago: University of Chicago Press, 1999.
- Carmichael, Ann G. "Diseases of the Renaissance and Early Modern Europe." In *The Cambridge World History of Human Disease*, edited by Kenneth F. Kiple, 279-286. Cambridge: Cambridge University Press, 1993.
- Chang, Hasok. "We Have Never Been Whiggish (About Phlogiston)." *Centaurus* 51 (2009): 239-264.
- Chapman, Allan. "Astrological medicine." In *Health, medicine and mortality in the sixteenth century*, edited by Charles Webster, 275-300. New York: Cambridge University Press, 1979.
- Christiansen, John. "The English Sweat in Lübeck and North Germany, 1529." *Medical History* 53 (2009): 415-424.
- Clark, Sir George. *A History of the Royal College of Physicians*, volume one. Oxford: Clarendon Press, 1964.
- "Conrad Gesner: *Historia animalium* libri I-IV. Cum iconibus. Lib. I. De quadrupedibus uiuiparis. Zurich: C. Froschauer, 1551. N\*.1.19(A)." *Cambridge University Library*. July 2015. <http://www.lib.cam.ac.uk/deptserv/rarebooks/gesner.html>.
- Conrad, Lawrence I. "The Arab-Islamic medical tradition." In *The Western Medical Tradition: 800 BC to AD 1800*, edited by Lawrence I. Conrad, Michael Neve, Vivian Nutton, Roy Porter, and Andrew Wear. 93-138. New York: Cambridge University Press 1995.
- Cook, Harold J. "Good Advice and Little Medicine: The Professional Authority of Early Modern English Physicians." *Journal of British Studies* 33, no. 1 (1994): 1-31.
- Copeman, W.S.C. *Doctors and Disease in Tudor Times*. London: Dawson's of Pall Mall, 1960.
- Copeman, W.S.C. "John Caius (1510-73)." In *Cambridge and its Contribution to Medicine*, edited by Arthur Rook, 27-34. London: Wellcome Institute of the History of Medicine, 1971.

- Creighton, Charles. *A History of Epidemics in Britain from A.D. 664 to the Extinction of Plague*. Cambridge: Cambridge University Press, 1891. Kindle edition.
- Cunningham, Andrew. *The Anatomist Anatomis'd: An Experimental Discipline in Enlightenment Europe*. Farnham: Ashgate Publishing Limited, 2010.
- Cunningham, Andrew. *The Anatomical Renaissance: The Resurrection of the Anatomical Projects of the Ancients*. Aldershot: Scolar Press, 1997.
- Debus, Allen G. *Man and Nature in the Renaissance*. New York: Cambridge University Press, 1978.
- Dobson, Mary J. *Contours of death and disease in early modern England*. New York: Cambridge University Press, 1997.
- Dobson, Jessie and R. Milnes Walker. *Barbers and Barber-Surgeons of London: A History of the Barbers' and Barber-Surgeons' Companies*. Oxford: Alden Press, 1979.
- Durling, Richard J. "Linacre and Medical Humanism." In *Essays on the Life and Work of Thomas Linacre, c. 1460-1524*, edited by Richard J. Durling, Charles Webster, and Walter Pagel, 76-106. Oxford: The Clarendon Press, 1977.
- Durling, Richard J, Charles Webster, and Walter Pagel. Introduction to *Essays on the Life and Work of Thomas Linacre, c. 1460-1524*, edited by Richard J. Durling, Charles Webster, and Walter Pagel, xiii-xlvi. Oxford: The Clarendon Press, 1977.
- Dyer, Alan. "The English Sweating Sickness of 1551: an Epidemic Anatomized." *Medical History* 41, no. 3 (1997): 362-384.
- Dyer, Alan D. "The Influence of Bubonic Plague in England 1500-1667." *Medical History* 22 (1978): 308-326.
- Edwards, William F. "Randall on the Development of Scientific Method in the School of Padua – a Continuing Reappraisal." In *Naturalism and Historical Understanding: Essays on the Philosophy of John Herman Randall, Jr.* Albany: State University of New York Press, 1967.
- Elliott, Brent. "The world of the Renaissance herbal." *Renaissance Studies* 25, no. 1 (2011): 24-41.
- Ellis, Harold. "History of Anatomy in the University of Cambridge, U.K." *Clinical Anatomy* 6 (1993): 188-191.
- Elton, G.R. "Herbert Butterfield and the study of history," *The Historical Journal* 27 (1984): 729-743.
- Fisch, Max H. "Vesalius and His Book." *Bulletin of the Medical Library Association* 31, no.

3 (1943): 208-221.

Flood, John L. “‘Safer on the battlefield than in the city’: England, the ‘sweating sickness,’ and the continent,” *Renaissance Studies* 17, no. 2 (2003): 147-176.

Frede, M. Introduction to *Three Treatises on the Nature of Science*, edited by M. Frede. Indianapolis: Hackett Publishing Company, 1985.

French, Roger. *Dissection and Vivisection in the European Renaissance*. Aldershot: Ashgate Publishing Limited, 1999.

Friedlander, Walter J. *The Golden Wand of Medicine: A History of the Caduceus Symbol in Medicine*. Westport: Greenwood Press, 1992.

Furdell, Elizabeth Lane. *Publishing and Medicine in Early Modern England*. Rochester: University of Rochester Press, 2002.

Furdell, Elizabeth Lane. *The Royal Doctors 1485-1714: Medical Personnel at the Tudor and Stuart Courts*. Rochester: University of Rochester Press, 2001.

Gabel, John Butler. Introduction to *De Pronunciatione Graecae et Latinae Linguae Cum Scriptione Nova Libellus*, edited and translated by John Butler Gabel. Menston: Scolar Press Limited, 1968.

Garcia-Ballester, Luis. “*Artifex factivus sanitatis*: health and medical care in medieval Latin Galenism. In *Knowledge and the scholarly medical tradition*, edited by Don Bates, 127-150. Cambridge: Cambridge University Press, 1995.

Garrison, Fielding H. *Contributions to the History of Medicine*. New York: Hafner Publishing Company, Inc., 1966.

“Gate of Honour.” *University of Cambridge*. June 2015. <http://www.strideguides.com/cu/Place.aspx?ix=78&pid=4&prcid=27&ppid=910>.

“The Gate of Humility, the Gate of Virtue and the Gate of Honour.” *Gonville & Caius College*. June 2015. <http://babylon.acad.cai.cam.ac.uk/admissions/caius/gates.php>.

Gilbert, Neal Ward. *Renaissance concepts of method*. New York: Columbia University Press, 1960.

Gonzalez, Darin P. “Emerging Diseases.” In *Encyclopedia of Health Services Research*, edited by Ross M. Muller, 351-355. Thousand Oaks: SAGE Publications, Inc., 2009.

Gordon, Benjamin Lee. *Medieval and Renaissance Medicine*. New York: Philosophical Library, 1959.

- Gottfried, Robert S. *Epidemic Disease in Fifteenth Century England: The Medical Response and the Demographic Consequences*. New Brunswick: Rutgers University Press, 1978.
- Grafton, Anthony. "The new science and the traditions of humanism." In *The Cambridge Companion to Renaissance Humanism*, edited by Jill Kraye, 203-223. Cambridge: Cambridge University Press, 1996.
- Grendler, Paul F. *The Universities of the Italian Renaissance*. Baltimore: The Johns Hopkins University Press, 2002.
- Guy, John. *The Tudors: A Very Short Introduction*. New York: Oxford University Press, 2013.
- Guy, John. *Tudor England*. Oxford: Oxford University Press, 1991.
- Hall, A. Rupert. *The revolution in science 1500-1750*. New York: Longman Group Limited, 1983.
- Hall, A.R. *The Scientific Revolution 1500-1800: The Formation of the Modern Scientific Attitude*. Boston: The Beacon Press, 1966.
- Hall, A. Rupert. "On whiggism," *History of Science* 21 (1983): 45-59.
- Hankinson, R.J. "Epistemology." In *The Cambridge Companion to Galen*, edited to R.J. Hankinson, 157-183. New York: Cambridge University Press, 2008.
- Hankinson, R. James. "Galen." In *The Cambridge Dictionary of Philosophy*. 2<sup>nd</sup> ed. New York: Cambridge University Press, 1999.
- Hankinson, Robert James. "The growth of medical empiricism." In *Knowledge and the scholarly medical tradition*, edited by Don Bates, 60-83. Cambridge: Cambridge University Press, 1995.
- Hankinson, R. James. "Hippocrates." In *The Cambridge Dictionary of Philosophy*. 2<sup>nd</sup> ed. New York: Cambridge University Press, 1999.
- Hankinson, R. James. Introduction to *The Cambridge Companion to Galen*, edited by R.J. Hankinson, xv-xviii. New York: Cambridge University Press, 2008.
- Hankinson, R. James. "The man and his work." In *The Cambridge Companion to Galen*, edited by R.J. Hankinson, 1-33. New York: Cambridge University Press, 2008.
- Hecker, J.F.C. *The epidemics of the middle ages*. Translated by B. G. Babington. London: George Woodfall and Son, 1844.
- Heyman, Paul, Leopold Simons, and Christel Cochez. "Were the English Sweating Sickness and



- the Picardy Sweat Caused by Hantaviruses?" *Viruses* 6, no. 1 (2014).
- Hildebrandt, S. "Capital Punishment and Anatomy: History and Ethics of an Ongoing Association." *Clinical Anatomy* 21 (2008): 5-14.
- "*Historiae animalium* (Histories of the Animals)." *The Metropolitan Museum of Art*. July 2015. <http://metmuseum.org/exhibitions/view?exhibitionId={9302f8ac-f691-48ff-a8e0-030b3299e284}&oid=479692>.
- Hoeniger, F.D. and J.F.M. Hoeniger. *The development of natural history in Tudor England*. Charlottesville: University Press of Virginia, 1973.
- Jardine, Nick. "Whigs and Stories: Herbert Butterfield and the Historiography of Science." *History of Science* 41, no. 1 (2003): 125-140.
- "John Caius." *Gonville & Caius College*. June 2015. <http://babylon.acad.cai.cam.ac.uk/college/past/ingram/historyjcaius.php>.
- Jones, Lori. "Exploring Concepts of Contagion and the Authority of Medical Treatises in 14<sup>th</sup>-16<sup>th</sup> Century England." MA diss., University of Ottawa, 2012.
- Jones, Whitney R.D. "Turner, William (1509/10-1568)." *Oxford Dictionary of National Biography*. Oxford University Press, 2008. <http://www.oxforddnb.com.pitt.idm.oclc.org/view/article/27874>.
- Joutsivuo, Timo. *Scholastic Tradition and Humanist Innovation: The Concept of Neutrum in Renaissance Medicine*. Helsinki: Annales Academiae Scientiarum Fennicae, 1999.
- Kassell, Lauren. "Almanacs and Prognostications." In *The Oxford History of Popular Print Culture, Volume One: Cheap Print in Britain and Ireland to 1660*, edited by Joad Raymond, 431-442. Oxford: Oxford University Press, 2011.
- Kocher, Paul H. "The Idea of God in Elizabethan Medicine." *Journal of the History of Ideas* 11, no. 1 (1950): 3-29.
- Kocher, Paul H. *Science and Religion in Elizabethan England*. New York: Octagon Books, 1969.
- Lachenmeier, Dirk W. "Wormwood (*Artemista absinthium* L.) – A curious plant with both neurotoxic and neuroprotective properties?" *Journal of Ethnopharmacology* 131 (2010): 224-227.
- Langdon-Brown, Walter. "John Caius and the Revival of Learning." *Proceedings of the Royal Society of Medicine* 35, no. 61 (1941): 63.
- Lentz, Hilary Howard. "The King of England's Sickness: A Description of the English Sweat

and an Evaluation of the Gendered Nature and Treatment of This Early Modern Illness.” Master’s diss., College of Charleston and the Citadel, 2010.

Lewis, R.G. “The Linacre Lectureships Subsequent to their Foundation.” In *Essays on the Life and Work of Thomas Linacre, c. 1460-1524*, edited by Richard J. Durling, Charles Webster, and Walter Pagel, 223-264. Oxford: The Clarendon Press, 1977.

Lind, L.R. Introduction. *The Epitome of Andreas Vesalius*, translated and edited by L.R. Lind, xv-xxvi. New York: The MacMillan Company, 1949.

Lindemann, Mary. *Medicine and Society in Early Modern Europe*. New York: Cambridge University Press, 2010.

Lloyd, G.E.R. “Epistemological arguments in early Greek medicine in comparativist perspective.” In *Knowledge and the scholarly medical tradition*, edited by Don Bates, 25-40. Cambridge: Cambridge University Press, 1995.

Lloyd, G.E.R. “Galen and his contemporaries.” In *The Cambridge Companion to Galen*, edited by R.J. Hankinson, 34-48. New York: Cambridge University Press, 2008.

Lloyd, G.E.R. Introduction to *Hippocratic Writings*. Translated by J. Chadwick, W.N. Mann, I.M. Lonie, and E.T. Withington. Edited by G.E.R. Lloyd. New York: Penguin Books, 1983.

Lloyd, Paul S. “Dietary Advice and Fruit-Eating in Late Tudor and Early Stuart England.” *Journal of the History of Medicine and Allied Sciences* 67, no. 4 (2011): 553-586.

Lonie, Iain M. “Fever Pathology in the Sixteenth Century: Tradition and Innovation.” *Medical History*, supplement no. 1, edited by W.F. Bynum and V. Nutton (1981): 19-44.

Lund, Mary Ann. *Melancholy, Medicine and Religion in Early Modern England*. Cambridge: Cambridge University Press, 2010.

Major, John M. *Sir Thomas Elyot and Renaissance Humanism*. Lincoln: University of Nebraska Press, 1964.

Mann, Nicholas. “The origins of humanism.” In *The Cambridge Companion to Renaissance Humanism*, edited by Jill Kraye, 1-19. Cambridge: Cambridge University Press, 1996.

Mayr, Ernst. “When is Historiography Whiggish?” *Journal of the History of Ideas* 51, no. 2 (1990): 301-309.

McAlister, Vivian C. “William Harvey, Fabricius ab Acquapendente and the divide between medicine and surgery,” *Canadian Journal of Surgery* 50, no. 1 (2007): 7-8.

McSweegan, Edward. “Anthrax and the etiology of the English sweating sickness.” *Medical*

- Hypotheses* 62 (2004): 155-157.
- Mullett, Charles F. *The Bubonic Plague and England: An Essay in the History of Preventative Medicine*. Lexington: University of Kentucky Press, 1956.
- Nutton, Vivian. *Ancient Medicine*. London: Routledge, 2013.
- Nutton, Vivian. "Caius, John (1510–1573)." *Oxford Dictionary of National Biography*, Oxford University Press, 2004. <http://www.oxforddnb.com.pitt.idm.oclc.org/view/article/4351>.
- Nutton, Vivian. "Conrad Gesner and the English Naturalists." *Medical History* 29 (1985): 93-97.
- Nutton, Vivian. "The fortunes of Galen." In *The Cambridge Companion to Galen*, edited by R.J. Hankinson, 355-390. New York: Cambridge University Press, 2008.
- Nutton, Vivian. "Galen (129-216 CE)." *Encyclopedia of Philosophy*. Web. 6 June 2015. [http://go.galegroup.com.pitt.idm.oclc.org/ps/i.do?id=GALE%7CCX3446800709&v=2.1&u=upitt\\_main&it=r&p=GURL&sw=w&asid=810a75a2df054634fe4b9cc429365f25](http://go.galegroup.com.pitt.idm.oclc.org/ps/i.do?id=GALE%7CCX3446800709&v=2.1&u=upitt_main&it=r&p=GURL&sw=w&asid=810a75a2df054634fe4b9cc429365f25).
- Nutton, Vivian. "Greek science in the sixteenth-century Renaissance." In *Renaissance and Revolution: Humanists, scholars, craftsmen and natural philosophers in early modern Europe*, edited by J. V. Field and Frank A.J.L. James, 15-28. Cambridge: Cambridge University Press, 1993.
- Nutton, Vivian. "Healers in the medical market place: towards a social history of Graeco-Roman medicine." In *Medicine in Society: Historical essays*, edited by Andrew Wear. Cambridge: Cambridge University Press, 1992.
- Nutton, Vivian. "A history of Gonville and Caius College." *Medical History* 30, no. 3 (1986): 360.
- Nutton, Vivian. "Humanist Surgery." In *The medical renaissance of the sixteenth century*, edited by A. Wear, R.K. French, and I.M. Lonie, 75-99. New York: Cambridge University, 1985.
- Nutton, Vivian. "Introduction." *Northwestern University*. <http://vesalius.northwestern.edu/books/FA.aa.html>.
- Nutton, Vivian. "Introduction." *Renaissance Studies* 15, no. 2 (2001).
- Nutton, Vivian. "John Caius and the Eton Galen: medical philology in the Renaissance." *Medizinhistorisches Journal* 20 (1985): 227-252.
- Nutton, Vivian. "John Caius and the Linacre tradition." *Medical History* 23, no.4 (1979): 373-391.

- Nutton, Vivian. *John Caius and the Manuscripts of Galen*. Cambridge: The Cambridge Philological Society, 1987.
- Nutton, Vivian. "Logic, Learning, and Experimental Medicine." *Science* 295, no. 5556 (2002): 800-801.
- Nutton, Vivian. "Medicine in the Greek world, 800-50 BC." In *The Western Medical Tradition: 800 BC to AD 1800*, edited by Lawrence I. Conrad, Michael Neve, Vivian Nutton, Roy Porter, and Andrew Wear. 11-38. New York: Cambridge University Press 1995.
- Nutton, Vivian. "Medicine in Late Antiquity and the Early Middle Ages." In *The Western Medical Tradition: 800 BC to AD 1800*, edited by Lawrence I. Conrad, Michael Neve, Vivian Nutton, Roy Porter, and Andrew Wear. 71-88. New York: Cambridge University Press 1995.
- Nutton, Vivian. "Medicine in Medieval Western Europe, 1000-1500." In *The Western Medical Tradition: 800 BC to AD 1800*, edited by Lawrence I. Conrad, Michael Neve, Vivian Nutton, Roy Porter, and Andrew Wear. 11-38. New York: Cambridge University Press 1995.
- Nutton, Vivian. "'Prisci dissectionum professores': Greek Texts and Renaissance Anatomists." In *The Uses of Greek and Latin: Historical Essays*, edited by A.C. Dionisotti, Anthony Grafton, and Jill Kraye. London: The Warburg Institute, 1988.
- Nutton, Vivian. "Roman medicine, 250 BC to AD 200." In *The Western Medical Tradition: 800 BC to AD 1800*, edited by Lawrence I. Conrad, Michael Neve, Vivian Nutton, Roy Porter, and Andrew Wear. 39-70. New York: Cambridge University Press 1995.
- Nutton, Vivian. "The Seeds of Disease: An Explanation of Contagion and Infection from the Greeks to the Renaissance." *Medical History* 27 (1983): 1-34.
- Nutton, Vivian. "Style and Context in the *Method of Healing*." In *Galen's Method of Healing: Proceedings of the 1982 Galen Symposium*, edited by Fridolf Kudlein and Richard J. Durling, 1-25. Leiden: E.J. Brill, 1991.
- O'Malley, C.D. *Andreas Vesalius of Brussels, 1514-1564*. Berkeley and Los Angeles: University of California Press, 1964.
- O'Malley, C.D. *English Medical Humanists: Thomas Linacre and John Caius*. Lawrence: University of Kansas Press, 1965.
- O'Malley, Charles D. "Medical Education During the Renaissance." In *The History of Medical Education*, edited by Charles D. O'Malley. Berkeley and Los Angeles, 1970.

- O'Malley, Charles Donald. "The Relations of John Caius With Andreas Vesalius and Some Incidental Remarks on the Giunta Galen and on Thomas Geminus." *Journal of the History of Medicine and Allied Sciences* (1955): 147-172.
- O'Malley, C.D. and K.F. Russell. "Introduction." In *Introduction to Anatomy*. Edited by C.D. O'Malley and K.F. Russell. Oxford: Oxford University Press, 1961.
- Pagel, Walter. "Medical Humanism – A Historical Necessity in the Era of the Renaissance." In *Essays on the Life and Work of Thomas Linacre, c. 1460-1524*, edited by Richard J. Durling, Charles Webster, and Walter Pagel, 375-386. Oxford: The Clarendon Press, 1977.
- Panel, Gustave. "Introduction." In *Traité de la Peste*. Edited by Gustave Panel. Rouen, 1909.
- Park, Katharine. "Medicine and society in medieval Europe, 500-1500." In *Medicine in Society: Historical essays*, edited by Andrew Wear, 59-90. Cambridge: Cambridge University Press, 1992.
- Pelling, Margaret. *The Common Lot: Sickness Medical Occupations and the Urban Poor in Early Modern England*. New York: Addison Wesley Longman Limited, 1998.
- Pelling, Margaret and Charles Webster. "Medical practitioners." In *Health, medicine and mortality in the sixteenth century*, edited by Charles Webster, 165-235. New York: Cambridge University Press, 1979.
- "Pen." *The Hutchinson unabridged encyclopedia with atlas and weather guide*. June 2015. <http://search.credoreference.com.pitt.idm.oclc.org/content/entry/heliconhe/pen/1>.
- Persaud, T.V.N. *A History of Anatomy: The Post-Vesalian Era*. Springfield: Charles C. Thomas Publisher, Ltd., 1997.
- Pettegree, Andrew. *The Book in the Renaissance*. New Haven: Yale University Press, 2010.
- Pettigrew, Thomas Joseph. *Medical portrait gallery: biographical memoirs of the most celebrated physicians, surgeons, etc. etc. who have contributed to the advancement of medical science*, volume I. London: Fisher, Son & Co., 1840.
- Pettigrew, T.J. "Notice of Dr. John Caius and the Sweating Sickness." *Journal of the British Archaeological Association* (1861): 236-246.
- Pinon, Laurent. "Conrad Gessner and the Historical Depth of Renaissance Natural History." In *Introduction to Historia: Empiricism and Erudition in Early Modern Europe*, edited by Gianna Pomata and Nancy G. Siraisi, 241-268. Cambridge: The MIT Press, 2005.

- Pomata, Gianna and Nancy G. Siraisi. Introduction to *Historia: Empiricism and Erudition in Early Modern Europe*, edited by Gianna Pomata and Nancy G. Siraisi, 1-38. Cambridge: The MIT Press, 2005.
- Pomata, Gianna. "Praxis Historialis: The Uses of *Historia* in Early Modern Medicine." In *Introduction to Historia: Empiricism and Erudition in Early Modern Europe*, edited by Gianna Pomata and Nancy G. Siraisi, 105-146. Cambridge: The MIT Press, 2005.
- Porter, Roy and Andrew Wear. Introduction to *Problems and Methods in the History of Medicine*. New York: Croom Helm Ltd., 1987.
- Porter, Roy. *The Greatest Benefit to Mankind: A Medical History of Humanity*. New York: W. W. Norton & Company, Inc, 1997.
- Porter, Roy. *Quacks: Fakers & Charlatans in English Medicine*. Stroud: Tempus Publishing Ltd., 2001.
- Pyle, Cynthia M. "Gessner, Conrad (Also Konrad Gesner, 1516-1565)." *Europe, 1450 to 1789: Encyclopedia of the Early Modern World*, volume 3, edited by Jonathan Dewald. New York: Charles Scribner's Sons, 2004. *Gale Virtual Reference Library*. Web. July 2015.
- Raven, Charles E. *English Naturalists from Neckam to Ray: A Study of the Making of the Modern World*. Cambridge: Cambridge University Press, 1947.
- Rawcliffe, Carole. *Medicine & Society in Later Medieval England*. Phoenix Mill: Alan Sutton Publishing Ltd., 1995.
- "Repletion, n." OED Online. September 2014. Oxford University Press. <http://www.oed.com/view/Entry/162858?redirectedFrom=repletion&>.
- Richardson, Ruth. *Death, Dissection and the Destitute*. Chicago: Chicago University Press, 2000.
- Ridgway, Claire. *Sweating Sickness in a nutshell*. MadeGlobal Publishing, 2014. Kindle edition.
- Roberts, Llywelyn. "Sweating Sickness and Picardy Sweat." *British Medical Journal* (1945): 196.
- Roberts, R.S. "A Consideration of the Nature of the English Sweating Sickness." *Medical History* 9 (1965): 385-389.
- Rocca, Julius. "Anatomy." In *The Cambridge Companion to Galen*, edited by R.J. Hankinson, 242-262. New York: Cambridge University Press, 2008.

- Roccatagliata, Giuseppe. *A History of Ancient Psychiatry*. Westpoint: Greenwood Press, Inc., 1986.
- Rolleston, Sir Humphrey Davy. *The Cambridge Medical School: A Biographical History*. Cambridge: Cambridge University Press, 1932.
- Ryan-Lopez, Bianca. "Corruption and Infected Sin: The Elizabethan Rhetoric of Decay." PhD diss., University of California Los Angeles, 2009.
- Sarton, George. *The Appreciation of Ancient and Medieval Science During the Renaissance (1450-1600)*. Philadelphia: University of Pennsylvania Press, 1955.
- Schmidt, Kari Anne Rand. *The Index of Middle English Prose: Handlist XVII: Manuscripts in the Library of Gonville and Caius College, Cambridge*. Cambridge: D.S. Brewer, 2001.
- Schmitt, Charles B. "Thomas Linacre and Italy." In *Essays on the Life and Work of Thomas Linacre, c. 1460-1524*, edited by Richard J. Durling, Charles Webster, and Walter Pagel, 36-75. Oxford: The Clarendon Press, 1977.
- Schurink, Fred. *Introduction to Early Modern Literature in History: Tudor Translation*, edited by Fred Schurink. Basingstoke: Palgrave Macmillan, 2012.
- Scott-Giles, C.W. "The Arms of Cambridge University and Its Colleges." *Coat of Arms* 11 & 12 (1952).
- Skidmore, Chris. *Edward VI: The Lost King of England*. London: Orion Books Ltd., 2007.
- Singer, Charles. *A Short History of Anatomy from the Greeks to Harvey*. New York: Dover Publications Inc., 1957.
- Siraisi, Nancy G. *History, Medicine, and the Traditions of Renaissance Learning*. Ann Arbor: The University of Michigan Press, 2007.
- Siraisi, Nancy G. "Medicine, 1450-1620, and the History of Science." *Isis* 103, no. 3 (2012): 491-514.
- Siraisi, Nancy G. *Medicine & the Italian Universities, 1250-1600*. Leiden: Koninklijke Brill NV, 2001.
- Siraisi, Nancy G. *Medieval & Early Renaissance Medicine: An Introduction to Knowledge and Practice*. Chicago: University of Chicago Press, 1990.
- Slack, Paul. *The Impact of Plague in Tudor and Stuart England*. Boston: Routledge & Kegan Paul plc., 1985.
- Slack, Paul. *Introduction to Epidemics and Ideas: Essays on the Historical Perception of*

- Pestilence*, edited by Terence Ranger and Paul Slack. New York: Cambridge University Press, 1999.
- Slack, Paul. "Mirrors of health and treasures of poor men: the use of the vernacular medical literature of Tudor England." In *Health, medicine and mortality in the sixteenth century*, edited by Charles Webster, 237-273. New York: Cambridge University Press, 1979.
- Slack, Paul. "Mortality crises and epidemic disease in England." In *Health, medicine and mortality in the sixteenth century*, edited by Charles Webster, 1-59. New York: Cambridge University Press, 1979.
- Smith, Goldwin. "The Practice of Medicine in Tudor England." *The Scientific Monthly* 50, no. 1 (1940): 65-72.
- Smith, Wesley D. "Hippocrates." *Encyclopædia Britannica Online*. June 2015.  
<http://www.britannica.com/biography/Hippocrates>.
- Temkin, Owsei. *Galenism: Rise and Decline of a Medical Philosophy*. Ithaca: Cornell University Press, 1973.
- Thomas, Keith. *Religion & the Decline of Magic*. New York: Macmillan Publishing Company, 1971.
- Thompson, Craig Ringwalt. *Universities in Tudor England*. Washington: The Folger Shakespeare Library, 1959.
- Thwaites, Guy, Mark Taviner, and Vanya Gant. "The English sweating sickness, 1485 to 1551." *The New England Journal of Medicine* 336, no. 8 (1997): 580-582.
- Tidy, Henry. "Sweating Sickness and Picardy Sweat." *British Medical Journal* (1945): 63-64.
- Tieleman, Teun. "Methodology." In *The Cambridge Companion to Galen*, edited by R.J. Hankinson, 49-65. New York: Cambridge University Press, 2008.
- Venn, John. *John Caius: Master of Gonville and Caius College in the University of Cambridge 1559-1573: A Biographical Sketch written in commemoration of the Four-hundredth Anniversary of his birth celebrated on the sixth day of October, 1910*. Cambridge: University of Cambridge Press, 1910.
- Wallis, Faith. "The experience of the book: manuscripts, texts, and the role of epistemology in early medieval medicine." In *Knowledge and the scholarly medical tradition*, edited by Don Bates, 101-126. Cambridge: Cambridge University Press, 1995.
- Wallis, Patrick. "Plagues, Morality and the Place of Medicine in Early Modern England." *The English Historical Review* 121, no. 490 (2006): 1-24.



- Walsh, James J. "The Popes and the History of Anatomy." *The Messenger* (1903): 10-28.
- Wear, Andrew. "Epistemology and Learned Medicine in Early Modern England." In *Knowledge and the Scholarly Medical Traditions*, edited by D. Bates, 151-173. Cambridge: Cambridge University Press, 1995.
- Wear, Andrew. "Explorations in renaissance writings on the practice of medicine." In *The medical renaissance of the sixteenth century*, edited by A. Wear, R.K. French, and I.M. Lonie, 118-145. New York: Cambridge University Press, 1985.
- Wear, Andrew. "Galen in the renaissance." In *Galen: Problems and Prospects*, edited by Vivian Nutton, 229-262. London: Wellcome Trust Centre for the History of Medicine at UCL, 1981.
- Wear, Andrew. "Making sense of health and the environment in early modern England." In *Medicine in society: Historical essays*, edited by Andrew Wear, 119-147. Cambridge: Cambridge University Press, 1992.
- Wear, Andrew. "Medical Ethics in Early Modern England." In *Doctors and Ethics: The Earlier Historical Setting of Professional Ethics*, edited by A. Wear, J. Geyer-Kordesch, and R.K. French, 98-130. Amsterdam/Atlanta: Rodopi, 1993.
- Wear, Andrew. "Medicine in Early Modern Europe, 1500-1700." In *The Western Medical Tradition 800 BC to AD 1800*. Edited by Lawrence I. Conrad, Michael Neve, Vivian Nutton, Roy Porter, and Andrew Wear, 215-340. Cambridge: Cambridge University Press, 1995.
- Wear, Andrew. "Religious Beliefs and Medicine in Early Modern England." In *The Task of Healing: Medicine, Religion and Gender in England and the Netherlands, 1450-1800*, edited by H. Marland and M. Pelling, 145-169. Rotterdam: Erasmus Publishing, 1996.
- Webster, Charles. "Thomas Linacre and the Foundation of the College of Physicians." In *Essays on the Life and Work of Thomas Linacre, c. 1460-1524*, edited by Richard J. Durling, Charles Webster, and Walter Pagel, 198-222. Oxford: The Clarendon Press, 1977.
- Whitelock, Anna. *Mary Tudor: England's First Queen*. London: Bloomsbury Publishing Plc, 2009.
- Wilkins, John. "The Contribution of Galen, *De Subtiliante Diaeta* (On the Thinning Diet)." In *The Unknown Galen*, edited by Vivian Nutton, 47-55. London: The Institute of Classical Studies, 2002.
- Wilson, Adrian and T.G. Ashplant. "Whig History and Present-Centered History." *The Historical Journal* 31, no. 1 (1988): 1-16.
- Winstanley, D.A. *Lord Chatham and the Whig Opposition*. Cambridge: Cambridge

University Press, 1912.

Wollumbin, Jimi. "Galenic Medicine in the 21<sup>st</sup> Century." *JATMS* 19, no. 2 (2013): 89-93.

Wolterstorff, Nicholas P. "empiricism." In *The Cambridge Dictionary of Philosophy*. 2<sup>nd</sup> ed. New York: Cambridge University Press, 1999.

Woolfson, Jonathan. *Padua and the Tudors: English Students in Italy, 1485-1603*. Toronto: University of Toronto Press, 1998.

Wylie, J.A.H. and L.H. Collier, "The English sweating sickness (*sudor angelicus*): a reappraisal," *Journal of the History of Medicine* 36 (1981).

Yaguchi, N. "'Non naturals' in Islamic medicine." *Nihon Ishigaku Zasshi* 56, no. 1 (2010): 53-66.