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Reforming Medicine in Sixteenth Century Nuremberg

By

Hannah Saunders Murphy

A dissertation submitted in partial satisfaction of the requirements for the degree of

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Reforming Medicine in Sixteenth Century Nuremberg

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## Abstract

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by

Hannah Saunders Murphy

Doctor of Philosophy in History

University of California, Berkeley

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In 1571 the Nuremberg physician, Joachim Camerarius (1534-1598), submitted for the appraisal of his city's Senate, a substantial manuscript titled "*Short and Ordered Considerations for the Formation of a Well-Ordered Regime.*" As one of these 'considerations', he petitioned the Council to establish a *Collegium medicum*: an institutional body that would operate under the council's mandate to regulate and reform the practice of medicine in the Imperial City of Nuremberg. Although never published, this text became the manifesto of an ongoing movement for the reform and reorganization of medicine throughout the sixteenth century. This 'medical reformation' was a professional claim to social status and political authority on the part of academically educated municipal physicians. More elusively and more importantly, the medical reformation was also the consequence of a series of epistemological shifts within medical knowledge, as practiced and conceived by German municipal physicians in the sixteenth century. In a series of chapters on publications, personal libraries, and correspondence networks respectively, this dissertation examines the way in which the Nuremberg physicians re-created their practice of medicine, privileging their medical 'methodologies,' tactile processes, observation, consensus between physicians and new pharmaceutical distillations, over the simple reception of Galenic branches of knowledge.

The municipal physicians and their medical reformation offer a perspective on distinctly artisanal practices: experience, demonstration, an engagement with the vernacular, and professional consensus. However, they do so from a non-artisanal social background. As all were graduates of German, French and Italian universities, no one more embodies the world of scholastic learning than they. Their claim to professional primacy was based not just on an appreciation of the value of new mechanical and technical processes, such as pharmacy, diagnostics and treatment but, also, on an *appropriation* of their social role. When the *Collegium medicum* was established in 1592, it elevated university educated physicians above other practitioners in the medical marketplace. It restricted pharmaceutical innovation to physicians, rather than apothecaries, awarded to the physicians jurisdiction over the allocation of medical duties among the medical marketplace, and put in place a set of relationships between physician, patient and polity that endures to this day.

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## List of abbreviations

AHR: The American Historical Review  
 ARG: Archiv für Reformationsgeschichte, (Archive for Reformation History)  
 BJHS: British Journal for the History of Science  
 GNM: Germanisches Nationalmuseum, Nuremberg  
 MVGN: Mitteilungen des Vereins für Geschichte der Stadt Nürnberg  
 SCJ: Sixteenth Century Journal  
 StA N: Staatsarchiv Nürnberg  
 StadtA N: Stadtarchiv Nürnberg  
 StB N: Stadtbibliothek Nürnberg  
 UB Erlangen: Universitätsbibliothek Erlangen

## Glossary of terms

*Ambtsbücher*: Nuremberg kept list of all those who held formal positions in the city, recorded in *Ambtsbücher*. Most people who held this kind of office swore oaths to the city.

*Apotheke*: Apothecary. Apothecaries swore oaths and were recorded in Nuremberg's *Ambtsbücher*.

*Arzneibücher*: vernacular medical books of remedies, often with simple instructions.

*Bürgermeister*: Burgher master, also burgo-master. These were citizens of Nuremberg, eligible for membership to the city's Greater Council. They were not patrician, and were often mercantile and artisanal figures.

Chirurg: a learned surgeon, often with a minimum of one year's university study

*Collegium medicum*: College of medicine - an organized, corporate body with a hierarchical structure. The composition of *Collegia medica* could vary from city to city. In medieval Italy they were structured similarly to guilds and often included apothecaries and surgeons. German *Collegia medica* were exclusively the preserve of learned physicians, and were more similar to the later scientific academies than the earlier guilds.

*Composita*: complex remedies included multiple ingredients, which were distilled (the medical purpose of such remedies was granted by the artificial process of preparation, as opposed to simple remedies, in which the medical purpose was tied to the primary ingredients).

*Geschworne Frawe (Fraue)*: Patrician women appointed as official supervisors to midwives. They engaged in no gynecological activities, but often accompanied midwives and witnessed childbirth.

*Geschworne Handwerke*: Artisans and craft-workers in Nuremberg. They were recognized by the city Senate and they swore oaths, but, because Nuremberg had no guilds, they were neither formally organized nor represented.

*Hebammen*: Midwives. In most German cities, Nuremberg included, midwives were trained as apprentices and had to undergo testing before they were licensed. In Nuremberg, they swore oaths to the city and appeared in the *Ambtsbücher*.

*Leibarzt*: Literally a 'body-physician'. The term refers to the Galenic division between exterior medicine that was the preserve of surgeons and internal medicine, which

was the domain of learned physicians. A *Leibarzt* was a learned physician who practiced medicine and the term often, though not exclusively, referred to a position held as the physician of a specific patient. For example, before entering the employ of Nuremberg, Volcher Coiter was the *Leibarzt*, the official court physician, of Margrave Ludwig VI in Amberg.

*Senate*: The term Senate refers to both divisions of the Nuremberg *Rat*, that is the entire political body that comprised Nuremberg's government, encompassing both the Inner and the Greater Council. The former was the executive arm of the city's government and was comprised of patrician family members. The latter was a large assembly of the city's burgher citizens.

*Simplicia*: Simple remedies were herbal remedies. They could be lone herbs, or they could combine a number of medical ingredients. Importantly, in simple remedies the medical efficacy was tied to the individual, primary ingredient.

*Sondersiechenschau*: Nuremberg's annual 'inspection of lepers'. This was a charitable ritual established by a medieval bequest. Petitioners who had or were suspected of having leprosy could come to the city and receive a medical diagnosis. This was provided in conjunction with religious service, alms and food and drink.

*Wundarzney*: The vernacular term for a surgeon. As opposed to a *chirurgion*, a person referred to as a *Wundarzney* had no university training. He was qualified by apprenticeship and, sometimes, by exam. In Nuremberg, *Wundarzney* swore oaths to the city, but they were not included in its *Ambtsbücher*.

## Acknowledgements

The early modern physicians believed that good health relied on the balance between nutrition, environment, emotion and the spirit, and they would be the first to tell me how lucky I have been. Over the past six years, I've been given every kind of conceivable support. I owe far too much to adequately summarize, however I would like to at least acknowledge, if not properly convey, the depth of some of my debts.

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Tom and Kathy, I don't know where to begin, so I will just end: thank you both. Tom, I dedicate this dissertation to you, as a sign of things to come.

## Introduction

In 1571, the Nuremberg physician, Joachim Camerarius (1534-1598) submitted for the consideration of that city's Inner Council a substantial manuscript titled *Short and Ordered Considerations for the Formation of a Well-Ordered Regime*<sup>1</sup>. Some forty handwritten pages, the text combined a demand for prescriptive legislation - along the lines of the increasingly widespread *Polizeiordnungen* - with a critical appraisal of the current state of medical practice, and the structure and role of the medical marketplace in Nuremberg.<sup>2</sup> It set out regulations on the provision of medicines and the practice and conduct of the members of the city's medical marketplace, and it also provided a working definition of medicine, and a profile of its proper employer. Although the text was never published, this formal submission was the manifesto of a movement for the reform and reorganization of the medical community ongoing throughout the sixteenth century.

Camerarius petitioned the Council to establish a *Collegium medicum* – an institutional body that would operate under the mandate of the Inner Council to regulate and reform the practice of medicine in the Imperial City of Nuremberg. Among other things, the *Collegium medicum* would vet visiting physicians and solve internal medical quarrels. It would divvy up practice between the city's many kinds of practitioners - midwives, surgeons, bathers and the like - although of course it would admit to membership only those physicians who, with their doctoral degrees, were salaried and appointed by the city council. In addition to calling for an independent, self-governing medical institution, Camerarius' text introduced new features of medical practice, most significantly, the 'second opinion' which he recommended be sought by all patients. His thoughts included ruminations on the importance of the relationship between physician and patient, and the ways in which this relationship could be distorted by bad advice or bad practice. Under the general concern with protecting the patient, he demanded a number of laws banning an assortment of fraudulent practitioners: sorcerers, Jews, Paracelsians, peddlers, Turks and quacks. He set forth strict guidelines for the work of other practitioners - midwives, surgeons and a number of other 'experts' - creating lines of jurisdiction which could be crossed only by permission of the *Collegium*. In short, the text created a sphere of medical authority belonging to those with university educations, but spanning the breadth of the amorphous body of medical knowledge shared by the city's many and previously unregulated practitioners.

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<sup>1</sup> *Kurtzes und ordentliches bedencken welcher gestalt in einem wohlgeordneten Regiment, es mit den Artzten und Arzneien samt allen andern darzu notwendigen stuecken moecht geordnet und gehalten werden*. Unpublished tract. StadtA Nuremberg, B/19, 122.

<sup>2</sup> Imperial *Polizeiordnungen* were issued under the auspices of Charles V in 1530, and were renewed periodically throughout the century. The term *Polizeiordnung* denotes an Aristotelian political concept of 'good order', and comprised prescriptive political 'ordinances' on a range of subjects from costume to the sale of ginger. This kind of normative legislation should be distinguished from penal laws that defined criminal behaviour, rather than 'good' behaviour. See: Römischer Keyserlicher Maiestat Ordnung vnd Reformation guter Pollicej im Heyligen Römischen Reich, Johannes Schoeffer, Mainz, 1530. On the earliest *Polizeiordnungen* see: W. Brauneder and I. Helperstorfer (eds.), *Die österreichische Polizei des 16. Jahrhunderts*, 1993; Matthias Weber: *Die Reichspolizeiordnungen von 1530, 1548 und 1577*. Frankfurt/M. 2002; Franz Wieacker: *Privatrechtsgeschichte der Neuzeit*. Göttingen, 1996; Joseph Baader, *Nürnberger Polizeiordnungen: Aus dem XIII bis XV Jahrhundert*, (Stuttgart: Litterarischer Verein, 1861).

At first glance Camerarius' efforts appear to fit neatly into a narrative of growing patriarchal control over popular forms of practice.<sup>3</sup> His text took a forbidding stance on folk practitioners. It bound and delimited female spheres of authority in ways that seem definite and inflexible. It also circumscribed an academic identity in a non-academic context, generating a profile for medicine that was at once exclusively learned and practically delimited. But what the text actually did, both by design and what it generated by way of opposition, was far more complicated and interesting than a simple growth of power. Camerarius' petition manifested a series of changes which had taken place in the sphere of municipal medicine, changes that had far-reaching implications for the content and use of medicine. In the course of the century, Camerarius' predecessors and his colleagues had built a system of medical collaboration, elevating consensus above competition. Intent on widening their sphere of expertise, they had blurred the traditional lines between diagnosis, prognosis and treatment, incorporating treatment into the rigorous, methodical medical calculations which were the reserve of Galenic physicians. They had developed and deployed an interest in specific medical treatments, most importantly pharmaceutical applications, that put them on a collision course with the city's powerful apothecaries. And as a result of these changes, and the conditions of their working environment, they were increasingly concerned with the way in which the organization of the medical marketplace created and informed medical efficacy. By the end of the sixteenth century both the content of the subject of medicine and the scope of medical authority had been rethought and redeployed. The landscape of civic medicine was very different than it had been at the beginning of the century. I define this intellectual shift and its dramatic social impact as a 'medical reformation,' which replaced abstract philosophizing with practical treatment, disorder with disease, and put in place a relationship between physician, patient and polity which endures today.

Camerarius' tract was not immediately provocative, and when opposition arose it came not from the segment of 'popular' practitioners, nor from patients, nor midwives, nor surgeons. Instead, steady and unflinching competition for the sphere of medical practice came from the city's apothecaries. In 1581, ten years after Camerarius' submission, the city's two medical inspectors returned an unhappy verdict on the state of the city's apothecaries. Casting about for a solution, they returned to the physicians' blueprint for reform. At the first sign that Camerarius' recommendations might actually guide medical policy, the city's apothecaries revolted. They protested what they saw as an incursion, an attack even, on their equal claim to medical status in the city. In their ongoing repudiation of the physicians' place in the medical marketplace, they drew on their status as property holders and business owners. They defended their right to

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<sup>3</sup> On the political order of the Holy Roman Empire see: Thomas A. Brady Jr., *German Histories in the Age of Reformations, 1400 -1650*, (Cambridge: Cambridge University Press, 2009), Barbara Stollberg-Rilinger, *Das Heilige Roemisch Reich Deutscher. Vom Ende des Mittelalters bis 1806*. 4. Auflage, (Munich: C. H. Beck, 2009). On the patriarchal structure of Nuremberg's government see: H. H. Hoffman, 'Nobile Norimbergensis. Beobachten zur Struktur der reichsstaedtischen Obersicht', *Vorträge und Forschungen XI*, 53 - 92. On the character of patriarchal rule during the religious reformation: Lyndal Roper, *The Holy Household: Women and Morals in Reformation Augsburg*, (Oxford: Oxford University Press, 1991); Steven Ozment, *When Fathers Ruled: Family Life in Reformation Europe* (MA: Harvard University Press, 1983); Robert Jütte, *Poverty and Deviance in Early Modern Europe*, (Cambridge: Cambridge University Press, 1994); Natalie Zemon Davis, *Society and Culture in Early Modern France. Eight Essays*, (Stanford: Stanford University Press, 1965).

innovation and individual specialized knowledge, and they claimed their role as both learned experts and possessors of hidden artisanal knowledge. What followed was a series of written debates about the role of physicians, pharmacists and the place of pharmacy in urban medicine. As the city's two medical elites battled for jurisdiction over prescriptions and pharmaceutical innovation, their ongoing negotiation brought into the sphere of debate a number of issues endemic to the way in which early modern medicine, and early modern knowledge more broadly was thought to function. Their conversation focused on the role of expertise, the traditional regulations governing practice and process, latent professional identities and the definition of civic welfare.

Almost equally important to our understanding of the function of early modern medicine was what was *not* opposed. When the city implemented its reform in 1592, a large number of Camerarius' recommendations snuck in, unmodified and uncontested. These too had ramifications, not only for the way in which Nuremberg's medical care was provided, but for the way in which medicine was understood to function. The city added further issues, which it clearly felt to be important: a general concern with how best to regulate this tricky, necessary sphere of expertise, how best to tax it, how best to order patients, and how best to *be* a patient.

Nuremberg was not alone in creating a formal structure for its medical marketplace. Among the southern Imperial cities, Augsburg, Ulm, Nuremberg, Freiburg, Nördlingen, Passau and Worms all passed medical ordinances. So too did Cologne, Hamburg and Vienna. So did the ecclesiastical territories of Würzburg and the princely territories around Heidelberg. In fact, Camerarius and the physicians in Nuremberg were participating in a movement that spanned the breadth of the Holy Roman Empire, a movement that the physicians who published on it, called the 'reformation' of medicine.

Better regulation of medical practitioners had been an aim of Imperial legislation since the thirteenth century. In keeping with his general fascination with the legal character of the Empire, Emperor Frederick II attempted to create, or recreate, an ordinance for the Holy Roman Empire that would recapture Roman public hygiene. Among other regulations he stipulated that, in order to prevent pollution of the air, grave-diggers should bury bodies at least a meter deep, animals and their excrement should be kept at least four feet from water, and poison should warrant execution.<sup>4</sup> In this he drew on scarce-remembered ideas about medical regulations in antiquity, his grandfather Roger of Sicily's prescriptions around the founding of the School of Salerno, and innovations in some of his Italian cities. Though the terms of his ordinance were unevenly applied, Frederick's legislation had enduring impact, not least for the distinctive definitions it provided for its participants, apothecaries and doctors.<sup>5</sup> Features of his medical ordinance had individual, if indistinct, afterlives. More immediately germane to the German-speaking lands was Charles IV's ordinance, published in 1352. This focused more specifically on the taxation and sale of pharmaceutical remedies, although, among

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<sup>4</sup> Ulrich Knefelkamp, *Das Gesundheits- und Fürsorgewesen der Stadt Freiburg im Breisgau im Mittelalter*. (Freiburg: Herder, 1981), p. 159. See also: A. Bäumer, 'Die Aertzgesetzgebung Kaiser Friedrichs II,' Inaug. Diss Leipzig, 1911, 4-7.

<sup>5</sup> Wolfgang-Hagen Hein & Kurt Sappert, 'Die Medizinalordnung Friedrichs II. Eine pharmaziehistorische Studie,' *Veröffentlichungen der Internationalen Gesellschaft für Geschichte der Pharmazie*, Band 12, 1957, 101 - 213.

other things, it mandated doctors to oversee the sale of pharmaceutical remedies.<sup>6</sup> Charles IV was also responsible for the first German faculty of medicine, when he established the university in Prague in 1348, and thus, indirectly, for the safeguarding of medical education. Such Imperial policies coincided loosely with the earliest appearances of doctors and apothecaries in numerous Imperial Cities and the subsequent introduction of local regulations across the Southwest of the Empire. The very first records of oaths sworn by members of the medical marketplace belong to apothecaries in Basel, recorded in an approximate window of time between 1271 - 1322.<sup>7</sup> Oaths in Nuremberg date from 1350, and are matched by examples from Constance (1387) and Regensburg (1397).<sup>8</sup>

Nuremberg was not unique in its attempt to regulate the medical sphere, nor was Camerarius the lone critic of his profession. Criticism of medicine, both by its practitioners and its subjects also had a long tradition, a tradition which was exacerbated in the late middle ages by Renaissance preoccupations with professions, universities, virtue and social engagement.<sup>9</sup> Distinguished voices like Petrarch lent tone to such criticism, and many social/literary critics from Hans Sachs to Shakespeare lent volume. The greatest source of criticism of medicine, however, came from within. Since Galen, the identity of the physician as a philosopher was bound up with perceptions of self-criticism and awareness. From the early Renaissance through the sixteenth century, medical publications had interrogated medicine's scope, sphere and social participants, for example, Gabriele de Zerbi, (*De cautelis medicorum: Advice to Medical Men*, 1495). In Germany, Agrippa of Nettesheim explicitly addressed the relative status of doctors to other professionals.<sup>10</sup> Texts in the vernacular turned their attention to specific concerns. In Germany, Otto Brunfels and Adam Lonicer both wrote 'reformation texts' of apothecaries and midwives.<sup>11</sup> What changed in the sixteenth century, what created a movement instead of a certain sharpening of otherwise indistinct concerns was twofold. It involved first, the civic context and the parameters of government within which medical organization occurred. Second, more interestingly, it involved a shift - a massive hitherto undetected shift - in the way in which medical practice was thought to function by its most learned practitioners.

In the sixteenth century, government, both Imperial and civic, changed from the outside in. Changes to the political framework within which legislation and governance was understood and implemented had immediate consequences. In 1532, the *Lex Carolina* defined death by medical malpractice as murder, to be punished by execution. In response writers from legal, medical and theological backgrounds attempted to conjure up a set of working relationships that would help contain the problems of bad medicine,

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<sup>6</sup> Selections from his medical ordinance are published in Alfons Fischer, *Geschichte des deutschen Gesundheitswesens* (Berlin: 1933), Volume I, Appendix I, 335.

<sup>7</sup> Fischer, Vol.1, 164.

<sup>8</sup> Alfred Adlung: *Vergleichende Zusammenstellung der ältesten deutschen Apothekerordnungen*, (Berlin: Berliner Apotheker-Verein, 1922), 22.

<sup>9</sup> George W McClure, *The Culture of Profession in Late Renaissance Italy*, (Toronto: University of Toronto Press, 2004), Douglas Biow, *Doctors, Ambassadors, Secretaries. Humanism and Professions in Renaissance Italy*, (Chicago: University of Chicago Press, 2002).

<sup>10</sup> Heinrich Cornelias Agrippa, *De incertitudine et vanitate scientiarum declamatio invectiva*, Cologne, 1527

<sup>11</sup> Adam Lonicer, *Reformation, oder Ordnung für die Hebammen, allen guten Policeyen dienstlich. Gestelt an einen erbarn Rath des heyligen Reichs Statt Franckfurt am Meyn*, Frankfurt, Christian Egenolph, 1573.

situate the core practice of diagnosis and protect patients from fraudulent quacks. They called for a 'medical reformation' and were answered by letters and pamphlets from across the country. But by the latter half of the century, agreement about the scope and depth of the problem had failed to produce any practical solution.

More subtle were changes not just to the inherent connection between good governance and healthcare, but also to the constitution of healthcare itself and its incorporation into the growing sphere of medical authority. In the medieval medical system, neither city nor Empire was the most important provider of medical services. This changed in the sixteenth century. The 'medicalization' of specific institutions, the growing importance of medicine to hospitals, for example, was widespread enough in this period that it has become a fixed feature in our historiographical conception of modernity.<sup>12</sup> The place of medicine in civic welfare is a good deal more complicated, but the general trend remains similar. Over the course of the century, the provision of medicine and the function of city government became ever more co-dependent.

The sixteenth was Nuremberg's 'golden century': the century of Durer and Pirckheimer, Hans Sachs and Jost Amann.<sup>13</sup> From Hartmann Schedel's *World Chronicle*, which positioned Nuremberg in the center of the known universe, to Osiander's sponsorship of Copernicus' Revolution to Martin Behaim's globes, it was a century in which Nuremberg's artisans literally refigured the world, producing the finest examples of thought and literature and the most innovative scientific instruments. The city appeared at the forefront of change. It was the first Imperial city to adopt Lutheran reforms which were the cornerstone of modern legal reform.<sup>14</sup> Actually, the glut of cultural outpouring and the determined stance on religious and legal reform was counterbalanced by the city's waning political and economic power. After 1543, when the last Imperial Diet took place in Nuremberg, the city gradually lost its place at the forefront of imperial endeavour. Religious wars drained resources and interrupted the flow of trade, costing Nuremberg clients and markets. The market place across Europe divided along religious lines, and Nuremberg's merchant princes were cut off from vital resources. Early modern observers could see the hand of providence also at work. Nuremberg suffered epidemics throughout the century; particularly severe instances of plague in 1562 and 1585 dented the population.

In the shadow of these greater changes, the magisterial Senate in Nuremberg waged fruitless struggle against a host of dangerous forces. In vain they sought to limit

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<sup>12</sup> See John Henderson, *The Renaissance Hospital. Healing the Body and Healing the Soul*, (Yale: Yale University Press, 2006). Barbara Bowers (ed.), *The Medieval Hospital and Medical Practice*, (London: Ashgate, 2007) These are historiographically more sophisticated modifications of Michel Foucault, *The Birth of the Clinic*, (New York: Pantheon Books, 1973). See Foucault for the farthest stretched analysis on the links between medicalization and modernity.

<sup>13</sup> 'Blütezeit', as Nuremberg's many German biographers call it: See, Emil Reicke, *Geschichte der Reichsstadt Nürnberg: von dem ersten urkundlichen Nachweis ihres Bestehens bis zu ihrem Uebergang an das Königreich Bayern*, (Bayern: 1806). Gerhard Pfeiffer (ed), *Nürnberg - Geschichte einer europäischen Stadt* (Munich: Beck, 1971); Adolf Engelhardt, 'Die Reformation in Nürnberg', 3 vols *MVGN*, 33,34 &36, (1936-1939); Gerald Strauss, *Nuremberg in the Sixteenth Century*, (London: John Wiley & Sons, 1967), Jeffrey Chipps Smith, *Nuremberg, a Renaissance city 1500 -1618*, (Texas: University of Texas Press, 1983); Heidi Eberhardt Bate, 'The measures of men: virtue and the arts in the civic imagery of sixteenth century Nuremberg', Ph D Dissertation, University of California, Berkeley, 2000.

<sup>14</sup> *Reformacion der Stadt Nurnbec*, Nuremberg, 1479.

the amount of rubbish and excrement on the streets, to control the presence of livestock, to halt the contamination by livestock of city drinking water and to curb the spread of infectious diseases. Increasingly, obviously, and with greater practical effect the city began to turn to doctors to answer these problems. The growing importance of medicine to general welfare institutions, such as the provision of food or the assessment of mental health and capability, combined with the increasing role of civic government in administering such welfare in the wake of the Reformation, positioned medicine in a new way. By 1592, when Nuremberg acceded to the establishment of the *Collegium medicum* and published her first medical ordinance, named *Gesetz, Ordnungen und Taxe*, more than twenty years had passed since Camerarius first lobbied for reform. In that time the conditions of medical care within the city had undergone extensive debate and the paradigms of authority on healthcare, welfare and the provision and sale of remedies had changed. The sixteenth century in Nuremberg was thus also the century in which the modern configuration of the medical sphere was institutionalized and entrenched.

The reorganization of medical care was the most visible outcome of the medical reformation. But the political reforms existed in a dialectical relationship with other changes which were more difficult to decipher and that occurred within the practices of educated medicine. This was the second characteristic of the medical reform: municipal physicians of the later sixteenth century were at the forefront of a change in the way early modern knowledge worked. These doctors embraced an 'artisanal epistemology', a pre-Cartesian notion of experience, privileging tactile medical practice, observation, trial-and-error and new pharmaceutical methods over the centuries old reception of Galenic medicine.<sup>15</sup>

There were very general changes to medical practice in the sixteenth century, many of them wrought by geographic explorations and the subsequent import of new goods and knowledge, the humanist culture of inquiry, the advent of print and, debatably, the unsettling conditions of the religious reformation. Discovery of new world plants and growth in travel increased the quantity of ingredients and medicines. A boom in translations saw new programmes for the work of Galen and a host of other ancient authorities; while contemporaneously a market for vernacular medical texts expanded. The latter was responsible for increasing the impact of the former developments, advertising certain foreign medicines like *Guaiaicum* (the controversial cure for syphilis), and making available simple instructions for other preparations, circulating rudimentary guides to Galenic medicine, as well as practical illustrations of surgery, phlebotomy, midwifery and various specific diseases.<sup>16</sup> In the German-speaking lands, these developments had particular context. Philological works on medical texts were carried out in the early part of the century by the Empire's civic humanists as much as by

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<sup>15</sup> 'Artisanal epistemology' comes from Pamela Smith, *The Body of the Artisan. Art and Experience in the Scientific Revolution*, (Chicago: Chicago University Press, 2004), and has been usefully illuminated in her more recent articles and books. The term has been taken up in a variety of different disciplines. For a concise study of the term and its place within broader history of science, see the review article Pamela Smith, 'Science on the Move. Recent Trends in the History of Early Modern Science', *Renaissance Quarterly*, Vol. 62 No. 2, (Summer 2009), Article Stable URL: <http://www.jstor.org/stable/10.1086/599864>

<sup>16</sup> These followed on from manuscript traditions: See Bernhard Schnell, 'Prolegomena to a History of Medieval German Medical Literature,' in Margaret R. Schleissner, (ed), *Manuscript Sources of Medieval Medicine*, (New York & London: Garland Publishing, Inc. 1995).

university employed physicians. The massive programme to translate and publish Galen, which started in Basel in 1525, was undertaken only by few physicians. The importance of botanical works was recognized by the Habsburg Emperors, who sponsored - according to Camerarius - communication on this issue. Germany's appetite for vernacular texts was unusually keen.<sup>17</sup> But vernacular publishing was not just a vehicle for the popularizing of learned medicine; many medical texts, particularly in German, were aimed at physicians rather than their patients. As for the religious reforms, although religious confession appeared to have little impact on the humanist medical programme, it could complicate reception of these changes at a local level and did so in select instances around Germany.<sup>18</sup>

Municipal medicine was also a novel feature of the sixteenth century imperial city. Germany lacked the ancient universities of Italy, England and France and although the sixteenth century saw an exponential rise both in numbers of academic institutions and of pupils attending them, medical faculties in Germany remained small, in comparison to their Italian counterparts and lacked power relative to the faculties of theology and law.<sup>19</sup> Before rising fees and religious discrimination in the northern Italian universities made it more difficult, aspiring physicians from Germany attended Italian universities in great number.<sup>20</sup> Upon returning home, they had a variety of career options. They could seek an academic position in one of Germany's small medical faculties, for example Tübingen was an option and Ingolstadt was growing. They could look for employment in the many courts across the territories. Or they could work in a city. The first municipal physicians were appointed in the early fourteenth century. By the fifteenth century they were to be found serving sporadically in small numbers across diverse cities.<sup>21</sup> In the sixteenth century they were suddenly common. Thus, when Hartmann Schedel served as municipal physician in Nuremberg (1480-1514), he had at various times one, three and four colleagues working alongside him. In 1525, the year Nuremberg adopted its Lutheran reforms, the number of municipal physicians had grown to seven, and when Camerarius submitted his text he was one of nine.<sup>22</sup> In Italy, the position of municipal physician brought with it job security, but lacked the prestige of a university post.<sup>23</sup> In Germany, this was not the case. Options in German universities were less attractive than in Italy. They paid less, and the faculties were far from prestigious. On the

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<sup>17</sup> The foundational text on the development of print remains Elizabeth Eisenstein, *The Printing Press as an Agent of Change*, Vol I&II. (Cambridge: Cambridge University Press, 1980). For Germany see Michael Giesecke, *Der Buchdruck in frühen Neuzeit. Eine historische Fallstudie über die Durchsetzung neuer Informations-und Kommunikationstechnologien*, (Frankfurt: Suhrkamp 1991).

<sup>18</sup> See particularly the Guaiaca debates, in which the controversial drug was received by different towns and cities: Ulrich von Hutton, *Von der wunderbarliche artzney des holtz guiacam genant und wie man die frantzosen oder blatteren heilen sol*, Augsburg, 1519.

<sup>19</sup> Paul Grendler, 'The Universities of the Renaissance and Reformation', *Renaissance Quarterly*, Vol. 57, No 1 (Spring, 2004), 1-42.

<sup>20</sup> See Cynthia Klestinec, 'Medical Education in Padua: Students, Faculties and Facilities', in Ole Peter Grell & Andrew Cunningham (eds.) *Centres of Medical Excellence? Medical Travel and Education in Europe, 1500 - 1789*, (London: Ashgate, 2010), 193 - 220.

<sup>21</sup> Andrew W. Russell (ed), *The Town and State Physician in Europe from the Middle Ages to the Enlightenment*, (Wolfenbuettel: Herzog August Bibliothek, 1981).

<sup>22</sup> Stadt A N, B 19/ 120

<sup>23</sup> Katherine Park, *Doctors and Medicine in Early Renaissance Florence*, (New Jersey: Princeton University Press, 1985).



other hand, the opportunities a municipal post created were good, as evidenced by the unsuccessful efforts of court and university to lure certain municipal physicians away from their cities. Financial rewards in the cities were certainly greater, but sometimes so too was the sphere of fame for a municipal physician's intellectual production. While the most enduringly famous sixteenth century German doctors were undoubtedly Leonhard Fuchs and Conrad Gesner, both of whom worked in universities, Tübingen and Zurich respectively,<sup>24</sup> beyond Fuchs and Gesner, a vast array of doctors won renown in their own times and established profitable medical practices to boot. The position of municipal physician in Nuremberg thus combined an attractive post, the office of municipal physician, with an attractive city. Albeit on the brink of decline, Nuremberg, still the preeminent center for cultural production, succeeded in employing some of the brightest and the best physicians in Germany. The output of municipal physicians matched proportionately, even rivaled, the output of universities, and in terms of the history of medicine, their contribution to sixteenth century learned medicine warrants study. But aside from attributing to them their deserved place among Europe's learned physicians, their context, the environment of the city, created a paradigm within which physicians both thought about and practiced medicine.

The challenges and opportunities presented by the city to the learned physicians who took up official positions within them were many. In meeting them, academically educated physicians reconceived the practice of medicine as an essentially collaborative process, concerned not only with the epistemological practice of diagnosis, but with the jurisdiction that diagnosis granted them over subsequent treatments. Their struggles against the apothecaries only accelerated this process. In seeking out ground against the apothecaries, the physicians encroached on their territory. Relegating apothecaries to the status of mere technicians, the physicians claimed for themselves the privilege of pharmaceutical innovation and the exclusive right of experimentation. This elaborate sleight of hand masked a process of appropriation which was equally evident in other areas. There were reasons for the doctors' social success in the competitive reformation and a large number had to do with an appropriation of roles and tasks previously understood to belong to non-academically educated medical practitioners.

This dissertation is about the medical reformation in sixteenth century Nuremberg. It follows the activities of a generation of Nuremberg's municipal physicians, a group of medical colleagues who revolved around the figure of Joachim Camerarius. In 1571, the year that Camerarius submitted his text, the doctors who worked alongside him in Nuremberg were, in order of seniority, Melchior Ayrer, Heinrich Wolff, Paul Weller, Justin Mueller, Johann Schenk, Volcher Coiter, Georg Palma and Georg Rucker. Fully integrated into the cultural circles of the humanists, the astronomers and the patriciate, they emerged from the background to form a professional elite in the latter years of the century. They were responsible for a vast body of sources: publications, letters, records, sketches, manuscripts and libraries. Some of them have been remembered, some have not.

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<sup>24</sup> The university context is debatable for Gesner, who actually taught at an advanced grammar school, which would become a university.

## Contents

Following Camerarius and his colleagues, the municipal physicians in Nuremberg, my dissertation examines the medical reformation in three parts. Part I discusses the problem created by municipal medicine for the city of Nuremberg, and the burden the necessities of medical practice placed upon the Galenic system. Part II looks inward at various ways in which the municipal physicians thought through the demands of practice, while Part III shifts focus outward to investigate how the changing organization of medicine reflected this new emphasis on practice.

The first two chapters locate municipal medicine in its social and intellectual contexts. Who were the municipal physicians? How did common recognition of the distinction between academically trained *medici* and members of the *heilberufe* (the amorphous body of non-degree holding practitioners) actually function? Chapter One places the physicians as a social and professional group in their civic context. Nuremberg was a political unit ruled by an unusually close-ranked patriciate and a medical marketplace in which an amorphous body of non-degree holding practitioners accommodated the demands of the population with little regulation. The growing presence of the physicians created opportunities and problems in both spheres. By the mid-sixteenth century municipal physicians were a staple of urban communities, appointed by governing councils and oath bound to treat indiscriminately all citizens who came to them, and to protect the city from pestilence and disease. This latter duty gave municipal physicians their distinguishing feature: a concern with the manner in which medicine operated, both as a set of relationships between physician, patient and general populace, and as a set of practices that ought to be standardized and regulated.

While Chapter One looks at the municipal medicine as an emerging social phenomenon. Chapter Two looks at the intellectual burden that the social practice of learned medicine placed on the Galenic framework. The problem of practice was formulated in the midst of the humanist endeavour to reclaim medicine's classical heritage. If Chapter One makes the claim that the position in Nuremberg created novel conditions for the practice of medicine, Chapter Two makes the point that dissatisfaction with the relationship between theory and practice in Galenic medicine was endemic in the sixteenth century. This chapter provides an overview of early modern Galenic medicine. It looks at what early modern physicians were taught in scholastic universities, and argues that the problem of practice can be found in the general humanist project as well as within a narrow, specialist call for reform. It examines the literature on medicine and reform in the context of individual practice in Nuremberg.

The physicians encountered this problem of practice in a variety of different ways and Part II illustrates the internal developments within medical thought that made possible the doctors' claim to medical authority and professional standing at this critical juncture in the reformation of healthcare. Municipal physicians pursued 'academic' disciplines, and produced learned texts on a variety of applied medical subjects. Chapter Three looks at the way in which Joachim Camerarius and Volcher Coiter emphasized the importance of practice and procedure in their botanical and anatomical publications.

Chapter Four examines the private construction of medical confidence by and within the figure of the individual doctor. The central character of Chapter Four is Georg

Palma. Although he never published Palma was the chronicler of Nuremberg's medical reformation. On his death, he bequeathed his vast collection of books to the city's municipal library. Some 687 medical texts survive there along with an extensive collection of manuscripts and private records. These detail Palma's reading and collecting habits, and suggest a history of his medical experiments. Looking specifically at his notebooks and marginalia, this chapter examines how doctors went about collecting knowledge and converting their education into the context of medical treatment and, more specifically, *local* practice.

Joachim Camerarius' correspondence is the subject of Chapter Five. Some three thousand letters to Camerarius survive, and this chapter examines both the kinds of networks this correspondence facilitated and the project of collaboration it produced. Collaboration, this chapter argues, was the fundamental catalyst for municipal physicians and their colleagues across Germany, providing the mechanism by which medical activity could be elevated to medical authority.

Part III of the dissertation shifts focus outward, examining the crisis of medicine that these physicians saw presented to them, and the 'medical reformation' that their response invoked. Here is the narrative of the medical reformation. Chapter Six returns to Camerarius' manifesto, examining this specific iteration of the movement for reform in the light of our conclusions about changes to medical practice. What was specific about the reformation in Nuremberg? Why did it succeed there? Why did its success encounter such delay? Chapter Seven answers these questions by reference to the reformation's content, the demands Camerarius made and what his demands demonstrate about the way in which medicine in the city was working. It poses the same questions to the city of Nuremberg itself, looking at the reception of Camerarius' document and the protracted debate it provoked between the physicians and the town's apothecaries. Throughout, major themes reappear: a turn to pharmacy, a focus on process and methodology, the growing idea of profession and the importance of consensus as a form of legitimating medical decisions.

### **Sources and methodology**

The first purpose of this work is illustrative and demonstrative. I believe that the world of the municipal physicians was rich, deep and idiosyncratic. This single generation of physicians generated a body of sources remarkable for their variety, complexity and scope. Alongside the sources that survive in Nuremberg's well-tended city archives (two in number: the *Stadtarchiv*, which houses the municipal 'social history' and the *Staatsarchiv*, which houses the 'political history'), Georg Palma kept careful record of the various submissions to the city's reform. In many ways he was the chronicler for the medical reformation and the attention he paid to constructing the narrative is itself a focus of investigation later in the dissertation. Palma's library remains in Nuremberg's *Stadtbibliothek*, the city library. I have reconstructed the catalogue of books using Palma's *Ex-libris*, his distinctive handwriting, and a series of attributions in an eighteenth century inventory; it can be found in the appendices. Camerarius' letters, which form the fourth pillar in terms of sources, have been digitized. They exist in material form in the university library at Erlangen, which also has a huge manuscript collection useful for supplementing archival sources.

Correspondence, libraries and print were the means by which this new medical culture was transmitted and communicated. Each had a different social context, a separate medical agenda, but, taken together, they tell us things about how medical practice had changed and come to be understood. The aims communicated by these personal and intellectual activities were rolled into the medical manifestos of the medical reformation. The sources suggest different methodologies, and the chapters that deal with them approach the problem of the history of the physicians from different directions. Chapter One is social history, Chapter Two more nearly intellectual history, while the library and letters suggest a more cultural approach to the activities and representations of medicine. Rather than imposing a unified methodology on such diverse sources, I have tried throughout to allow the sources dictate the approach. The diversity of paths taken to a single question has, I think, yielded a richer, more complex picture of municipal medicine, one which more nearly resembles the different, sometimes competing, expectations and concerns that faced its practitioners.

Too many in the way of personality and too few in the way of number, makes this study of the physicians biographical rather than prosopographical. It's unfashionable, unhistorical maybe, to talk about personality, but a large part of my reading of sixteenth century Nuremberg hinges on the city's continued fascination with its non-governmental individual advisors. Personal authority was the starting point for the doctors, and their attempt to transform this into professional authority never fully transcended the trappings of the individual.

Finally, this is a story about coincidence rather than cause. To say which came first, epistemological changes within medical practice or change in the social practice of medicine, would be to answer the dilemma of the chicken and the egg, (a question with which at least one Nuremberg physician was greatly concerned). As far as possible, I have looked at the two agents in this reformation - the city and the physicians - as distinct but overlapping entities, whose desires and needs melded disharmoniously.

A brief note on terminology: The term 'reformation' was used by proponents of medical reform principally in two contexts - *reformation der apotheken*, (reformation of the apothecaries) and *reformation der artzney* (reformation of medicine). Although the natural association is with the Lutheran Reformation, or the many religious reformations of the sixteenth century, what was summoned with the phrase was not the sweeping confessional divisions, but the tightly formed legal restructuring of behaviour that had begun to be a feature of civic government in Germany. The reformation demanded by physicians was not polemical, it was prescriptive and legal. While individual authors in the movement for medical reform had ties to confessional parties, and while a variety of other reforming impulses, humanist, pedagogical and so forth guided the writings of medical reformers, the kind of legislation they demanded repeated the *reformation* published in Nuremberg in 1479. It was positive, prescriptive legislation that led to medical ordinances throughout Germany.

The language of medicine also requires clarification. In general the terminology of medicine in Germany was either Latin or vernacular. The relationship between the two was often unclear. Linguistic uncertainties around some of the idiosyncratic German terms are part and parcel of dealing with early modern medicine. So, for example, the term *artzney* was, like its English translation 'medicine', used to denote both medicine and

medicines, but it could also be used to refer to a practitioner of medicine in the singular *and* in the plural. It could occasionally refer to the *act* of treating illness - as in the broad term medicine, but with the connotation of a verb. Historians have translated it as 'to cure' but the application of medicine and the result of curing were not the same. German sources generally refer to cure '*curiren*' as a derivative of *arznei*: thus *arznei curiren* or *curiren durch arznei*.

The English word 'doctor', was employed by sixteenth century Nuremberg writers in the German cognate *doctor/ docktor/doktor* in its proper sense, meaning teacher. The Latin part of the designation was, in the sixteenth century, normally *medicus*. This is habitually translated as physician, without reference to the great distinction between the two medieval terms: *physicus* - from which the word physician originates - and *medicus*. *Physicus* referring to the place of medicine in natural philosophy, more literally translates as 'scholar of the nature of things.'<sup>25</sup> English, as Philip Reynolds complains, 'has retained no word that means 'physician' but is cognate with *medicus*.'<sup>26</sup> I, however, do not do as he did and bring back from retirement the archaic English word, 'mediciner'. Instead, I use 'physician' when generally referring to the medical role held by the municipal physicians and describing their actions, and physician and doctor interchangeably (for the sake of some slight variation) when referring to persons or collective groups of characters. When quoting sources, I retain the term *Stadtarzt* when referring to the institutional position and refrain from translating the Latin *medicus*, but translate *leibarzt* as physician. I use the same general principles when approaching the terminology of other medical positions, such as surgery (even more convoluted than medicine), and, hopefully, explain this as I go along.

### Early modern medicine

With the exception of Claudia Stein, whose fine work on Augsburg informs much of this study, few have written on municipal physicians in Germany, and no one at all on their medical reformation.<sup>27</sup> Municipal physicians in other areas have been the focus of some work - Katherine Park, Gianna Pomata, Margaret Pelling, David Gentilcore all address the function of medicine and medical practitioners in cities across Italy and England and draw conclusions with broad ramifications for our understanding of early modern medicine across Europe.<sup>28</sup> Individual doctors are also well known to us, most

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<sup>25</sup> See Peter Reynolds, *Food and the Body. Some peculiar questions in high medieval theology*. (Leiden: Brill, 1999), 121.

<sup>26</sup> Ibid.

<sup>27</sup> Claudia Stein, *Negotiating the French Pox in Early Modern Germany*, (London: Ashgate, 2009); Manfred Stuerzbecher, 'The physici in German-speaking countries from the Middle Ages to the Enlightenment', in Andrew W. Russell (ed). *The town and state physician in Europe from the Middle Ages to the Enlightenment*, (Wolfenbüttel: Herzog August Bibliothek, 1981), 123-129. This is the only essay in the only volume on town physicians to address municipal physician in Germany.

<sup>28</sup> Margaret Pelling, *Medical Conflicts in Early Modern London: Patronage, Physicians and Irregular Practitioners*, (Oxford: Oxford University Press, 2003); Gianna Pomata, *Contracting a Cure. Patients, Healers, and the Law in Early Modern Bologna*, trans. Rosemarie Foy & Anna Tarabozetti-Segre, (Baltimore: Johns Hopkins University Press, 1998); David Gentilcore, *Healers and Healing in Early Modern Italy*, (Manchester: Manchester University Press, 1998); Katherine Park, *Doctors and Medicine in Early Renaissance Florence*, (New Jersey: Princeton University Press, 1985). The comprehensive survey of

recently in the stunning intellectual biography of Girolamo Cardano provided by Nancy Siraisi.<sup>29</sup> Here again, German doctors are also less famous or even infamous. Some like Felix Platter, for example, the 'perennial student', have drawn attention for their rich *Selbstzeugnisse* (self-narratives), others, like Paracelsus, have become infamous. German medical humanists, such as Leonhard Fuchs (1501-1566), or Conrad Gesner (1516-1556) and some doctors within the 'Wittenberg circle', like Johannes Crato (1519 -1585) but, for the most part, German physicians lag behind their Italian counterparts.<sup>30</sup>

Socially, many of the changes encompassed by the medical reformation have been incorporated into meta-narratives about the development of European hygiene, or the growth of paternalism in city-states.<sup>31</sup> And in fact, this might seem like part of a European movement. Medical colleges, as Camerarius helpfully pointed out in his manifesto, were already present in Verona, Florence and Padua. These were joined, in the period between Camerarius' original petition for the establishment of a *Collegium medicum* and its foundation in Nuremberg, by institutions in Ulm and Augsburg. It might seem somewhat regressive, then, to emphasize the local particularity of this moment in the history of medicine. Nevertheless, the context of the Imperial Cities, the moment of elevation in the context of the relative balance between practice and theory, had a unique setting in Germany. It might seem a tautology to point out that the unique political structure of the German territories of the Holy Roman Empire had an effect on the constitution of medical care. It would be equally tenuous to describe the constitution of the city's medical marketplace as an effect of the Lutheran or religious reformations. The marketplace for medicine was temporally distinct, subject to a growing professionalization of medicine that long predates the moment in which such changes are habitually considered to have taken place. The history of the medical profession in Germany is voluble, but it locates its origins in the bureaucratic, police state of the Enlightenment and its moment of consolidation in the nineteenth century.<sup>32</sup> While there

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French medicine by Colin Jones and Lawrence Brockliss includes information about municipal physicians, as does the survey of European medicine by Mary Lindemann and English medical practice by Andrew Wear. See Mary Lindemann, *Medicine and Society in Early Modern Europe*, 2nd edition, (Cambridge: Cambridge University Press, 2010); Andrew Wear, *Knowledge & Practice in English Medicine, 1550 - 1680*, (Cambridge: Cambridge University Press, 2000); Colin Jones & Lawrence Brockliss, *The Medical World of Early Modern France*, (London: Clarendon Press, 1997).

<sup>29</sup> Nancy Siraisi, *The Clock and the Mirror: Girolamo Cardano and Renaissance Medicine*, (Princeton: Princeton University Press, 1997). Cardano's autobiography has been translated into English, and published with an introduction by Anthony Grafton: Girolamo Cardano, *The Book of My Life*, trans. Jean Stoner, (New York: New York Review of Books, 2002). See also, Anthony Grafton, *Cardano's Cosmos: The Worlds and Works of a Renaissance Astrologer*, (MA: Harvard University Press, 1999).

<sup>30</sup> Dieter Hochlenert, *Das "Tagebuch" des Felix Platter: die Autobiographie eines Arztes und Humanisten*, (Tübingen: Universität Tübingen, 1996); *Beloved Son Felix: The Journal of Felix Platter, a medical student in Montpellier in the Sixteenth Century*, (London: 1961).

<sup>31</sup> Alfons Fischer, *Geschichte des Deutschen Gesundheitswesens*, Vol. I, (Berlin: 1933); Ernst Mummenhof, 'Die öffentliche Gesundheits-und Krankenpflege im alten Nürnberg', in *Festschrift zur Eröffnung des neuen Krankenhauses der Stadt Nürnberg*, Nuremberg, 1898, 1- 122; Paul Weindling, 'Public Health in Germany' in Dorothy Porter (ed), *The History of Public Health and the Modern State*, (GA: Rodopi, 1994), 119 -131.

<sup>32</sup> On the police-state, see Marc Raeff, 'The Well-Ordered Police State and the Development of Modernity in Seventeenth- and Eighteenth-Century Europe: An Attempt at a Comparative Approach', *The American Historical Review*, Vol. 80, No.5 (December, 1975), 1221-1243. Stable URL: <http://www.jstor.org/stable/1852058>

is a temptation when dealing with developments of this kind to simply locate the momentous changes, previously taken to mark paradigm shifts, in an earlier century, this early modern professionalism was a phenomenon, fundamentally different to the consolidation of modern professions.

Any reformation or organization of healthcare in the sixteenth century took place in circumstances in which mortality fluctuated wildly, where epidemics were constant and the threats of daily life outnumbered the reliability of the *alltags*. The stakes of medicine were at once greater and lesser, greater because the idea of health was so fragile and the threats of illness so pervasive, lesser because, unlike health in the circumstances the modern world enjoys, there was no perceived 'right' to health, no perception of a norm from which ill-health or illness deviated drastically. The sixteenth century reformation of medicine put in place the kind of order, at least in theory if not in practice, to which the eighteenth century doctors compared their own reality. As described in meticulous and compelling detail by Mary Lindemann, the very dissatisfaction of the medical professionals in the eighteenth century rests on the fully digested successes of their sixteenth century forebears.<sup>33</sup> Lindemann's analysis hinges on the language and values of a corporatist, proto-capitalist economy. She illustrates that by the eighteenth century tensions between doctors and 'quacks' of all kinds hinged on the right of a doctor, and the same rights that the doctors ascribed to other recognized members of the health-professions, to a *livelihood*. Quacks infringed on livelihoods and in so doing they infringed on rights. For doctors in the sixteenth century, these rights were in no way recognized. For them, the bad medicine of the quacks, who were the least of their list of enemies, was fundamentally dangerous. In the morally imbued natural world of the sixteenth century, medicine could be heretical as well as foundational. Even if they never succeeded in fully instantiating the proper order that they sought, the success of their endeavour in terms of the medical self-perception it wrought is unquestionable.

Elements of the landscape of medicine have a historiography of their own. Institutions, for example, have been profiled in local histories, or included in political history or the history of communities.<sup>34</sup> The recent turn to theories of confessionalisation has provided a natural point to re-examine the role of medical institutions in the formation of a civic community and civil society.<sup>35</sup> Removed one degree from this is the slight number of works on specific diseases.<sup>36</sup> Particularly useful for this work, was the

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<sup>33</sup> For the Collegium medicum as an Enlightenment body see Mary Lindemann, *Health and Healing in Eighteenth Century Germany*, (Baltimore: Johns Hopkins Press, 2000).

<sup>34</sup> John Henderson, *The Renaissance Hospital. Healing the Body and Healing the Soul*. (New Haven: Yale University Press, 2006)

<sup>35</sup> Tim McHugh, *Hospital Politics in Seventeenth-Century France*, (London: Ashgate, 2007); Ole Peter Grell, Andrew Cunningham & Jon Arizzabalaga (eds.) *Health Care and Poor Relief in Counter-Reformation Europe*, (London: Routledge, 1999).

<sup>36</sup> Claudia Stein, *Negotiating the French Pox*, Martin Uhrmacher, *Lepra und Leprasonen im rheinischen Raum vom 12. bis 18. Jahrhundert*, (Trier: Porta Alba Verlag, 2011), Luke Demaitre, *Leprosy in Premodern Medicine; a Malady of the Whole Body*, (Baltimore, Johns Hopkins University Press, 2007); Samuel Cohn, *Cultures of Plague: Medical Thinking at the End of the Renaissance*, (Oxford: Oxford University Press, 2010), H. C. Erik Midelfort, *A History of Madness in the Sixteenth Century*, (CA: Stanford University Press, 1999).

incredibly rich history of pharmacy in German.<sup>37</sup>(The division between the history of medicine and pharmacy seems, to me, a telling sign of the influence of post-Enlightenment professional struggles, but that is mostly speculation.)

In general, I use a wide variety of sources and because of that, the historiographical narratives across which I might appear to stray are many and varied: the history of collections, history of botany, urban history, reformation history, humanism more generally, education and learnedness. For the most part, I discuss these as I go along. Some are more repetitive than others. At the very outset of the dissertation, I'd like to discuss just three main historiographical topics, which recur throughout, that is the role of Galen in early modern medicine, the present state of the social history of medicine and the place of medicine within broader concepts of early modern knowledge.

## Galenic medicine

Broadly, roughly, clumsily speaking, the physicians with which we are concerned were participants in a subject that had roots in the writings of Galen (129-c.200ad), who himself proposed to channel the principles of Hippocrates.<sup>38</sup> What Galenism actually was is difficult to summarize, and, as Chapter 2 will illustrate, the ways in which it was experienced and practiced varied from doctor to doctor. Galenism was a 'pliant' system, replete with controversy, criticism and change.<sup>39</sup> It encompassed and survived paradigmatic shifts in part because of this pliancy.<sup>40</sup>

By the middle of the sixteenth century the enduring hegemony of Galenism had faced and mostly overcome a series of challenges. The first was the (re)discovery of Galen as the subject of humanist philological inquiry. New Greek editions of Galen's work were published in 1525, and multiple editions of Galen's *Opera* continued to be printed throughout the sixteenth century.<sup>41</sup> This 'medical' humanism challenged the hitherto fairly static interpretations of Galen, on occasion severely criticizing the Latin translations that had informed later medieval medicine.<sup>42</sup> Despite such criticism, humanism was more a spur than a barrier to medical thinking. It had no interest in

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<sup>37</sup> To my mind, more than in other subjects or regions the historiography of sixteenth century Germany has been pursued in German and English along two parallel lines - untouched and unbroken.

<sup>38</sup> 'Galenic Medicine' is too large a subject to neatly summarize but see Mary Lindeman, *Medicine and Society*, Thomas Rütten, 'Early Modern Medicine', in Mark Jackson (ed.), *The Oxford Handbook of the History of Medicine*, (Oxford: Oxford University Press, 2011) 60-81; Nancy Siraisi, *Medieval and Early Renaissance Medicine. An Introduction to Knowledge and Practice*, (Chicago: Chicago University Press, 1990); Vivian Nutton, 'The diffusion of ancient medicine in the Renaissance', *Medicina nei Secoli. Arte e Scienza* 2002, 142: 461-478; Nutton (ed.) *Galen: Problems & Prospects* (London: The Wellcome Institute, 1981); Owsei Temkin, *Galenism: Rise and decline of a medical philosophy*, (NY: Cornell University Press, 1973).

<sup>39</sup> The description as pliant is Lindemann's, see, Lindemann, *Medicine and Society*, 87.

<sup>40</sup> Galenic medicine continued into the eighteenth century. And although it did break down, it was never, really, replaced. Modern medicine is marked more by ways of medical thinking and processing information than by a philosophy of how the body itself works.

<sup>41</sup> Richard J. Durling, 'A Chronological Census of Renaissance Editions and Translations of Galen,' *Journal of the Warburg and Courtauld Institutes*, 24 (1961), 230-305.

<sup>42</sup> On Anti-Arabic sentiment, see Heinrich Schipperges, 'Ideologie u. Historiographie des Arabismus' *Sudhoffs Archiv: Beihefte*, I (1961), 14-26. Nicolaus Leonicensis -owned by Palma - was the most vituperative of critics.



replacing or undermining the Galenic framework and its influence was far-reaching without ever being particularly definitive. Humanist physicians were responsible for a vast number of contributions to early modern medical thinking, none of which rejected the Galenic framework. Related to humanism was the more direct challenge posed to specific parts of the Galenic canon by a series of discoveries of new knowledge - new research, or new 'fact-finding'. The most obvious of these, for example, was the challenge to Galenic anatomy posed by the research and writing of Vesalius. In the case of anatomical research, Vesalius' findings seemed to prove, regardless of whether the author actually wanted to argue it, that Galen was not only insufficient, but was, in fact, wrong. But despite the evident wrongness of Galen, Vesalius and his readers, supporters and critics alike, managed to uncover a version of Galen into which they could muscle their new information. And when they couldn't, their conclusion was not to issue a rejection, but to turn to even more ancient sources that explained and fit 'new' information into the traditional framework. In this way they managed to successfully incorporate Vesalian anatomy,<sup>43</sup> an act which demonstrates the flexibility of their thinking, but also the elasticity of the Galenic system itself. Variations of this explanatory craftsmanship were evident in the incorporation of the manifold New World species into the Dioscoridean canon of plants,<sup>44</sup> and again writing on surgery, and again in pharmacy, and in medical practice.<sup>45</sup> In fact, it was the success of this endless mutation of Galen around introductions of new information and new theories, which muted the vibrancy of the period. So successful were these surface integrations, that for long years in medical history the whole century was dismissed as turgid, unchanging and static.<sup>46</sup>

Even in rare instances where physicians wholeheartedly espoused radical medical alternatives, they did so without renouncing Galenic medicine. The most virulent attack on Galenic medicine, the only real challenge to its fundamental tenets, came from Paracelsus.<sup>47</sup> Writing and practicing medicine contemporaneously with Luther, Paracelsus invoked a kind of mystical medicine. The iconoclasm and bombast around Paracelsus, both in his own writings and in the writings of his denouncers, make it easy to overestimate the challenge he presented to Galen. But the biggest source of official opposition to Paracelsus was provoked not by his medical philosophy, but by his medical etiquette, which was brash and competitive. He was run out of Basel for burning the

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<sup>43</sup> Andrew Cunningham, *The Anatomical Renaissance: the resurrection of the anatomical projects of the ancients*, (London: Scholar Press, 1997).

<sup>44</sup> Karen M. Reeds, *Botany in medieval and Renaissance Universities*, (New York: Garland, 1991).

<sup>45</sup> See the essays in Andrew Wear, Roger French & I. M. Lonie (eds), *The Medical Renaissance of the Sixteenth Century*, (Cambridge: Cambridge University Press, 1985), especially Vivian Nutton, 'Humanist Surgery', 75-99 and Andrew Wear, 'Explorations in Renaissance writings on the practice of medicine', 118-145.

<sup>46</sup> For a better summary of 'whiggish' medical history than I can provide here, see: Adrian Wilson & T. G. Ashplant, 'Whig History and Present-Centered History', *The Historical Journal*, 31, 1 (1998), 1 -16.

<sup>47</sup> The most influential interpretation of Paracelsus as the provider of an enduring alternative to Galen is by Allen Debus, *The Chemical Philosophy*, (New York: Dover, 1977); Paracelsus' iconoclasm has been debated by Walter Pagel, *Paracelsus: An introduction to philosophical medicine in the era of the Renaissance*, (New York: Karger, 1982); Gerhild Scholz Williams & Charles Gunnoe Jnr, (eds.), *Paracelsian Moments. Science, Medicine & Astrology in Early Modern Europe*, (Missouri: Truman State University Press, 2002); Jole Shackelford, *A Philosophical Path for Paracelsian Medicine: The Ideas, Intellectual Context and Influence of Petrus Severinus: 1540 -1602*, *Acta Historica Scientiarum Naturalium et Medicinalium*, (Copenhagen: Museum Tusulanum Press, 2004).

faculty's books. Alongside his idiosyncratic readings of Aristotle, Paracelsus preached a social medicine, one with distinct overtones of religious radicalism.<sup>48</sup> It was this, more than anything, that led to the most overt instances of official rebuke. Conversely, even his most virulent detractors within medicine were quick to acknowledge the success of his medical practice.<sup>49</sup> There was thus no conversion crisis within medicine. Although a line of argumentation traces the development of chemical medicine back to Paracelsus, in the sixteenth century 'Paracelsianism' was never a serious threat.

In the past, despite fascination with the impact of Paracelsianism, the sixteenth century was mistakenly described by historians of medicine as a time in which very little was 'new': the substance of medical knowledge, the context in which it was practiced, the divisions between its practitioners - all of these had formed the basis of medical politics since Galen first practiced in Rome. For the picture of Galenic medicine as a dynamic, vital field of inquiry we have much to thank Nancy Siraisi, and historians of the British school following Vivian Nutton. The works of Andrew Cunningham, Andrew Wear and Ian McLean particularly comes to mind. That the sixteenth century featured a 'renaissance' of Galenic medicine is now a given. In fact, as the latter wrote, there was: 'A renaissance of Galenic studies in the first few decades of the sixteenth century, as well as a growing critique of Galenism in those that followed.'<sup>50</sup> Moreover, work in the intellectual history of medicine over the last ten to fifteen years, in particular by Nancy Siraisi and Ian Maclean, has put the textual production of medical authorities into a nuanced and rewarding relationship with the greater intellectual framework provided by humanism. The project to restore the ancient medicine of the Greeks in one sense reinvigorated Galenic medicine. But the effect was not without serious ramifications for traditional medicine: 'the repudiation of the scholastic method; an increasingly empirical and descriptive approach; a generally more attentive stance toward the individual and the particular; new physical environments for teaching such as the university botanic garden and (later) the university anatomy theater.'<sup>51</sup>

More recently still, historians have turned to a more flexible approach to modes of learned knowledge, taking into account the importance of non-verbal means of communication or visual modes of depiction. Here, German physicians have featured more prominently, especially the work of Leonhard Fuchs. A teacher at Tübingen for many years, Fuchs had a demonstrable influence on several of the Nuremberg physicians.

Detailed consideration of the municipal physicians both complicate and enrich this complex picture. The fairly backward German universities have been responsible for the neglect of German doctors, but the physicians in question were educated in German and Italian universities - they were unquestionably, inflexibly Galenic - they cleaved to

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<sup>48</sup> Paracelsus' social radicalism (as opposed to philosophical radicalism) is best described by Charles Webster, *Paracelsus. Medicine, Magic and Mission at the End of Time*, (Yale: Yale University Press, 2008); Owsei Temkin, 'The Elusiveness of Paracelsus', *Bulletin for the History of Medicine*, XXVI, (1952), 201 - 217.

<sup>49</sup> Johannes Oporinus grudgingly admitted that Paracelsus' cures were manifold and effective. This tension between effectiveness and medical heresy is further explored in Chapter Three. See Udo Benzenhöfer, 'Zum Brief des Johannes Oporinus über Paracelsus: Die bislang älteste bekannte Briefüberlieferung in einer ‚Oratio‘ von Gervasius Marstalle', *Sudhoff's Archiv*, Bd. 73, H.1 (1989), 55-63.

<sup>50</sup> Ian Maclean, *Logic, Signs and Nature in the Renaissance. The Case of Learned Medicine*. (Cambridge: Cambridge University Press), 11. This differs very little from Owsei Temkin's interpretation.

<sup>51</sup> Siraisi, *Girolamo Cardano*, 15

this self-definition, and generated a set of reference points from it. My dissertation argues that the biggest source of confusion to Galenic physicians came from within their own practice. Galenic medicine was thus in the process of redefining itself. This confusion came about, in part, though not exclusively, because physicians cared deeply about the medical tasks at hand.

### **Social history of medicine**

Since the work of Henry Sigerist, the history of learned medicine has yielded different, valuable conclusions, while continuing to use roughly unchanged sources, the same practitioners, the same intellectual framework: medical texts, 'learned' physicians - mostly in the domain of the university and Galenic philosophy.<sup>52</sup> Occupying the same 'unitarian' sphere of knowledge but a very different place on the social ladder, we have various non-academic practitioners of medicine. Since the 1960s and '70s, the social history of medicine has been radically rethought.<sup>53</sup> The social history of medicine, like social history of the early modern period more generally, has made its aim to understand the experience of and participation in medicine by those excluded from the records of 'learned' medicine: women, non-learned practitioners, 'folk' medicine, and patients. As these categories of individuals participated in and consumed medical practice, emphasis has been particularly on deviants, outsiders or women.<sup>54</sup>

Consideration of a 'popular' history of medicine has often focused on a perceived incursion into the social authority of hitherto respectable characters by patriarchal, male, academically educated doctors.<sup>55</sup> What the historiography has found is that general social divisions were replicated within the sphere of medicine. Despite this, the world of medical knowledge was, itself, fairly - if erratically - uniform. This is not to say that wise women, surgeons, peddlers of remedies and learned physicians were equally knowledgeable in all areas, but that they agreed, roughly, on the tenets and philosophy of Galen. The evocative description by Colin Jones of the 'unitary' medical world fits the

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<sup>52</sup> Nancy Siraisi, *Medieval and Early Renaissance Medicine*; Andrew Wear, *Knowledge and Practice*; Andrew Cunningham, *The Medical Renaissance*; Ian Maclean, *Logic, Signs and Nature*; Roger French, *Medicine before Science: The Rational and Learned Doctor from the Middle Ages to the Enlightenment*, (Cambridge: Cambridge University Press, 2003); Ole Peter Grell & Peter Elmer (eds), *Health, disease and society in Europe, 1500-1800. A Sourcebook*, (Manchester: Manchester University Press, 2004); Michael Stolberg, *Experiencing Illness and the Sick Body in Early Modern Europe* (London: Palgrave Macmillan, 2011).

<sup>53</sup> Colin Jones and Lawrence Brockliss, *The Medical World of Early Modern France*; Mary Lindemann, *Health and Healing*; Katherine Park, *Doctors in Florence*; Margaret Pelling, *Medical Conflicts*; Gianna Pomata, *Contracting a Cure*; Claudia Stein, *Negotiating the Pox*; John Henderson, *Renaissance Hospital*.

<sup>54</sup> Roy Porter, *Health for Sale: Quackery in England, 1660-1850*, (Manchester: Manchester University Press, 1989); M. Katritzky, *Women, Medicine and Theatre, 1500-1750. Literary Mountebanks and Performing Quacks*, (London: Ashgate, 2007); David Gentilcore, *Medical Charlatanism in Early Modern Italy*, (Oxford: Oxford University Press, 2006), Robert Jütte, *Ein Wunder wie der Goldene Zahn, Eine Unerhörte Begebenheit aus dem Jahre 1593 macht Geschichte(n)*, (Ostfildern: Jan Thorbecke Verlag, 2004); Jütte, *Ärzte, Heiler und Patienten. Medizinischer Alltag in der frühen Neuzeit*, (München Artemis & Winkler, 1991); Helen King, *Midwifery, Obstetrics and the Rise of Gynaecology: The Uses of a Sixteenth-Century Compendium*, (Aldershot: Ashgate Publishing, 2007).

<sup>55</sup> David Gentilcore, 'Was there a 'Popular Medicine' in early modern Europe?' *Folklore 115* (2004), 151-166. <http://www.jstor.org/stable/30035165>

social side of Nuremberg's medicine too. A 'medical penumbra' comprised of a variety of practitioners partook in a common market and shared common principles. While this was undoubtedly true, it has often meant that doctors have been less important to the social history of medicine than, for example, theologians have been to reformation history or jurists to legal history. Rather than innovating and leading medical change, they are more often viewed as hindrances, conservative figures who held medicine back.

Repudiation of the dichotomy between learned and popular is probably stale, as is the even more established repudiation of the (occasionally mistakenly synonymous) dichotomy between elite and popular. Nor is it my intention to place the Nuremberg physicians anywhere other than in the sphere of learned activity to which they aspired. They were, and claimed to be, 'learned'. That is to say, they aspired to and espoused the Galenic idea of the doctor as philosopher, engaged in an intellectual activity, at the core of which was the thought-process of diagnosis, tracing from sign to cause the roots and species of disease. What they add to the idea of early modern medicine is the way in which this highly learned, rigorous body of knowledge branched out to encounter other, wider subjects and how it was converted, from learning into practice.

Camerarius summarized and dismissed a plethora of 'popular' practitioners, labelling them fraudulent quacks. This did not, however, mean he repudiated popular medicine. Quacks, folk-practitioners and other unlicensed practitioners, 'irregulars' as Margaret Pelling has termed them, were not tolerated by any legitimate members of Nuremberg's functioning healthcare providers. These quacks, as Claudia Stein has written, might have served the positive social function of helping to identify legitimate medicine, but in the eyes of sixteenth century regulators, that was as popular as they were allowed to become.<sup>56</sup> Camerarius, as we shall see, regarded as 'experts' or 'specialists' a wide range of legitimate practitioners who were not necessarily university graduates. Among these were surgeons, midwives, oculists, bathers and most importantly of all, apothecaries. However, he wielded this category of expertise like a scalpel, amputating practitioners from functions they had long practiced.

Against the expectations of historians of medical deviancy, quacks etc, the greatest competition took place between two competing elites. In this sense, what we witness in this century is the establishment of a civic medical authority, based on a notion not just of 'learnedness' but of practical expertise. This expertise in many cases was appropriated from hitherto separate, if not professionally equal, groups of practitioners. In the recent reissue of her synthesis on early modern medicine, Mary Lindemann wrote:

'Because those who identified themselves with the 'new science' of the sixteenth and seventeenth centuries did not necessarily agree on means and purpose and often lacked intellectual acceptance, it was difficult - indeed impossible - for medicine and medical practitioners to base their authority on science. Rather, and until the very end of our period, people regarded "learnedness" as the most reliable way of judging the value of a practitioner. Learned practitioners came in different shapes and while physicians

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<sup>56</sup> Claudia Stein, 'The function of the quack as a means of Group Distinction in the Medical Community of Sixteenth Century Augsburg,' *Ludica* 5-6, 2000, 192-200.

(university-trained) had an edge, surgeons and apothecaries also often qualified as learned.'<sup>57</sup>

This is the beginning of the establishment of expertise and authority based on the inherent value of the process of the activity, rather than on the institution from which it was learned, or the approximate connection its writings had to Greek philosophy, or its value to universal knowledge. This had ramifications not just for the practice of medicine, but for the value of epistemology in general.

### Early modern knowledge

Major works on botany and anatomy have contributed to the location in the sixteenth century of the origin of a new kind of science: the transition between theologically oriented 'natural philosophy' and a more objective 'natural history'. These 'modes of knowledge' have been individually the subjects of a recent trend in the history of science, one that emphasizes the place of the sixteenth century in the development of 'new' sciences: botany, zoology and natural history.<sup>58</sup> The municipal physicians were collectively responsible for a significant portion of the works usually considered within these new sciences. I argue, however, that these branches remained fundamentally subservient to the notion of medicine. New interest was in *medicine* and *treatment*, rather than natural history or botany proper. We must remember to keep medicine front and centre. It allows us to read together things that otherwise we must keep apart. What my dissertation argues is that these shifts in their different fields, whether anatomical, botanical or simple correspondence, mirrored each other precisely because they had a common purpose.

This does not mean that their contribution was limited to medicine. By claiming roles and tasks associated with apothecaries and other practitioners of medicine, the Nuremberg physicians unwittingly contributed to a broader development in the way early modern knowledge functioned. This places them in a historical narrative of which medicine has really not partaken: the trajectory of scientific knowledge. The contribution of medicine to the scientific revolution has yet to be determined. But the way in which scientific communities were demarcated in the later sixteenth and seventeenth centuries included, and often built on, ways of communicating and types of knowledge that were medical. While the medical content of important figures in the Scientific Revolution has begun to be uncovered, the role of physicians in manifesting and demonstrating 'scientific' principles has not been addressed. The republic of letters included medical citizens.

Broader questions of experience, knowledge and epistemology and their roles in the development of modern science have been the purview of recent history of science. Answering them, historians have looked beyond the realm of academia to emphasise 'the

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<sup>57</sup> Lindemann, *Medicine and Society*, pp 85-6.

<sup>58</sup> Brian Ogilvie, *The Science of Describing: Natural History in Renaissance Europe*, (Chicago; University of Chicago Press, 2006); Paula Findlen, *Possessing Nature, Museums Collecting and Scientific Culture in Early Modern Italy*, (Berkeley; University of California Press, 1994); Nancy Siraisi, *History, Medicine and the Traditions of Renaissance Learning*, (Michigan; University of Michigan Press, 2007), Sachiko Kusukawa, *Picturing the Book of Nature. Image, Text and Argument in Sixteenth-Century Human Anatomy and Medical Botany*, (Chicago: University of Chicago Press, 2012).

plurality and coexistence of various modes of interacting with nature.<sup>59</sup> In general, such works have however, often sacrificed traditional 'intellectual' thought to changes in technical innovations, artisanal methods and modes of knowledge arising from such changes.<sup>60</sup> The municipal physicians occupy a singular position because they were very definitely 'learned physicians', attached to academic Galenism, but producing, by virtue of their civic interests, very different interpretations of it. Their growing emphasis on method and process, the subject of Part II, was one thing; the way in which they used specific elements of medical practice to answer the dilemmas caused by Galenic medicine was another. By doing this, they piggy-backed a process lately described by Pamela Smith and understood to be foundational to the development of an experiential notion of science. In many respects, they reversed the process of Pamela Smith's artisans, arguing not that practice was the primary form of engagement with the world, but that medical practice ought to be reflected within theory and that theory ought to expand to include different modes of knowledge necessary to adequately grasp the complex demands of disease and treatment.

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<sup>59</sup> Pamela Smith, 'Science on the Move. Recent Trends in the History of Early Modern Science', *Renaissance Quarterly*, Vol. 62 No. 2, (Summer 2009), Article Stable URL: <http://www.jstor.org/stable/10.1086/599864>

<sup>60</sup> Pamela Long, *Openness, Secrecy, Authorship. Technical Arts and the Culture of Knowledge from Antiquity to the Renaissance*, (Baltimore: Johns Hopkins University Press, 2001); Pamela Smith, *The Body of the Artisan: Art and Experience in the Scientific Revolution*, (Chicago: University of Chicago Press, 2004).

**Part One**

**The Emergence of Municipal Medicine**

## Chapter One: The municipal physicians in Nuremberg's medical marketplace

### Introduction



Fig. 1. Nuremberg. Michael Wohlgemut & Wilhelm Pleydenwurff, *View of Nuremberg*, in Hartmann Schedel, *Weltchronik*. (Nuremberg Chronicle), Nuremberg. Anton Koberger, 1493

Nuremberg's appearance in the sixteenth century was almost as famous as what that appearance stood for. From the Imperial Palace that dominated the city skyline to the Frauentor gates, next to the convent of the Poor Clares, Nuremberg was a city of prosperity, piety, order and beauty. Despite having one of the biggest populations in the Holy Roman Empire, Nuremberg was not geographically large and was far smaller than other demographically comparable cities like Cologne.<sup>1</sup> Between impressive, imposing, tightly fortified city walls, Nuremberg was divided roughly in half by the Pegnitz, a deep, somewhat sluggish river with the travel capacity of a natural canal. A corresponding spiritual separation into two parishes further entrenched the divide between the two riverbanks. The parish of St Sebald lay north of the river Pegnitz, and across it were densely situated, but still for the most part, single family homes. Narrow streets sloped down from the Imperial palace, and opened up at the main market square. The packed

<sup>1</sup> Conservative estimates put Nuremberg's population at about 22,000, while more generous estimates hover around 40,000. The most recent figure, and a happy compromise, estimates that in 1500 the population of Nuremberg was 35,000. See Gerald Strauss, *Nuremberg in the Sixteenth Century*, p. 37. Jeffrey Chips Smith, 'A Tale of Two Cities: Nuremberg and Munich' in Gary B. Cohen and Frank A. J. Szabo (eds.), *Embodiments of Power. Building Baroque Cities in Europe*, Austrian and Habsburg Studies, Vol. 10, 2008, 164; Peter Fleischmann, *Rat und Patriziat in Nuernberg. Die Herrschaft der Ratsgeschlechter vom 13 bis zum 18. Jahrhundert*. 3 Volumes. Nuernerger Forschungen, Volume 31, 2008. Band 1, 189.



warren of homes extended below ground. Below the towering castle, tunnels wound their way across the northern parish. The land below the house belonged to its owner, although right of passage existed for the Emperor should he find himself in need of an escape route. In the sixteenth century, these basements or cellars were often rented out to tradespeople, who converted them to business premises. St. Sebald had the advantage of the city's main market square, as well as the government buildings: the palace and the *Ratshaus*, the city hall. The southern parish, St Lorenz, housed the vast majority of the trades and artisans. In St Lorenz too was seated the most imposing of the enclosed orders, the Carthusians, whose impressive monastery is today occupied by the Germanisches National Museum. On the south side of the Pegnitz and downhill from St Sebald, the parish of St Lorenz was flatter, its streets were more evenly divided, and it was dotted by miniature market squares.

The two parishes dictated the municipal geography of religion and thus the medieval geography of charity and welfare. Between the two parish churches, the remains of the Jewish synagogue, burned in the thirteenth century, had been covered with the *Frauenkirche*, fronting onto the city's main market square. Other lesser churches were St Egidien's on the north hill, and St Klara's by the southwest entrance. Monasteries and convents were scattered throughout, some were small and nondescript while others were extensive and imposing buildings.

In 1493, when the *Nuremberg Chronicle* was published, it depicted Nuremberg as the quintessential Imperial city, a city which had benefitted from and proudly proclaimed its allegiance to the Holy Roman Emperor, at the time Maximilian I. The image of Nuremberg circulated widely, in part due to the popularity of the Chronicle, one of the most influential books in early print, and in part due to its adoption by the Nuremberg Senate as a kind of official civic portrait.<sup>2</sup> Over the course of the century, what Nuremberg would represent would change. In 1525, Nuremberg became the first city to adopt the Lutheran reforms and it assumed a leading role in the Protestant reformation, from which its relationship with the Emperor would never fully recover. Although the sixteenth century is still fondly recalled as Nuremberg's *Blütezeit*, its Golden Age, a series of setbacks, in the latter half of the century, forced the city and its patrician Senate into a defensive position.

As Nuremberg's material fortunes declined, its cultural standing assumed even greater importance. In the early sixteenth century, Nuremberg was the city of artists Adam Krafft, Veit Stoss, Albrecht Durer, Martin Behaim, Jost Amman. The religious reformation inflated the importance of some of its proponents, but the city was nonetheless also an important center of civic humanism, with a cluster of figures to the fore like Lazarus Spengler, Christoph Scheurl, Willibald Pirckheimer and Hans Sachs. No less influential were its many mathematical and scientific figures. The astrologer Regiomontanus, and the mathematicians Erhard Etzlaub and Johann Neudorffer all lived in Nuremberg. Nuremberg was the city in which the globe was created and Copernicus first printed. It was a busy center of artisanal production, as well as banking, trade and

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<sup>2</sup> On the chronicle see Adrian Wilson, *The Making of the Nuremberg Chronicle*, (Amsterdam; Asher & Co, 1976). On the civic portraiture, see Jeffrey Chips Smith, 'Nuremberg and the Topographies of Expectation', *Journal of the Northern Renaissance*, Issue 1.1 (Spring, 2009): The Idea of the North. URL: <http://www.northernrenaissance.org/articles/Nuremberg-and-the-Topographies-of-ExpectationbrJeffrey-Chips-Smith/8> Accessed, June 11, 2012

intellectual thought, and it is no surprise that metal workers, instrument makers and printers all flocked to the city.

The Nuremberg Chronicle, in which this image of the city appeared, exemplified the city's leading role. It proudly proclaimed the centrality of Nuremberg to the world's history and future development. As a material object, the book also represented the latest advances in printing technology. The alliance between author, illustrator, printer and financier brought together humanist, artisans and patriciate. The text, a fanciful re-imagining of the history of the world, displayed all the fruits of humanism, from cultural philology and linguistic dexterity to geographical curiosity and civic pride. Its author, Hartmann Schedel was a polymath, whose eclectic collection of books went on to form the basis of the current *Bayerisches Staatsbibliothek*. Much has been written about the chronicle, just as much has been written about the city of Nuremberg. A little known feature of Hartmann Schedel's chronicle is that its author was a physician, one of the first municipal physicians in Nuremberg, and though his *Weltchronik*, the *Nuremberg Chronicle* was not a medical text it nonetheless reflected the possibilities of medical learning and the products of a medical career. Schedel's philology was honed on his large collection of medical manuscripts. His day to day life involved treating the city's hospital patients. Records from his time in Nordlingen prove that he was interested in pharmaceutical medicine.

The medical background of the *Nuremberg Chronicle* suggests the central role that physicians would come to play in Nuremberg. In the last years of the fifteenth century, a physician articulated Nuremberg's exceptional place in the world. Over the course of the sixteenth century, growing numbers of physicians would define Nuremberg from within. Within the iconic city walls a medical reformation took place in Nuremberg, and placing it within the city's history requires careful consideration of what might seem like a familiar story. Nuremberg's patrician government, its patriarchal consolidation of authority and its religious reforms, as well as its commercial endeavours, artisanal productivity and even its external politics were all major shapers of the way in which physicians negotiated power and authority.

In 1479, the city of Nuremberg had published with fanfare, their *reformacion*, the codified prescription of their city's legislation, a paen to the city's political order. Like other Imperial Cities, Nuremberg combined a republican sense of self with a tightly controlled oligarchic governmental structure. The government of Nuremberg was split between two councils: the Greater, and the Inner. The larger of these numbered variously up to two hundred citizens, the *Genannte*, and served the purpose of ratifying decisions made by the Inner council. Real power of legislation lay with the latter council, a still sizable body of forty-two members. Of these, thirty-four were drawn exclusively from the ranks of the patriciate, while eight were token commoners but still, naturally, citizens.<sup>3</sup> The group of thirty-four was further divided into eight *Alte Genannte*, thirteen senior mayors, and thirteen junior mayors. The most senior member of the council, the Senior *Losunger*, the chief tax official, was chosen from amongst the thirteen senior mayors. He

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<sup>3</sup> For a discussion of the early modern patriciate see Thomas A. Brady Jr, *Ruling Class, Regime and Reformation at Strasbourg 1520 -1555*, (Leiden: Brill, 1997), pp. 53-56. For the Nuremberg patriciate see Peter Fleischmann, *Rat und Patriziat in Nuernberg*; H. H. Hoffman, 'Nobiles Norimbergense. Beobachtungen zur Struktur der reichstädtischen Obersicht', *Vorträge und Forschungen*, XI, 53-92.

was joined by a second, junior, *Losunger*, and a further Captain General. Members of the Inner Council were elected by the Greater Council, while the positions within the Inner Council were divided up by a process of internal voting. Once elected, the Inner Council retained a monopoly on city government. It operated its own courts, in addition to courts administered by university trained lawyers and jurists, and it oversaw the military, the administration of city offices, the territories surrounding Nuremberg and the administration of crafts and trades, which in some other cities would have been carried out by guilds. It assumed a wardship over widows and orphans, provided a channel for disputes between servants and masters, and generally reserved the right to insert itself into the relations between all citizens.<sup>4</sup>

The patrician families were a strictly demarcated social group in Nuremberg, their ranks jealously guarded and seldom opened to admit new members. Membership within the patriciate conferred the possibility of political power, and this brand of institutional political power was only open to such members. In addition, there were cultural and ritual demarcations of social status attached to this rank. In 1521 the passage of the dance statutes defined in law the limited number of families eligible for service in the Inner Council. With one exception (the Schlüsselfelders, who gained membership in the council in 1536), the list of families remained unchanged for two centuries.<sup>5</sup> Unlike rural communities, landowning was not a prerequisite of or a qualification for political power in Nuremberg. Nor was the provenance of Nuremberg's ruling families the result of Imperial appointment. The *ministeriales*, whose position created a concrete sense of class in the administration of territories, had little presence in Nuremberg. Instead, Nuremberg's patriciate were a commercial class, who practiced large-scale manufacturing, created far-flung trade networks and consolidated connections across other similar families in Imperial and foreign cities. They operated in trade-companies, with branches in commercial cities like Antwerp, Lyons, Venice and many, many more.<sup>6</sup> By contrast few families engaged in crafts or trades ever ascended into the ranks of the Nuremberg patriciate.

Into this tightly regulated, neatly packed city, came the physicians, an influx of highly educated, materially ambitious, professional, collegial, *important* young men. The earliest mention of a physician in Nuremberg comes from the early thirteenth century, but the city moved to employ doctors in an official capacity only toward the end of the fifteenth century.<sup>7</sup> Over the course of the sixteenth century, Nuremberg's close-ranked patriciate would cede authority over the medical marketplace to the growing number of physicians they employed. This chapter looks at the place of the municipal physician in Nuremberg and traces the growth of medical authority in the wake of the Lutheran

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<sup>4</sup> Strauss, *Nuremberg in the Sixteenth Century*, 58-67

<sup>5</sup> The importance of the dance statutes is alluded to in Strauss, *Nuremberg in the Sixteenth Century*, 79. They are excerpted in, Theodor Aign, *Die Ketzler. Ein Nürnberger Handelsherren und Jerusalem-pilgergeschlecht*, (Neustadt: Aisch, 1961). For a detailed analysis, see Heidi Bate, *The Measures of Men: Virtue and the Arts in Civic Imagery of sixteenth century Nuremberg*, Ph D Dissertation, University of California, Berkeley, 2000, 44 - 50.

<sup>6</sup> G. Hirschmann, *Das Nurnberger Patriziat*, in Hellmut Röbner, *Deutscher Adel, Vol. 3 Deutscher Patriziat, 1430-1740*, (Limberg a.d. Lahn: Starke Verlag, 1968), 127.

<sup>7</sup> GNM, Hs. 6028a, 41. See Philipp Egon, *Das Medizinal und Apothekenrecht in Nuernberg; Zu seiner Kenntnis von den Anfängen bis zur Gruendung des Collegium Pharmazeuticum (1632)*, Quellen und Studien zur Geschichte der Pharmazie, Frankfurt am Main, 1962, 18.

reformation. The city constituted a medical world. The alignment of patients, practitioners, politics and policy was fluid throughout the century. As a new kind of appointment, a new identity within the city walls, the physicians had to carve out a niche for themselves within the city's strictly delineated social hierarchy. The rates of pay, the conditions of employment and the general experience offered by Nuremberg were enough to lure famous physicians such as the anatomist Volcher Coiter to work there. The social context of the municipal physicians is obviously critical to our understanding of reform. But, the city, the rough-and-tumble marketplace into which municipal physicians stumbled, and out of which they emerged, provided more than just context. The needs of the city and the demands it made changed and ordered the medical marketplace, the way in which medicine was organized and delivered, but, because of this, it also changed what medicine was thought to be, and what it could become.

### **The municipal physicians in Nuremberg**

On August 30, a Wednesday, in 1553, *'Herr Hainrich Wolffen der artzney doctor'* swore his oath to the Nuremberg *Rat*, and entered its employ as municipal physician on September 7<sup>th</sup>.<sup>8</sup> Before the assembled *Bürgermeisters* and Senators, the doctor vowed that he would reside within the city walls for a period of five years, 'keeping roof and hearth there', and serving, to the best of his ability as a physician and surgeon, the Senate of Nuremberg and its citizenry. He would face the city's problems, presumably medical, and help the Senate avoid dangers (also medical), not just inside the city walls but in Nuremberg's townlands and other regions too. He vowed to treat the rich and poor alike, the elderly as well as the young, and to accept the payment on offer in line with his contemporaries. If they did not pay him, he would bring a complaint to the city council and accept its judgment. If he entered into other service during this time, he would not allow it to interfere with his employment in Nuremberg and if it did risk dismissal from his post. He accepted that he would seek the Senate's permission before venturing from the city. Too, he would allow them to dispatch him when needed to their townlands or allies. And in return for fulfilling the terms of his promises, Wolff would accept a hundred Rhenish gulden a year, to be paid in quarterly installments.

Oaths marked the appointment of municipal physicians, and, for almost a hundred years of the position's history, they were the only form of regulation available to the city governments. Templates for the oath exist in multiple sources, and individual examples show that there were modifications made for the physicians who swore it. Every oath mentioned medical care, but 'medical care' was entirely undefined. Melchior Ayrer swore to see to the Heilig-Geist-Spital, Stefan Holtmann took on the duty of treating the city's lepers. Volcher Coiter swore his oath as a surgeon and a physician, with a corresponding understanding that he would treat accidents as well as illnesses. Every oath had a fixed term and every oath made a provision for a set salary, but salaries differed and the renewal of tenure depended on circumstances.<sup>9</sup> At 100 gulden per year, Heinrich

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<sup>8</sup> StA N, Rep. 62b. 1094, fol 15v. Wed August 30, 1553; StA N, Rep. 62b, 1094, fol. 33r, Thurs, September 7, 1553.

<sup>9</sup> STA N, Verlasse zum Losungsamt, Bd. I,86. Although appointment to the position of municipal physician was made for a period of five years, it was quite normal to renew the tenure - most physicians served for much longer. Wolff was city physician for twenty-eight years. Melchior Ayrer entered the city's employ in

Wolff was already the best paid of the physicians, on top of this he earned a one-time 25 gulden bonus to sign his contract in 1553, and in the 1560s his salary increased to 200 gulden per year. Between 1569 and 1575 Volcher Coiter was also paid 100 gulden per years. Erasmus Flock, who served from 1544 to 1560 earned 70 gulden. At the lowest end of the spectrum, Melchior Ayrer, one of the longest serving of Nuremberg's sixteenth century physicians, became *stadtarzt* in 1548 and earned only 20 gulden per year.

Despite the resemblance of the domicile clause in the physicians' contracts to the terms and conditions defining citizenry, citizenship was not a privilege associated with the medical oath. Heinrich Wolff, who had been educated in Nuremberg as a boy, and was presumably not without personal connections to the city, did not receive citizenship until 1561. In the case of some foreigners, like Volcher Coiter or Georg Marius, the oath explicitly stated that the physician would not receive citizenship, that they would work '*ohne buergerrecht*.' Most physicians did receive citizenship eventually, and even without it, they were able to claim many of its privileges. They owned property, married and raised families. They settled disputes before the Senate and conducted professional endeavours of various sorts.

Rather than fixing the physicians' position in the city, the oath was simply the starting point of their tenure. Over the course of the sixteenth century, the physicians almost uniformly followed a path that improved their social standing, built on their privileges, amassed important clientele and negotiated the city's authority to their advantage. Although the oath granted the Senate jurisdiction over elements of the physician's medical business, such authority meant little unless it was exercised.

Take, for example, finances. The city's stipend was only one part of physician's income, paid to retain his presence in the city, and constituting the source of his obligation to the citizenry. The doctor's general practice, however, was a moneymaking enterprise that operated on the back of his stipend. Although physicians swore that they would see to the poor and the destitute, they were allowed to charge whatever sum they felt appropriate to those who *could* pay, and in the day to day the majority of their patients would certainly have paid something. For Heinrich Wolff, whose patients were almost exclusively members of the patriciate, this was a lucrative business indeed. Several of the physicians acquired rich and powerful patrons outside Nuremberg.

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1546 and died in 1579, serving for a total of thirty-three years. Joachim Camerarius, who had been friends with Coiter in Bologna, was the longest serving of the doctors in question, working for thirty-four years, 1564-1598. Georg Palma, one of Camerarius' closest friends and frequent collaborator, also died young, but he still managed to squeeze in twenty-three years of municipal service, 1568-1591. Mueller and Schenk, who along with Palma and Camerarius, were junior doctors when the manifesto for reform was proposed, worked for twenty-nine (1567-1582) and twenty years (1568-1588) respectively. It is safe to say then, that the position of municipal physician could be a lifetime one, subject to the approval of the city council and the desire of the doctor in question to renew. Of the twenty-plus doctors who served between 1571, when Camerarius first proposed the College of Medicine, and 1598, when it was founded, only Volcher Coiter lasted less than a decade, his employ being terminated by his death in the first year of his second term in office, he renewed his oath for three years in January 1575. The decision to renew a doctor's service was made in-house by the Nuremberg Senate, and did not necessarily entail a repeat of the ceremony of formal swearing. Renewed appointments seem to have been a matter of course, they are recorded in the city's minutes with little signs of debate or dispute. The position of the municipal physician remained formally static, although the chief mode of his employ could, and often did, change. Melchior Ayrer, for example, moved from his position as doctor to the *Heilig-Geist-Spital* to enter into general practice.

Territorial nobility often demanded recourse to the medical care employed by the city, either writing requests for opinions, or paying the doctors to make visits. Volcher Coiter retained the patronage of Duke Ludwig of Bavaria throughout his time in Nuremberg, while, Dorothea of Denmark and Norway, the widow of Frederick II, Elector Palatine commissioned the service of almost every doctor employed in the city at one time or another. The income available to the doctors was thus potentially quite substantial.

Compare these salaries to those received by the clergy. In 1544, Nuremberg paid her chaplains 150 gulden per year and provided them with a place to live; preachers were paid varying amounts between 150 gulden and 300 gulden. This, they made clear in a letter to Augsburg discussing the subject, was the result of a policy in which a salary depended on the preacher's ability.<sup>10</sup> Preachers working in the city's two medically serviced hospitals, the Heilig-Geist-Spital and the Lazarus, serve as an even better point of comparison. In 1526, the preacher at St. Jobst, one of four residential lazar houses, was paid a yearly stipend of 45 gulden. For this salary he said mass daily, although this was reduced to three or four times a week after the Reformation, lived on the premises, and treated the spiritual needs of the hospitals residents, whether patients or personnel.<sup>11</sup> In comparison, the doctor appointed to oversee the lepers in Nuremberg received roughly the same stipend, 40 gulden a year, but he visited only once a week, and carried out a substantial practice besides.

Foreign patients were both an important source of income and an excellent means of building medical reputation. They were beneficial to both the physician and the Senate, who frequently gave permission for the physicians to travel outside of Nuremberg, especially when there were advantageous political connections to be made. Heinrich Wolff made at least eighty-nine separate trips out of the city to see patients. At the opposite end of the spectrum, Melchior Ayrer, who was city physician five years longer than Wolff only made eight trips outside the city in all his years as municipal physician. The majority of patients abroad were socially at least at the level of burgher. In petitioning Nuremberg for aid from physicians, confessional politics appear practically non-existent. Anna, abbess of the Benedictine convent in Seligpfort, was a frequent patient of Heinrich Wolff, and the doctors went hither and thither without much consideration to religious territory. In 1561, Melchior Ayrer visited the convent in Engelthal.<sup>12</sup> In January 1566, Ayrer and Weller were sent to the Abbot of Hallsbrun.<sup>13</sup> In 1572, the Bishop of Passau wrote for an opinion from Melchior Ayrer.<sup>14</sup> Abbesses, abbots and bishops were joined by figures like the bailiff of Onolzbach, Count Ludwig of Öttingen, Friedrich von Lentersheim, Sebastien Erlbeck of Rosenberg.<sup>15</sup> Duchess

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<sup>10</sup> From a letter to Augsburg. STA N, Rst Nbg, Briefbuch, nr. 131, f. 231, 31 August, 1544 cited by Christopher W. Close, *The Negotiated Reformation: Imperial Cities and the Politics of Urban Reform*, (Cambridge: Cambridge University Press, 2009), p. 107

<sup>11</sup> Edgar Lloyd Rice, 'The Influence of the Reformation on Nuremberg's Provisions for Social Welfare, 1521-1528', Ph D Dissertation, Ohio State University, 1974, p.114

<sup>12</sup> StA N, Rep 60a, 1199, 32v, 18 August, 1561. Auff der Closter frawen zu Engelthal begern doctor Melchior Ayrer hinreusing erlauben inen inn jrer schwachheit retlich zu sein.

<sup>13</sup> StA N, Rep. 60a, 1271, 10v, 2 January, 1566, D. Melchior Ayrer und D Paulus Weller sol man zum Abt von halssbrun erlauben.

<sup>14</sup> StA N, Rep. 60a, 1348, 4 October, 1572, Des Herren Bischoun zu Passau schreiben mit enschluss Jacoben Ottendorfers supplication und D. Melchior Ayrsers antwort bei einem gelerten ratschlagen.

<sup>15</sup> Possibly Wolf Friedrich von Lentersheim (1545-1595).

Dorothea was a client or patron of quite a few Nuremberg physicians, but showed a marked preference for Wolff. In 1566 she summoned him to treat her in Neumarkt. The Senate approved the trip without much ado, but the same day was faced with what appears to be Wolff asking them to reconsider.<sup>16</sup> Rather than leave the powerful duchess without anyone, they sent Melchior Ayrer.<sup>17</sup> Evidently Ayrer did not find favour; he was never asked back again. Volcher Coiter was another physician with a highly influential clientele.

Coiter retained the patronage of his old employer, Ludwig the Duke of Bavaria.<sup>18</sup> On 19 June, 1571 he travelled to Bamberg at the request of Johann Philip von Seckendorf.<sup>19</sup> On 4 October 1571, he treated the cathedral provost from Bamberg.<sup>20</sup> In June 1572 he visited the head of the Teutonic Knights for fourteen days.<sup>21</sup> That October Coiter treated Zedwitz, *Amptmann* in Vilseck.<sup>22</sup> The following February Coiter was again mobile, travelling to Michael Welckner's wife in Grefenberg.<sup>23</sup> On the 16 June, he travelled to Amberg to see his old client, Pfalzgraf Ludwig<sup>24</sup>, and on 13 July he spent a further eight days in Arnstat.<sup>25</sup> In July 1574, he spent several days with Landgrave of Lichtenberg.<sup>26</sup> The most lengthy negotiations began on 21 October 1575, when Margrave of Brandenburg-Ansbach, Johann Casimir, wrote to petition Coiter to act as field surgeon in his campaign against France.

In Nuremberg's rigidly ordered social hierarchy, the profession of municipal physician placed the doctors somewhere between burgher and patriciate. In general physicians came from good, if not grand, families, and they married amongst themselves and up. The latter, patrician marriages, increased in the sixteenth century. Of the Nuremberg doctors, Georg Palma was by far the most successful in this regard. Only a year after his return from university, on 7 November 1569, at the age of twenty-seven (young for a doctor to marry) he married Helena Paumgartner, the daughter of Hieronymus Paumgartner (1498-1565), patriarch and humanist, and the sister of Hieronymus Paumgartner the Younger, an influential diplomat through the turn of the

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<sup>16</sup> StA N, Rep. 60a, 1270, fol 10v 6 December 1566, Weil sich D.Heinrich Wolf entschuldigt/ das Er seiner patienten halben nicht gein Neuenmarkt kome sol man Ine sein entschuldigung der Pflatzgrefin diner selbs thun lassen/ und dieselb der Pflatzgrefin auch zu schreiben.

<sup>17</sup> StA N, Rep. 60a, 1269, 20v 16 November, 1566.

<sup>18</sup> StA N, Rep. 60a, 1323, 14 December 1570.

<sup>19</sup> StA N, Rep. 60a, 1331, 19 June 1571.

<sup>20</sup> StA N Rep. 60a, 1335, 4 Oktober 1571, D Volcker Koyter sol man 8 tag zum Thumbprobsten von Bamberg gein Wirzburg erlauben, H.G. Nutzel.

<sup>21</sup> StA N Rep. 60a, 1344 6 June 1572, Auf das Herrn Teutschmeisters an Herrn Gabriel Nutzel gethanes schreiben sol man D Volcker Koyter uf 14 Tag weider zu sein f.g vergonnen H.G Nutzel.

<sup>22</sup> StA N, Rep. 60a, 1348, 17 October 1572. D Volcker Koyter zu dem von Zedwitz, Amptman zu Vilseck erlauben. W Rummel.

<sup>23</sup> StA N, Rep. 60a, 1353, f.12 21 February 1573.

<sup>24</sup> StA N Rep. 60a, 1357 16 June 1573.

<sup>25</sup> StA N, Rep. 60a, 1358, 13 July 1573.

<sup>26</sup> StA N, Rep. 60a, 1372, 12 July 1574, Herrn doctor Volckart Coiter soll man sechs tag zum Landtgrafen von Leichtenberg gen Pfreibmd vergonnen, doch sagen, seine pacienten zuvor dermassen zu versehen, damit in seinem abwesen nicht klag oder mangel erscheine.

seventeenth century.<sup>27</sup> Despite his poor salary Melchior Ayrer's first wife Cecilia, the daughter of Augustus Fuernberg and Cecilia Schultz came with an 800 gulden dowry.<sup>28</sup> Ayrer and Cecilia married in 1548. She died ten years later, leaving two children. Ayrer married again, three years later. His second wife, Maria, was the daughter of Hieronymus Hopfer.<sup>29</sup> Joachim Camerarius was married three times and outlived his third wife. His first wife, Justina, was the daughter of a doctor, Joachim Bernbeck. Mara, his second wife was the daughter of the merchant, Balthasar Rummelia. His third wife Ursula came from an 'ancient Tyrolean family'.<sup>30</sup>

As well as marrying their daughters into medical families, municipal physicians encouraged their sons to enter the profession. Heinrich Wolff's niece went on to marry the younger Nuremberg doctor, Johann Schenck. Georg Palma's father was physician in Nuremberg before him. In the broader context of European medicine, this was a relative novelty. Learned medicine was not inherently a family trade. Unlike apothecaries its practice involved no real inheritance. Doctors passed along books, and occasionally instruments, but not properties or places of business. Medical education took place primarily outside the home, so, unlike artisanal trades or crafts, there were no 'secrets' to pass along. In sixteenth century German society, however, medicine was an honourable profession, and a family which produced generations of doctors was seen as holding onto, rather than losing, its place on the social ladder. In the beginning of the sixteenth century few, if any, of the appointed municipal doctors inherited the post. Hartmann Schedel was notably the nephew and foster-child of his predecessor Hermann Schedel, although they did not hold their posts consecutively. By the turn of the next century several sons of previous city physicians had risen to their father's heights.

As well as building on the economics and finances of their employment, Nuremberg's municipal physicians amassed a number of social and cultural privileges. Across the Holy Roman Empire sumptuary regulations existed, which allowed physicians to claim a number of the same privileges of the nobility. They were allowed to wear fur, gloves and gold. They could hunt, until 1561 they could joust and they were permitted to drink alcohol.<sup>31</sup> In Nuremberg, physicians availed of some of the patriciate's privileges. In 1554, when he married Rosina Rosenzweidt, nee Goeringer, a daughter and widow of a burgher family, Heinrich Wolff was not only given permission for an evening of dancing<sup>32</sup>, the city even gifted the great number of guests, including Heinrich's famous

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<sup>27</sup> Landeskirchl Arch, Nbg, Sebald, 7.11. 1569 Dr Goerg Palm mit Helena Paumgartnerin, cited in Klaus König, *Der Nuernberger Stadtarzt Dr. Georg Palma (1543-1591)*, (Stuttgart: Gustav Fischer Verlag), 1961, 24.

<sup>28</sup> Doris Wolfangel, 'Dr Melchior Ayrer (1520-1579)', *Diss Med*, Wurzburg, 1957, p. 25.

<sup>29</sup> Paul Freher, *D. Pauli Freheri, Med Norimb. Theatrum Virorum Eruditione Clarorum. In quo Vitae & Scripta Theologorum Jureconsultorum, Medicorum & Philosophorum*, Nuremberg, Johannes Hoffmann, 1688, 1277.

<sup>30</sup> Freher, *Theatrum Virorum*, 1300 Of the three, Freher mentions particularly that Ursula, who died in 1589 was deeply mourned by Camerarius.

<sup>31</sup> On the Herrentrinkstuebe see W. Schultheis, 'Die Einrichtung der Herrentrinkstuebe und deren Ordnung von 1561/97', *MVGN*, Bd. 44, 1953.

<sup>32</sup> StA N, Rep 60a, 1103, fol 31v, 12 May 1554. Herrn doctor Hainrich Wolfffen zu seiner fruemess hochzeit/ ain aben tantzlein und etlich personen mer zu halten/ denn die ordnung vermag. In Nuremberg the privilege of dancing was so tightly guarded, it could be taken as an official sign of nobility. See Heidi Bate, Ph D Dissertation.



brother the humanist Hieronymus Wolff, with twelve barrels of wine.<sup>33</sup> Georg Palma, Volcher Coiter and Johannes Richthausen were all founding members of Nuremberg's *Music Sodality* (*Musikkreiss*), whose other members were all patrician.<sup>34</sup> Their cultural activities continued to improve on their social standing. Although social standing as determined by family and kinship was tightly regulated, there was a degree of mobility attained by claiming cultural capital.

The physicians self-consciously claimed learned status. Hartmann Schedel's Nuremberg Chronicle was undoubtedly the touchstone for sixteenth century learning, but as a group the Nuremberg physicians wrote and published books on a variety of subjects. As well as medical tracts on *terra sigillata*, Georg Marius wrote monographs in praise of Nuremberg and mathematical texts. Georg Forster was probably more famous for his musical publications than his municipal medical practice. Those who did not publish still engaged in learned culture. Physicians collected libraries like Palma's and wrote letters like Camerarius. They commissioned portraits depicting them in the context of books, pens and other cultured apparatus.

At least sixty-eight doctors served the city of Nuremberg in the sixteenth century, and we know them all by name.<sup>35</sup> Some were legitimately famous in their own time, renowned for their medical prowess as was Peter Burckhardt, some, like Schedel or Georg Forster, achieved lasting fame in circles so far from medicine, that those who recognize the name might be surprised to learn they were doctors. For many others their name is all that survives.

Medical employment within the city of Nuremberg was initially a private matter. In 1486, Hans Gartner, Sebald Schreyer, Hans Ingram and Hans Muenzmeister decided to use the 'Jorg Keyper Endowment', one of the most famous and influential private bequests of the middle ages, to salary a doctor in the *Heilig-Geist-Spital*, the city's largest hospital. Doctors had worked in the hospital prior to this, but the position formalized the role and separated the duties involved from those associated with other practitioners, like surgeons or apothecaries. Schedel was a physician here. His uncle Hermann, who raised him and collected the family library, was a doctor in Nuremberg before him, and his nephew Anton Schedel was a municipal physician after him.<sup>36</sup> The first oaths of office that were widely recorded, entered into private and municipal records, all date from this period, the end of the fifteenth century.

The Schedels, each consecutively a doctor, demonstrated the same pattern as a family, that physicians in Nuremberg followed more generally. Until the turn of the sixteenth century, medical careers overlapped infrequently and for only small periods of time, a year or two at most. Hermann Schedel was the only doctor registered in

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<sup>33</sup> StA N Rep 60a, 1103, fol 51v, 21 May 1554. Hyronimus Wolffen und andern frembden leuten so auff seines bruders Hainrichen Wolffen der artzney doctor hochzeit hieher kummen seyen/ soll man in 12 kandeln den wein schenken.

<sup>34</sup> StA Nor H. 431, Der Musicalischen Krentzleinsgesellschaft Ordnung; mentioned in König, 26.

<sup>35</sup> See Appendix I. The surviving lists of physicians were compiled in the middle of the seventeenth century and (as well as some questionable factual evidence) they yield insights into the prominence of physicians in the imperial cityscape. StadtA N, B 19/ 120

<sup>36</sup> On the earliest physicians in Nuremberg, and the medical careers of the Schedels see: Nicolas Damm, 'Der Nuernberger Stadtarzt Sebald Mulner (d. 1495). Eine biographische Skizze.' MVGN, 88 (2001), 139-170; Richard Stauber, *Die Schedelsche Bibliothek*, Diss Munich, 1906.

Nuremberg. Hartmann Schedel, municipal physician 1486-1514, shared that honour for two years with Heinrich Gradwol and for the last twenty-four years with Hieronymus Muentner. His nephew Anton Schedel was one of relatively many. Between 1528 and 1534 he was employed as a municipal physician alongside Johann Schutz (*Stadtarzt* 1524-1547), Peter Burckhardt (1514-1539), Sebald Busch (1512-1536), Johann Kramer (1501-1538), Heinrich Klingensporn, (1499-1539) and Johann Brugheimer (1498-48).<sup>37</sup> In 1485 there was one municipal physician, by 1525 there were seven. After Camerarius and the establishment of the *Collegium medicum* the number remained stable around eight.

At first glance, this appears to fit neatly into a European narrative of medical development. Bodies of state recorded physicians in Italian cities since the middle of the thirteenth century, the earliest contracted municipal physicians were employed by Italian city-states in the wake of fourteenth century devastation by the Black Death.<sup>38</sup> As the number of physicians grew however, it was no longer necessary for the city to pay to retain them. Thus the official municipal position fell away. The profusion of posts mitigated both the need for and the value of municipal physicians, and also led to the political *declassament* of medical practitioners. As Katherine Park traced the development in Florence, plague created a vacuum that was filled progressively by non-native Florentines, who, because they were not full citizens, were excluded from political life. Medical practitioners thus became increasingly marginalised within the power structure of the *Arte dei Medici e Speziali*, the Florentine medical college, as other guild members, principally apothecaries, came to dominate.<sup>39</sup> Such posts proliferated in Italy in the fifteenth century, but crept into German speaking territories only toward the sixteenth century. It was not until the sixteenth century that physicians became official figures in the Imperial Cities of the Holy Roman Empire. Growth, saturation and reduction were also, several centuries later, the case at Hoorn in Holland. Here the number of physicians employed was fewer, but nonetheless followed a similar trajectory: one, then three in 1600, before eventually disappearing in the later seventeenth century.<sup>40</sup>

The social status of other city doctors varied from place to place and country to country. In England, Margaret Pelling has traced a peculiar resistance to civic office on the part of doctors, noting that even when eligible and elected, or appointed, doctors often refused magisterial posts. In Germany the position of *stadtarzt* was itself a municipal office and carried with it certain of the concerns absent among English representatives of the medical profession. The attempts to steer family members into other medical roles, via marriage, education or work, also differentiates the German municipal physicians from some of their Italian counterparts, whose desire seems to have been to escape manual work altogether.<sup>41</sup> Early modern municipal physicians channeled funds into property, but displayed no desire to move in either direction, into trade or the patriciate. The physicians in Nuremberg perhaps more closely resemble the *protomedici* in Bologna,

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<sup>37</sup> Stadt A Nürnberg, B 19/ 120.

<sup>38</sup> Katherine Park, *Doctors and Medicine*.

<sup>39</sup> John Henderson, *The Renaissance Hospital*, 241, citing Park, *Doctors and Medicine*, 42-3.

<sup>40</sup> Lindemann compares Italy with Holland and finds the sequence of events 'virtually identical'. See Mary Lindemann, *Medicine and Society*, 205-207

<sup>41</sup> Katherine Park, *Doctors and Medicine*, especially, 169-179.

select physicians whose duty was to regulate other physicians.<sup>42</sup> But where *protomedici* interpreted their judicial duties as magisterial, the physicians in Nuremberg claimed magisterial authority on the basis of their shared medical status. Nowhere else did the profession carry with it such an immediate bond of corresponding duties, obligations and privileges; a bond which managed to turn foreign-born medical professionals into the social counterparts of the patriciate even before facilitating their acquisition of citizenship.

### **Nuremberg's 'medical marketplace'**

The municipal physicians were only one group of medical professionals among many that operated in Nuremberg, officially and unofficially. At its most expansive, the idea of a healthcare-profession (*Heilberufe* was a contemporary term denoting the amorphous body of non-degree holding practitioners) encompassed bakers, beer-makers, bathhouse attendants, nurses, mid-wives, sworn-wives and, of course, apothecaries. Although the 'medical marketplace' is a modern term coined by Katherine Park, this clustering of practitioners and the relationship between them is more than just a historiographical problem, it vexed sixteenth century observers as well. The city's *Amtsbücher*, the books of professions, recorded annually the names of oath-bound physicians, apothecaries, mid-wives and sworn-wives, while the city's records included oaths for unnamed surgeons (*wundartzney*) as well.<sup>43</sup> While terminology with regards to medical categories could change, and although practitioners could certainly manipulate their identities to a degree<sup>44</sup>, the existence of categories of medical practitioners presupposed a desire to regulate them. This desire was very vocally expressed by the city, but it was also demanded by appeals from within the medical marketplace.

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<sup>42</sup> The office of *protomedicato* was a magisterial office held by physicians in some Italian city states, intended to create oversight for the city's other physicians. In Spain, these were royal appointments, which conferred powers of jurisdiction over hospitals, medicine among armies and medical publications across the country. In Italy, protomedicati were appointed within the more limited geographical context of cities, and were often attached to municipal colleges of medicine. See: David Gentilcore 'All that pertains to medicine': protomedici and protomedicati in early modern Italy. *Med Hist.* 1994 April, 38 (2), 121 -142; Richard Palmer, 'Physicians and the state in post-medieval Italy', in Andrew Russell (ed.), *The Town and State Physician in Europe from the Middle Ages to the Enlightenment*; Gianna Pomata, *Contracting a Cure*.

<sup>43</sup> StA Nuernberg, Rep 62 *Amterbuechelein* records the names of the various oath-bound professions, while St A Nuernberg, Rep. 52b, *Amts und Standbuecher*, Heft 102, records examples of the oaths in question.

<sup>44</sup> For midwives in particular see Gertrud Hering geb. Schmidt, 'Die Beruefstaehtige Frau in der Reichstadt Nuernberg bis zum ende des. 16. Jhs.' *MGVN*, 88 (2001), 1-92.



The Apothecary in his shop - woodcut from *Spiegel der Artzney*, Lorenz Fries (1529)

First and foremost among the other medical practitioners were the apothecaries, who had a long and complicated relationship with the physicians. In the first half of the sixteenth century apothecaries sat on the Greater Council in Nuremberg; they operated as important civic patrons to the artists that won Nuremberg fame; they hobnobbed with the patriciate.<sup>45</sup> In the second half of the sixteenth century a series of legislative measures curbed their hold on property, inserted themselves into the kind of work they could do, and rolled back their professional standing to a mercantile-like attachment to tools and instruments.

The earliest mention of an apothecary in Nuremberg predates that of a physician. In 1276 a list of citizens included 'Johannes apotecarius de nurnberc'.<sup>46</sup> The identification of the early apothecaries and doctors has proven difficult.<sup>47</sup> Between the thirteenth and sixteenth centuries, the number of apothecaries in Nuremberg fluctuated, overall growing from the one or two apothecaries operating private enterprises in the city in the fifteenth century, to six, seven or eight 'sworn' apothecaries around the time of Camerarius' manifesto on reform

Some of the apothecaries were feted citizens, with all the trappings of the patriciate. Georg Öllinger (1487 -1557) for example, possessed arms and a *Stammbuch*, a family register. A medal bearing his imprint survives in the Germanisches Nationalmuseum,<sup>48</sup> and he was a member of the city's Greater Council in the first half of

<sup>45</sup> The social status of apothecaries in other Imperial Cities was similar. In Augsburg, in the 14th and 15th centuries, members of the patrician family Hofmaier were consecutively the city's apothecaries.

<sup>46</sup> Philipp, p. 19. See also: Konrad Boehner, 'Altneuenerger Apotheke', *MVG* 38 (1941), 15-91.

<sup>47</sup> Konrad Boehner, 'Altneuenerger Apotheke' *MVG*, 38 (1941), 5-91; G.W.K Lochner, *Topographische Tafeln von Nuernberg um 1500*, (1874).

<sup>48</sup> Medaillenkatalog Nr. 6725. in Hans Retzlau, *Herbarium des Georg Oellingers*, Salzburg, 1949. (Bild 51).

the sixteenth century. Apothecaries married in similar ways to the doctors, occasionally into each other's families. After Georg Palma the elder died, his widow Margarethe, Georg Palma's mother, married first in 1552, the apothecary Lienhard Stöberlin the elder, and then a second apothecary Mathaeus Perchner von Sora, in 1557. Stöberlin's place of business passed, through this second marriage, to Perchner, and when Perchner died Stöberlin's son inherited the shop. In each case, the permission of the Nuremberg Senate was necessary to validate the inheritance.

Unlike municipal physicians, the apothecaries who set up practices in the city were neither appointed nor hired by the Senate. They did, however, hold their position under oath. The civic identity and position of the apothecaries, who worked in Nuremberg, became fixed by the attention of the Senate to their place of business and their relationship with a local clientele. This conferred certain expectations upon its occupant, among which was the desire to pass along the property to family members. Because the apothecary was a place of business, and a business of things at that, it produced certain tensions for both the practitioner and the council between the notion of medicine as a public good and the provision of remedies as a private business.

The professional capacity of the apothecary was tied to his place of business and was measured according to the supplies and instruments available there. Unlike the physicians, all apothecaries were fixed in some way to space, operating out of fixed abodes. Those who did not operate in institutions, opened shops around marketplaces, or hired space in other larger buildings. Patients or prospective clients travelled to them, arriving with ailments, prescriptions and complaints and expecting to leave with the means to treat them. Like the physicians, some of these apothecaries were tied to establishments and foundations, as was the case with the apothecary in the *Heilig-Geist-Spital*.

Collectively women played a large role in medicine, and their individual contributions could be meaningful, progressive and recognised by contemporary practitioners. Theoretically their vital, dynamic participation in the practice of medical care was recognized by the male writers of medical texts. More recently it has also been recognized by historians, who have written about the medical interests of powerful, learned women rulers, the circulation of remedies within households and among female networks, and the medical character of domestic care.<sup>49</sup>

In Nuremberg select women played important public roles with a medical dimension, like the various *Schauerinnen*: the wives of custodians of hospitals. This was not just an honorary role. In the *Heilig Geist Spital*, the city's major medical institution, decisions regarding the admission and discharge of patients were still, for the most part, made by a woman. Women could also be benefactors, as was Margarethe Geissler, who left provisions for nursing in the hospital after her death. As Margarethe's bequest

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<sup>49</sup> Alisha Rankin, 'Becoming an Expert Practitioner: Court Experimentalism and the Medical Skills of Anna of Saxony', *Isis*, 98/2 (2007), 23-55; Elaine Leong, 'Making Medicines in the Early Modern Household', *Bulletin of the History of Medicine*, 82.1 (2008), 145-168. [http://muse.jhu.edu/journals/bulletin\\_of\\_the\\_history\\_of\\_medicine/v082/82.1leong.html](http://muse.jhu.edu/journals/bulletin_of_the_history_of_medicine/v082/82.1leong.html). Accessed, September 1, 2012.

illustrated, women continued in nursing roles throughout the period. Finally, much care remained in the private home, a right affirmed by the city council in 1544.<sup>50</sup>

On a professional level, the two female medical roles licensed by the city were closely related, midwives, and sworn wives.<sup>51</sup> Midwives were trained by apprenticeships and declared fit for service by a panel of their peers. They oversaw the delivery of babies, and also the care of young children and nursing mothers. Sworn wives, by contrast, did not necessarily have training in the area of gynecology, nor did they participate in the delivery of babies. Rather they acted as overseers, or registered witnesses. They served in this capacity a dual function, protecting the midwives against charges of malfeasance, but also acting on behalf of the city, reporting infractions. They were, for example, called in to testify in cases of possible infanticide, where midwives were often suspected of colluding with their patients to dispatch unwanted children.<sup>52</sup> Handbooks for midwives, or gynecological texts for physicians both treat the subject expansively.

Midwives swore oaths and were recorded in the city's *Amtsbaecher*.<sup>53</sup> The lists of these female practitioners describe a family profession that passed from mother to daughter, or involved long and careful private training. Sworn wives were also recorded in the lists of professions. This unusual position was also to an extent a matter of family politics, as sworn-wives were always married and always members of the patriciate. Their work is perhaps more comparable to the roles given wives of custodians, or overseers of charitable endowments.

Historiography on the position of midwives has tended to focus on competition between female and male medical practitioners, or between personal and private medical knowledge and academic incursion into its sphere and, sometimes, has treated these as synonymous. 'Why were women healers marginalized from the late medieval period?' asks the most recent comprehensive study of medical practice by women, at the outset.<sup>54</sup> The social difference between midwives and learned physicians however had as much to do with their client profile as the substance of the medicine they practiced. Midwives saw pregnant women and small children. It was only when physicians and midwives competed for female patients, that hostility arose between them and, thus, it had more to do with material ambition on the part of physicians, than any opinion on the merits or demerits of midwives' knowledge. None of the overworked municipal physicians appears to have coveted jurisdiction over childbirth, and they seldom interfered in cases of young children or their mothers. Although childbirth was more frequently a subject of medical

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<sup>50</sup> In response to a complaint made by neighbours that a woman was treating the sick in her home, the council responded that no one could force kin to send their families to hospitals. See Ulrich Knefelkamp, *Das Heilig-Geist-Spital*, 194.

<sup>51</sup> See the essays in Hilary Marland (ed), *The Art of Midwifery: Early Modern Midwives in Europe*, (London: Psychology Press, 1993); Merry Weisner, *Working Women in Renaissance Germany*, (New Jersey: Rutgers Press, 1986).

<sup>52</sup> Ulinka Rublack, *The Crimes of Women in Early Modern Germany* (Oxford: Oxford University Press, 1999); Merry Weisner, *Working Women*, Lyndal Roper, *The Holy Household, Women and Morals in Reformation Augsburg*, (Oxford: Oxford University Press, 1991) and Gertrud Hering geb. Schmidt, 'Die Beruefstaetige Frau in der Reichstadt Nuernberg bis zum ende des. 16. Jhs', *MGVN*, 88 (2001), 1-92.

<sup>53</sup> An example of the oaths can be found in Merry E. Wiesner Hanks, *Early Modern Europe, 1450 - 1789*, Primary Sources, Ch. 8, No. 15.

<sup>54</sup> Leigh Whaley, *Women and the Practice of Medical Care in Early Modern Europe, 1400-1800*. (London: Palgrave MacMillan, 2011), 3

textbooks as the sixteenth century progressed, it did not seem to be an interest shared by the Nuremberg doctors. Despite the hostility that existed elsewhere between doctors and midwives, relations in Nuremberg were therefore relatively amicable.



*Wundartzney* - Woodcut from *Spiegel der Artzney*, Lorenz Fries (1529)

The art and practice of surgery, *wundartzney*, *chirurgy*, pertained to the mechanical practices of medicine, and, traditionally, to the application of plasters and purgatives. Surgery was based on anatomical knowledge and Galenic principles and it seems that the more of this one could claim to know, the more general one's knowledge of surgery and the broader one's claim to authority. Among surgeons many had attended university, either informally or for less time than physicians. Still others trained in practical institutions, like the 'school' established in Strasbourg. Most completed apprenticeships under the supervision of a master. Surgeons thus followed and replicated the organizational structures of other artisanal experts, and were regarded similarly as the possessors of sophisticated technical knowledge. The number of surgeons in Nuremberg is difficult to calculate. What is clear, however, is that even this subcategory of the medical marketplace was divided in numerous ways. Unlike midwives, apothecaries or physicians, surgeons were not entered in the lists of the *Amtsbuecher*. They received no salary, and although records of oaths exist, we have no idea how their terms and conditions might have regulated the care received or expected. We have no records of how many worked at one time, or what the competitive marketplace for their general services looked like. Individual surgeons who survive in history must therefore provide entry into this world and they are of very different sorts.

There were first, the learned *chirurgeons*. A small number of municipal physicians regarded themselves and were regarded by the city as surgeons. Volcher Coiter was one, Stefan Holtmann, who served for a brief period from 1560 to 1564 was another. In his oath, sworn to the city council in 1560, he refers to himself as '*Ich Steffan Holtman von Hamburg, der leib-und- wundartzney doctor*', or '*I Stefan Holtmann of Hamburg, the physician and surgeon*'. He goes on to swear an oath very similar to

Coiter's; and he received, perhaps coincidentally perhaps not, the same annual wage of a hundred gulden. Other physicians, like Heinrich Wolff had enough surgical knowledge that they were in certain circumstances regarded as having sufficient expertise to evaluate surgical writings.

Volcher Coiter regarded himself as a trained surgeon (*chirurgion*) and wrote at length about the vital role his anatomical expertise played in medical thinking. But in general the division between *leibarzney* (physical medicine or physicians) and *wundarzney* (surgeons) appears to have been rather clear cut. The medieval distinction between these two branches of medicine centered on their relationship to the body's hidden interior. This was the provenance of the *leibarzt*, the physician, whose medical and scholastic education equipped him to deduce its state on the basis of what he could see and learn about the outside of the body. Knowledge of the *outside* of the body was thus, perhaps counter-intuitively, the realm of the surgeons, whose sharp instruments and ability to perform terrifying surgical procedures were no compensation for their lack of philosophical, general training and their inability to understand the body's hidden processes.

Following closely on the heels of the *chirurgions* were the *wundarzney*, practitioners trained exhaustively but exclusively in the surgical arts. The terminology reflects a suggestive division here: *chirurgions* identified themselves by the Latin term, and were versed in Galenic medicine and spoke or wrote in Latin. *Wundarzney*, like apothecaries, were certainly educated to a standard, and very well trained, but they wrote their texts and identified themselves in the vernacular. Theirs was the realm of practice apart from and devoid of philosophical learning. Take, for example, Franz Renner, who served as *wundarzney* in Nuremberg for a period around 1570. Renner, who identified himself as a *wundarzt*, wrote a successful guide to his craft.<sup>55</sup> Like the bestselling guides by Walther Ryff (ca.1500 -1548), Lorenz Fries (1489 -1550) or Hans von Gersdorf (ca.1455 -1529) before him, Renner laid forth the principles of his profession, the drama of his activities and the achievements of his career, without the benefit of a university degree.

Barber-surgeons, *barbieren* in the Nuremberg records, also treated minor external injuries and performed tasks such as cupping, leeching and bandaging wounds. These are the figures most often summoned in the popular images of the period: rough looking characters with overly large instruments of pain. Barbers too were trained, but even in cities with guilds, the structures of their incorporations were unclear. They are tainted by the suggestion of itinerancy, and there is often something of the peddler about their appearance. They were not performing quacks, but in the imagery, if not in their day-to-day practice, they were also not far off, with the theatrical gruesomeness of their surgeries, and the high stakes inherent in the drama of their activities. Their intervention came so often in moments of extreme visual injury. One didn't perform surgery, like one prescribed a good, preventative, diet on people who were in little danger of dying. One performed surgery at critical moments and difficult circumstances.

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<sup>55</sup> Frantz Renner, *Ein seyh nutzlichs und heilsams/ wohlgegrundets handtbuchlein/ gemeiner Practick/ Aller innerlicher un eusserlicher Ertzney/ so wider die abscheuliche Kranckheit der Frantzosen und Leinung/ Auch fuer all ander feutchten/so auss diesen Kranckheiten erfolgen/ wie die erkennt/ und zu grundtlicher Cur mogen gebracht werden.* Nuremberg, 1571.



It is difficult to be exact about the distinction between the barbers and the *wundarzney*, just as it is difficult to be exact about the jurisdictional lines between *chirurgeons* and *wundarzney*. The image above, for example, depicts two radically different portraits of surgical care. On the left, a man is being bled: long, large needles boring into his defenseless, naked body. Everything about the image blares the intrusiveness of the practice, the overpowering number of surgeons, the helpless posture of the patient, the juxtaposition of nudity and rich robes. On the right, however, the scene more closely resembles the bedside practice of the physician. The patient, nude again, is now covered with bedclothes, supported and protected and peaceful. Two figures stand in consultation about his case. Taken from the handbook for general medicine written by Lorenz Fries, *Mirror for Medicine*, this might as well be an exhortation of the predominance of the physician over the surgery, but even as a straightforward representation of different modes of surgery it demonstrates variety and expresses opinion.

Positions like *wundarzt* and *barbier* and *baader* all served social functions that laid on them the same imperative as the physicians had to treat the sick poor.. They also had similar origins in the private sponsorship by charitable institutions in the fourteenth and fifteenth centuries. One place of work for those providing surgical medicine was the city's hospitals. Numerous *wundarzney* were recorded in the hospitals records, as were bathers and barber-surgeons. Although the city failed to record the practitioners among the other medical *Ampter*, their understanding of the capacity of surgery, and *wundarzney* in general, seems both easier and better defined than their understanding of the more abstract medicine, or the particularities of pharmacy. Probably the best example of the awkward boundaries of this category of medicine was the case of Frantz Schmidt (ca. 1550 -1635), who was Nuremberg's executioner from 1578 to 1618. Schmidt was an exceptional case on many levels, an executioner with serious social aspirations and medical ambitions, who left behind him a long, involved, fascinating journal.<sup>56</sup> The natural compatibility of surgical knowledge with proficiency in torture and execution is one way of placing surgical knowledge, but in the case of Schmidt, it parlayed into a fairly busy medical career, which was not only tolerated by the council, but actively protected. On the other hand, when Schmidt reluctantly retired in 1618, his successor, the controversial Bernhard Schlegel, previously executioner in Amberg, was repeatedly admonished for aggressively pursuing other barber-surgeons' patients, and for providing judgement in a case involving 'magic and mental illness.' According to the council, Schlegel was to remember that his purview extended only so far as 'external injuries.'<sup>57</sup> In the case of surgery then, the practitioner was in fact less well-defined than the practice on offer.

In another tricky category were various 'empirics,' many of whom could also be grouped loosely under surgery. The term 'empiric' was contemporary and referred to the kind of training and knowledge possessed by these practitioners, which was hands-on and local. They were eye-doctors, teeth-doctors and the like. Such 'empirics' were often

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<sup>56</sup> *Das Tagebuch des Meister Franz, Scharfrichter zu Nürnberg, 1801*. The forthcoming translation and critical edition by Joel F. Harrington relies on a new, as yet unpublished manuscript.

<sup>57</sup> *RV 2040: 29v-30r* (Feb 10 1625) cited in Joel F. Harrington, *Frantz Schmidt*. Draft Chapter 5: Cv. Lxxvii.

targeted in the literature of the sixteenth century, even as the practices in which they engaged were exalted. Bathers, as the name might suggest, ran bathhouses in the city and provided small personal services, some grooming and some medical in nature. Baths were, in general, regarded as therapeutic, but also as dangerous, morally and medically, and bathers were consequently kept more closely in line than many other medical practitioners.

In addition to these licensed practitioners, a variety of medical trades were practiced by unlicensed 'specialists'. Some of these areas of specialisation were accepted practices, in which otherwise qualified doctors flatly refused to engage. The literature of the period, for example, gives us bone-breakers, teeth-doctors, eye-doctors and bathers; and ordinances in the city of Nuremberg were passed to regulate bakers, butchers, beer-makers, opticians and vintners, all under the auspices of improving general health. Others were more problematic: unlicensed empirics, 'corner' doctors (*winckelarzten*) and quacks were unequivocally deplored by anyone who occupied a more acceptable niche in the medical marketplace, including paying patients and the magistracy themselves.

Modern terminology has attempted to restore the dignity of some of these practitioners by removing the overly pejorative terms employed by the licensed physicians: 'empirics, quacks, mountebanks or charlatans'. The handle 'irregular' practitioner, bestowed by Margaret Pelling, is now regularly used to refer to unlicensed members of the medical marketplace.<sup>58</sup> The problem with the term 'irregular' (not unforeseen by Pelling) is that it is now deployed to describe those unlicensed practitioners of all sorts. But this was a group no less, and possibly more, diverse than the legitimate practitioners. There was a huge difference in perception between public regard for settled, local empirics, licensed or not, and public distrust and fascination with travelling 'mountebanks'.<sup>59</sup> Many quacks were proficient, or at least as proficient as other empirical practitioners not labeled as quacks. Almost as problematic as the variety of practitioners, was the variety of practice. Outside the scope, and according to the physicians, dangerously outside the norm, were a variety of non-medical approaches to disease. Religious cures continued to find favour into the seventeenth century. Patients could also appropriate and internalize originally medical approaches to disease, like astrology. Specific remedies with no proven medical origin were also suspect, and could be sold by peddlers, as well as quacks, who at least purported to deal in medical efficacy.

This is just one reason why patients themselves were regarded, both within medical theory and by physicians, as both the first and final participants in medical care and the commercial marketplace for medicine. Galenic medicine relied upon the patient, not only as the carrier or body of disease, but also as a diagnostic agent. In municipal medicine, patients were citizens, and this connection between patient and citizen drove and defined the city's approach to the provision of healthcare. As a functioning agent

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<sup>58</sup> Margaret Pelling, *Medical Conflicts in Early Modern London. Patronage, Physicians and Irregular Practitioners, 1550-1640*, (Oxford: Clarendon Press, 2003). The term pre-dates this book.

<sup>59</sup> On the theatricality and popularity of travelling quacks, see M. A. Katritzky, *Women, Medicine and Theatre 1500 - 1750. Literary Mountebanks and Performing Quacks*. (Aldershot: Ashgate, 2007). Of course, theatricality and performance was also an element of learned medical practice, as Katritzky argues fruitfully in her more recent work: *Healing, Performance and Ceremony in the Writings of Three Early Modern Physicians: Hippolytus Gaurinonius and the Brother Felix and Thomas Platter*, (Aldershot: Ashgate, 2012).

within the medical marketplace, the role of the patient was that of consumer. The patients exercised a degree of choice in the medical marketplace and they expected this choice. As a consumer, the patient was also a key component of the medical marketplace, and as a consumer, the key question with regards to patients was what guided their preferences?

Until the sixteenth century, differences among these groups and their legal place in German society, was a matter of social recognition, ie 'tradition', as the sixteenth century practitioners would claim. Cultural depiction via print and legal codification in cities coincided to create an identity, the terms and conditions of which were at stake. Although popular imagery and popular satire about physicians has often been used to demonstrate a broad, popular skepticism about the entire medical profession, the position of municipal physician in German speaking lands was a relatively new one, and its holders were out of step with the kinds of popular idioms that dominated representation of their academic or folk counterparts. Representations of physicians could be negative, but the position itself was, at worst, neutral. On the other hand, how physicians chose to represent themselves was important, because, as the century progressed, their collective representation emphasized precisely the elements that distinguished them from other members of the medical marketplace, and proclaimed instead their place in a learned, cultured elite.

The exclusivity of learned physicians, set by price if not by temperament, is frequently asserted, and it is often assumed that the poor had no recourse to their services. This is not necessarily true. Even in the thirteenth and fourteenth centuries, the very poor, the destitute and the helpless, had their medical needs provided by hospitals or charity. The early modern employment of municipal physicians confirmed this. The terms of the physicians' oath guaranteed that anyone with citizenship might be seen by a physician, while the same terms implied that mobile citizens, those not tied or restricted to a hospital, had a choice in terms of which physician they could consult. While they might have exercised less choice in the matter than the ideal, poor people, artisans, burghers and members of the patriciate saw and were seen by physicians. Similarly, just because the rich could afford physicians, did not mean that they preferred them in all circumstances.

Given a certain acceptance of the lines of demarcation between various practitioners, why did a patient choose one practitioner over another? It was not an uninformed choice. Patients in the early modern period were informed and curious, and they were increasingly familiar not just with the social outlines of the medical marketplace but the inner structures of the provision of medicine by different practitioners.<sup>60</sup> Patients took their right to exercise choice seriously. Many members of the elite saw a spectrum of practitioners and most physicians saw a spectrum of patients. As Mitchell Hammond has demonstrated, public preference for particular practitioners could force a city council to rethink their approach, even when the practitioners in question exercised unorthodox 'heretical' methods.<sup>61</sup> In Augsburg, public clamour forced the council to revise their ban on the Paracelsian practitioner. Although the Nuremberg physicians were involved in complaints and quarrels with other citizens, the municipal

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<sup>60</sup> Elaine Leong and Sara Pennell, 'Recipe Collections and the Currency of Medical Knowledge in the Early Modern 'Medical Marketplace' in Mark. S. R Jenner and Patrick Wells (eds.) *Medicine and the Market in England and the Colonies c. 1450 -c.1850*, (London: Palgrave Macmillan, 2007).

<sup>61</sup> Mitchell Hammond, 'Paracelsus and the Boundaries of Medicine in Early Modern Augsburg', in Gerhild Scholz Williams & Charles D. Gunnoe Jr, *Paracelsian Moments*, 19-34.

minutes record no complaints whatsoever targeting the doctors or the quality of care they provided. Despite the large number of people who died from ordinary fevers and minor injuries, it is clear that patients were content with the kind of care they received from doctors. Claudia Stein's portrait of syphilis in Augsburg suggests that for the most part patients were happy with the care they received and commonly accepted that this grave and fearsome disease had been cured by their physicians; and a cursory overview of day to day medicine in Nuremberg illustrates that this was also the case in less extreme circumstances.<sup>62</sup> Where disputes arose or dissatisfaction was expressed, it was more often the result of personality clashes or social conflict, rather than any real criticism of expertise or quality of care.

The definitions that separated out members of the medical marketplace were important, but in many cases the way in which their tasks overlapped was even more problematic. They were a co-dependent lot. This could lead to long, strong partnerships; Heinrich Wolff, for example, enjoyed a long and financially prosperous relationship with Barthel Zimmerman, one of the city's most prominent apothecaries. More often, however, it led to competition between the physicians and the group within which each individual physician was most invested.

The relationship between specific doctors and particular apothecaries varied greatly from couple to couple and depended largely on non-historical circumstances like personality. Professionally, doctors and apothecaries depended on each other in order to perform their jobs. If the terms of this relationship were unclear, the theoretical ideal: a doctor prescribes and an apothecary fabricates and sells the prescription, nevertheless obtained in enough circumstances that it could be asserted as the norm without reference or controversy. Palma's relationship with the apothecaries was fraught by personal issues, for which there is a frustrating lack of evidence. His stepfather, Lienhard Stöberlein, came to his marriage with Palma's mother with several children, and Palma's step-brother, Lienhard Stöberlin the younger, subsequently became apothecary in his father's place. Palma was brought up in an apothecary, and presumably learned much from his acquaintance with its business. His own view of medical authority, however, was on the extreme side of the debate. He made several amendments to Camerarius' text, all emphasizing the superiority of the doctor's medical knowledge, and he was instrumental in drafting the harsh reply to the apothecary's submitted protest of the reforms.

Even in a general capacity, the doctors crossed swords with other members of the *heilberufe*. Volcher Coiter had only arrived in the city when tensions arose between himself and Michael Holer, a barber-surgeon. Although the Senate's initial reaction was to hear both sides, upon doing so they rallied to the city physician's defense. They were set to punish Holer before Coiter intervened to commute the punishment, and the barber-surgeon was dismissed with a reprimand.<sup>63</sup> These disputes were not limited to barber-

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<sup>62</sup> Claudia Stein, *Negotiating the Pox*.

<sup>63</sup> StA N, Rep 60a, 1323 f. 30, 2 December 1570. Auf Herrn D. Volckern Koyters Clag, wie ungeschickt und unbetrohlich sich Michel Hohler Barbierer gegen im erzeit: sol man bede Theil gegeneinander hern und den Holer behaurn; StA N, Rep, 60a, f. 32 4 December, 1570. Michel Holder den Barbierer sol man uf Hern D Volckers furbit mit einer ernstlichen streflichen rede abgeen lassen. See Dorothy M. Schullian, 'New Documents on Volcher Coiter', *Journal of the History of Medicine and Allied Sciences*, Volume VI, Spring, 1951, 176-194. Here, p. 181.

surgeons. In 1571, Coiter refused to further treat one Hans Ritter, because he had gone also to the apothecary Bartel Zimmermann. On Coiter's complaint the council admonished Zimmermann to disclose what he had prescribed Hans Ritter.<sup>64</sup> He had a bath-attendant confined in prison for three days, the reason for which is unfortunately not indicated.<sup>65</sup> Coiter's unusual position as both *leibarzt* and *wundarzt* put him in professional competition with a group that the majority of the doctors had little to do with, but he was not alone in lodging complaints with the Senate. Some years after Camerarius' submission, but before any meaningful action was taken at its behest, the doctors as a body became briefly involved in a dispute with a *zuckermacher*, one Wolf Albrecht of Kronbach. 'Sugar-makers/syrup-makers' was a generic term, used in an array of incidences to denote someone who made remedies, or syrups without license. In this case, as in other cases that went far enough to require arbitration, contention between doctors and the public was mediated by the Senate.

In general, there was a difference between those who worked at the city's sufferance, and those who worked at its behest. Of all the categories of practitioners, physicians were the *only* ones actively imported by the council. Their presence in Nuremberg was not just licensed or encouraged, it was required, and should be seen as part of a newly conscious effort to *provide* medical care on the part of the city. The city drafted in physicians, but it saw the provision of medicines, remedies, and the provision of medical care, diagnosis prognosis and treatment, as separate. What that expertise meant, how it was regulated and how the physicians claimed authority was as much about perceptions of learnedness, and the manipulation of social circumstance as it was about the necessity for different kinds of medical treatment.

A few criteria of a marketplace were lacking in the case of Nuremberg. First, it was not really a medical 'marketplace' per se; the physicians were not competing against each other for a *living*, although they must have competed, at least at a certain level, for patients. In Florence, the study of which has informed our understanding of the composition of the medical marketplace, physicians were, from the time of the Black Death, a closely regulated corporate body, competing for patients in a well-defined sphere. In Nuremberg, what was critical for physicians about the medical marketplace in the sixteenth century, was that they were entering it more or less for the first time. In relation to the cluster of legitimate, illegitimate and otherwise uncategorized practitioners who offered services or remedies for sale, the position of the municipal physicians was new. In fact, most of the characteristic features describing municipal employment, the physicians' oaths, careers, social status and role in regions outside Nuremberg, depended upon and arose from the sudden, novel presence of multiple physicians. The existence of the municipal physicians demonstrated a desire on the part of the city to *provide* learned medical expertise of some sort. But, over the course of the century, the provision of medicine, by virtue of employing oath-bound practitioners failed to suffice. Oaths, as a tool of regulation, were supplemented in other instances by ordinances. But, outside the specific area of medical legislation, the sudden presence of highly educated physicians

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<sup>64</sup> StA N, Rep. 60a 1331, 4, 15 June, 1571. Dieweil sich D. Volcker beschwert Hannsen Ritter weiter zu curiren, dieweil im Bartel Zymmerman apoteker auch eingeben, sol man ine Zymmermann beschiken zu rede halte, was er im geben.

<sup>65</sup> StA N, Rep, 60a, 1331, 9 July, 1571, Mathes Leitkirchner den Bader sol man 3 tag auf in thurn strafen und D. Volcker sein sag lesen lassen.

had an effect in other areas, especially the changing face of welfare and regulation after the religious reformation of 1525.

### Medicine after the Lutheran Reformation

In March 1525, after a relatively short period of negotiation and a debatable amount of unrest, Nuremberg adopted the Lutheran reforms.<sup>66</sup> The importance of Nuremberg's conversion, the early timing, the seeming straightforwardness with which it occurred and the status the city claimed as foremost among the Imperial cities in Germany has, naturally, generated a considerable amount of historical interest in both the process of the city's conversion and the implications the reformation had for Nuremberg, and vice versa.<sup>67</sup> Lutheranism in Nuremberg entailed reforms within faith, doctrine, practice, devotion, ritual and, of course, the complex web of cultural beliefs that they generated. It also involved the restructuring of religious authority, in the manner of its constitution and in its relationship to other sources of political authority.<sup>68</sup>

The religious reformation created opportunity for physicians in two spheres. First, the reformation created a physical space into which the doctors could move. The Nuremberg senate disbanded the city's religious orders, with the temporary exception of the Poor Clares,<sup>69</sup> and consolidated their numerous endowments.<sup>70</sup> Nuremberg had

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<sup>66</sup> Gerhard Pfeiffer, *Quellen zur Nürnberger Reformationsgeschichte: von der Duldung liturgischer Änderungen bis zur Ausübung des Kirchenregiments durch den Rat (Juni 1524 - Juni 1525)*, Verein für Bayerische Kirchengeschichte, 1968.

<sup>67</sup> The best account of Nuremberg's sixteenth century history remains the nineteenth century tome, Emil Reicke, *Geschichte der Reichsstadt Nürnberg*, Nuremberg, 1896. More specifically, on the Nuremberg reformation see: Adolf Engelhardt, 'Die Reformation in Nürnberg', 3 vols, *MVGN*, 33,34 &36, (1936-1939); Gerhard Pfeiffer (ed), *Nürnberg - Geschichte einer europäischen Stadt* (Munich: Beck, 1971); Gerald Strauss, *Sixteenth Century Nuremberg*; Gunther Vogler, 'Imperial City Nuremberg, 1524-1525. The Reform movement in transition', in R. Po-Chia Hsia (ed), *The German People and The Reformation*. (Ithaca, Cornell U.P., 1988). More recently: Ron Rittgers, *The Reformation of the Keys: Confession, Conscience and Authority in Sixteenth Century Germany*, (Cambridge, MA: Harvard University Press, 2004). As well as general works on the religious reformation, the role of particular Nuremberg individuals in broader religious change has also been popular. Paula S. Datso Barker, 'Caritas Pirckheimer. A Female Humanist Confronts the Reformation,' *SCJ*, Vol.26, No. 2 (Summer, 1995), 259-272; Jonathan W. Zophy, 'Lazarus Spengler, Christoph Kress and Nuremberg's Reformation Diplomacy', *SCJ*, Vol. 5, No. 1 (April, 1975), 35-48; Harold Grimm, *Lazarus Spengler. A Lay Leader of the Reformation*, (Columbus: Ohio State University Press, 1978).

<sup>68</sup> Although an extensive historiography on the question of confessional identity, and the related issue of state-building addresses this question, at no point in the sixteenth century, were such identities - Lutheran, Catholic, Calvinist or other - doctrinally fixed or catechistic. Throughout the century, members of each confession - individual and cities - continued to debate the fundamental questions of their creeds. In Nuremberg privately sponsored disputations on matters of doctrine - in particular the Eucharist, but also on questions about resurrection, penance and sundry devotional issues - continued to take place in private and in public throughout the century. On the other hand, Nuremberg 'confessed' a Lutheranism unchallenged over the century. The figures of its reformation, Wenceslaus Linck, Andreas Osiander, Lazarus Spengler, became touchstones for other civic protestant movements, and asserted far-reaching authority in the scope of city politics. What 'Reformation Nuremberg' meant in terms of doctrinal certainty, and what it meant in terms of religious authority were two very different things - just as political authority and sources of knowledge differed, so did medical authority and medical knowledge, or orthodoxy.

<sup>69</sup> Charitas Pirckheimer, *Der Hochberühmten Charitas Pirckheimer. Denkwürdigkeiten aus dem Reformationszeitalter*, Translated and edited, Dr. C. Höfler, (Bamberg: Hoefler, 1849).

enjoyed, since its very foundation, an unusual degree of control over its ecclesiastical institutions. In particular the city's major charitable foundations, in other cities overseen and administered by religious orders, were, in Nuremberg, directly funded and run by members of the city's patriciate. The Lutheran reformation confirmed and institutionalized what was already a trend: direct patriarchal and municipal control over the city's social welfare. It removed administrative oversight from the host of individual magisterial families, and in some cases from the convents and monasteries in which they were based. It consolidated the variety of financial endowments into one sum, and funneled them through the larger institutions, closing a number of the smaller foundations.

Functioning, institutional oversight of the city's poor for example was restricted for the most part to the *Heilig Geist Spital*, the large and renowned hospital, whose new building, designed by Martin Behaim and completed in 1527, straddled the river Pegnitz, physically spanning the city's hitherto real, as well as symbolic, divide.<sup>71</sup> Although the *Heilig-Geist-Spital* was not strictly speaking a medical institution, it served in the capacity of a care-giving institution for the poor, the sick, the elderly and the helpless, as did most late medieval hospitals, it concerned itself with the preservation of the health and good order of its inhabitants. By the close of the fifteenth century, the hospital had its own physician, an on-site apothecary, which survives today, and two hundred beds for the poor, sick and helpless. The original appointment of a doctor had been to treat only the sick amongst its residents. Like other hospitals of the same period, the *Heilig-Geist-Spital* intended its doctor to determine the state of its inmates' health, recommend courses of treatment and prevent the spread of diseases. To this end, the records show that the *Spitalarzt*, the hospital's physician, was contracted to visit the hospital every day. Potentially sick inmates were then referred to him, by the hospital staff and he would determine the course of treatment.<sup>72</sup>

In 1542 Erasmus Flock was appointed as *Spitalarzt*.<sup>73</sup> He replaced Jacob Limonius who had died leaving not just the *Heilig-Geist-Spital*, but also the city's Lazarus untended. In 1549, Melchior Ayrer was hired to share his duties, each doctor receiving half of Flock's original salary, or 20 gulden apiece.<sup>74</sup> Flock left in 1552 and Ayrer continued alone until 1563, when, deciding he had had enough, he refused to see the sick. The city recorded this refusal to see to the sick in the hospital, and employed Steffan Holtman to replace him, offering the far greater sum of 100 gulden as

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<sup>70</sup> RV, 750, 7f. November 12, 1527. cited in Rice, 55.

<sup>71</sup> By far the most comprehensive work on the Heilig-Geist-Spital is Ulrich Knefelkamp, *Das Heilig-Geist-Spital in Nurnberg von 14.-17. Jahrhundert*, Nurnberger Forschungen 26, but the hospital has a rich and devoted literature, and stacks of records in the StadtArchiv. See Michael Deifenbacher, *Sechshundertfünfzig 650 Jahre Hospital zum Heiligen Geist in Nürnberg: 1339–1989*, (Nürnberg 1989); Michael Diefenbacher, ed., *Das älteste Urbar des Nürnberger Heilig-Geist-Spitals* (Nürnberg 1991). Georg Löhlein, "Die Gründungsurkunde des Nürnberger Heilig-Geistspitals von 1339," *MVGn*, (1963/64), 65–79.

<sup>72</sup> On the institutional history of the hospital and its daily life see Ulrich Knefelkamp, *Das Heilig-Geist-Spital*.

<sup>73</sup> STA N, Rep 60b, Rb, 23, fol 313v.

<sup>74</sup> Doris Wolfangel, Dr Melchior Ayrer (1520-1579), 20.

enticement.<sup>75</sup> Holtman was replaced in turn by Johannes Schenck, who supplemented his private practice by working in the hospital throughout the years of the medical reformation, and was paid 80 gulden for his troubles.<sup>76</sup> The city retained jurisdiction over the hospital, and it exercised its executive powers on several occasions. In instances of plague, the city often made decisions about whether to admit patients or not. It did so in 1533 and again in 1542 when a bout of severe pestilence was brought to the city by surrounding mercenaries.<sup>77</sup> It also had final say about the admission of patients, especially in cases where the petitioner for entry was not a citizen. The council was also called to ratify appointments, sign off on major purchases and to discipline particularly unruly patients. There was a definite trend over the course of the century toward standardizing these decisions. In 1565, new regulations were passed for the hospital, which detailed the standards for entry and also for the discharge of recovered patients.<sup>78</sup> Although the early modern hospital was often used to give care, there was a definite mission to 'cure'. Ulrich Knefelkamp's detailed studies show that the normal stay in the hospital was a matter of mere weeks.<sup>79</sup>

The second change that took place was the growing reliance of the city on the doctors' opinions as a source of authority. Between the early years of the civic, religious reformation, and the developments within the medical profession with which we are concerned, the Nuremberg senate mediated medical relationships, appointed doctors, oversaw public health and welfare and mandated a number of medical actions. It also continued to police the various institutions that it believed affected basic health and welfare within the city: bakers, butchers, brewers and a bevy of other trades. Increased civic control over trades and private business is a characteristic of civic government in the sixteenth century. Social historians have described this as a turn to patriarchal government, and have often showcased the negative impact it had on previously unlicensed trades and professions, especially those engaged in by minorities, female, Jewish or other. What have not been fully explored are the justifications and motivations for this presumed incursion. As the reactions of the Nuremberg Senate to impending plague, and other epidemics make clear, this turn was as much directed toward public health as it was toward public order. The moral claims made by the Senate were made under the rubric of public health and safety, and, as we have seen in exploring the broader medical discourse on the subject, they were, in this regard, supported by the medical personnel in Nuremberg across its professional spectrum.

At the heart of deciphering the changing place of the physician in the sixteenth century Imperial city lies this dichotomy: although advanced university education was a requirement for the position of municipal physician, and although it was the basis for the physician's claim to medical authority and cultural capital in the city, on the other hand, their education also excluded them. The physicians were the most learned people in Nuremberg; not just the most learned medical practitioners, but the most learned *people* -

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<sup>75</sup> StA N, 60a, 1205 29 January, 1562, Dieweil h. D Melchior Airer nit mehr zu den krancken inn das spittel gehen will, soll mann mit d. Steffen holtman hanndeln sich darzu gebrauchen zulassen. Woe r aber nit verhandelt dasselbig herwiderbringen. The details of Holtman's remuneration in Wolfangel, 59.

<sup>76</sup> STA N, Rep 60b, Rb. 33, fol 103v.

<sup>77</sup> F. Dross, p.27

<sup>78</sup> Knefelkamp, 179f.

<sup>79</sup> Knefelkamp, 276 - 331.



like lawyers and theologians, they had advanced degrees, but neither lawyers nor theologians travelled as far afield as physicians, and they rarely took as long to complete their studies. On the other hand, a physician's doctoral degree limited the channel of official power available to the municipal physician. University educated *doctoren* were forbidden membership in either of Nuremberg's two governing councils.<sup>80</sup> Although physicians held what was effectively civic office, and although they were able to avail of certain privileges of the patriciate, not only were they not admitted as members of the patriciate, they were officially excluded from its ranks. This was an idiosyncratic and intriguing feature of Nuremberg's government. The city had a seemingly paradoxical relationship with the doctors' education. On the one hand, the advanced university degree was a prerequisite for appointment to the position of municipal physician. On the other hand, possession of this qualification excluded the doctor from possession of political power.

In the course of its medieval development, the Nuremberg Senate suppressed all competing bodies of authority. Nuremberg had no guilds, and no institutionalized system of welfare, no university and a church effectively separated from oversight by local ecclesiastics. By the early sixteenth century then, Nuremberg had achieved political stability. Christoph Scheurl, who wrote a glowing chronicle of the city's history, laid forth in systematic praise, the rigid forms of government and the power of the patriarchy. In the course of the sixteenth century, the growing weight of the city's paternal appropriation of spiritual welfare stretched the shape of this framework. The weight of authority was redistributed along it. On the basis of Christopher Scheurl's chronicle, Gerald Strauss wrote: 'It is clear from Scheurl's description that the very idea of separation of powers was abhorrent to Nuremberg's ruling circles... Nothing characterizes the Nuremberg Council as much as its steadfast refusal to part with even a minute particle of its powers.'<sup>81</sup> In fact, Strauss went on to make an even more explicit claim: 'In Nuremberg', he wrote, 'unlike some other cities, the Council was not merely the supreme authority, it was the only authority.'<sup>82</sup> But the city's governance did recognize a separation of powers of sorts.

This was not a feature specifically of medicine but rather, of academic education; it applied just as much to lawyers and theologians. Nor did it preclude such figures from holding power: it forbade them from office, not influence. Some of the most important dignitaries in early modern Nuremberg were academically educated lawyers, whose qualifications technically excluded them from holding political power: Lazarus Spengler for example, who was *Stadtschreiber*, city secretary, or Christoph Scheurl. Additionally, the Rat frequently solicited and accepted advice from its more respected citizens. This could be case with lawyers, as the case of Scheurl amply demonstrates, or with its pastors, as the long standing influence of Andreas Osiander may illustrate. University educated lawyers also often took on diplomatic positions, as, for example, Philipp Camerarius, the younger brother of Joachim. In the sixteenth century, pastors, lawyers and, increasingly, physicians thus had official roles in the city and unofficial power. Their

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<sup>80</sup> Peter Fleischmann, 'Professionalisierung oder Ausschluss von Führungseliten in Nuernberg?' in Guenther Schultz, *Sozialer Aufstieg. Funktioneliten im Spaetmittelalter und in der fruehen Neuzeit*. (Munich: Harald Bolt Verlag im R. Oldenbourg Verlag, 2002), 49.

<sup>81</sup> Strauss, *Nuremberg in the Sixteenth Century*, 83.

<sup>82</sup> Strauss, 85.

use of this depended largely on personal circumstance and characteristics. Thus, who the physicians in Nuremberg actually were, their characteristics, charisma and personality mattered. So too did the relative persons holding authority and power in other areas of the city.

In Nuremberg, the Senate frequently solicited and accepted advice from its more respected citizens. This was the case with lawyers, as the case of Scheurl amply demonstrates. This was also demonstrably true when the direction of policy was aimed at legal spheres as, for example, the 1479 text *Das ist die Reformacion der statuten unnd gesetze die ein erbarer Rate d statt Nureberg*, which was undertaken 'mit rate der hochgelerten gemianer geschribner recht erkant'.<sup>83</sup> The city thus granted an ad-hoc formal role to the advisor. It solicited opinions from Osiander on welfare reform. In the early and middle sixteenth century, physicians tended to be consulted only in cases with very narrow medical interests. For example, their opinions were used as an internal check and balance, mainly in cases where other doctors or medical practitioners were involved.

A good example of this is the case of evaluating medical publications. In Nuremberg, when a municipal physician dedicated his work to the city in which he worked, the senate formally received the work. The submissions process was recorded as part of the senate's minutes. Upon receipt, the Senate then appointed a third party to evaluate the work and determine if it was fitting for it to be dedicated to the council. If it was the senate paid the author. Dedicating a publication to the council was neither simply a rhetorical tool, nor a means of courting future patronage. It could also be a claim for remuneration. Determining a text's suitability was a textured process. A text's intellectual worth was deemed by the council to be a matter of professional opinion. Intellectual worth and political suitability, however, were two different things. *Who* was appointed to oversee texts implied a level of trust bestowed by the council, not to mention a general respect or concession toward the figure's intellectual capabilities. Still a young employee of the city, Heinrich Wolf was commissioned to give his opinion on the plague book written by Franz Renner. Wolff asked his young colleague Hieronymus Herold to visit him at home, so that they could talk about the book.<sup>84</sup> By contrast, when the council was given Coiter's anatomical treatise, they commissioned not one but three of the municipal physicians to review it. The 'opinion' was originally an informal unit of advice, an indication of authority in particular cases where the senate lacked sufficient information to render judgement on their own. But as the sixteenth century progressed, the council solicited medical opinions on an array of broader issues.

Reformation era physicians like Johannes Magenbuch, Johann Zacharius and Peter Burckhard made sporadic appearances in the city records, when they were consulted on issues pertaining to the integration of the city's various hospitals. Their recommendations on various epidemics and on the general health and wellbeing of the city's population were also recorded in pamphlets like *A short regiment* issued in 1520, which was a distillation of other, longer plague texts. In 1545, the serving municipal physicians were requested en masse to submit counsel on the new *dispensatorium*, a pharmaceutical register for the apothecaries.<sup>85</sup> In 1548, Erasmus Flock advised the city on

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<sup>83</sup> Franz Beyerle, *Quellen zur Neueren Privatrechtsgeschichte Deutschlands*, (Weimar: H. Böhlau, 1936), 3

<sup>84</sup> OeBB, 40.

<sup>85</sup> See Chapter 7.

the matter of a new bathing ordinance, in which he recommended that stricter oversight by the council be administered by the municipal physicians.<sup>86</sup> In 1565, doctors participated in the restructuring of the rules governing hospital admissions. In 1575, they issued instructions for the prevention and treatment of plague. Some of these came at the instigation of the doctors themselves, who actively campaigned to be involved in the adoption of the new *Dispensatorium*, the city's pharmaceutical register.<sup>87</sup> Some of them were blatant attempts by the city to justify decisions made for logistical, rather than medical reasons. Overall, they hint at the growing integration of medical and welfare issues, and the dual role that physicians served by their contributions, first a civic service, and second, a service to their developing professional authority. These elements, which had been in play since the religious Reformation of 1525, culminated when the physicians were asked to contribute opinions on the reform of the city's *Sondersiechenschau*, the famous inspection of foreign lepers.

In 1574, Volcher Coiter, along with his colleagues Erasmus Flock, Justinus Mueller, Johannes Schenck, Georg Rucker and Georg Palma, replied to a request by the city council for opinions on the problem of lepers. Although it has been overshadowed by the furor surrounding plague and pox, leprosy remained a civic and medical problem in the sixteenth century.<sup>88</sup> Leprosy was a peculiar problem, because it clearly evoked moral and charitable obligations, but equally clearly presented practical and moral threats to civic order and wellbeing. While the interpretation of leprosy as a primarily spiritual affliction has recently been overturned, it retained in the early modern period a moral and symbolic character. There was, distinct from other diseases and ailments, a quintessentially holistic and spiritual interpretation of what leprosy actually was, and with its biblical parable, dire physical symptoms and threatening visual disintegration, leprosy appealed to the lowest common denominator. It appeared in print culture and the popular imagination as a physiological manifestation of social disorder or individual moral uncleanness.<sup>89</sup>

Unlike pox, which was a relatively new phenomenon, and even plague, which was an episodic disaster rather than an endemic condition, leprosy and the treatment of lepers had medieval roots in the city and a medieval system underpinning it. To that end, Nuremberg had retained, even through the consolidation of its other foundations, several different institutions established particularly for the care and housing of lepers. The oldest of them, St Johannis, lying directly east of the city's graveyard, was founded in 1234. St Jobst was founded in 1308 by the minister of St Sebald, and St Leonhard's was founded nine years later by the rival church. Another, attached to the graveyard of Peter and Paul, was mentioned in 1344 but did not reappear. St Johannis and St Leonhard were

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<sup>86</sup> StadtB N, Cent V. 42 fol. 160.

<sup>87</sup> See Chapter 7.

<sup>88</sup> See Martin Uhrmacher, *Leprosy u. Leprosorien in rheinischen Raum vom 12. bis zum 18. Jahrhundert*, (Trier; Porta Alba Verlag, 2011); Fritz Dross, 'Vom zuverlässigen Urteilen. Ärztliche Autorität, reichsstädtische Ordnung und der Verlust 'armer Glieder Christi' in der Nürnberger Sondersiechenschau,' *Medizin, Gesellschaft und Geschichte* 29 (2010), 9–46; Luke Demaitre, *Leprosy in Premodern Medicine: A malady of the whole body*. (Baltimore; Johns Hopkins University Press, 2007).

<sup>89</sup> See Luke Demaitre, *Leprosy in Premodern Medicine*.

for men, while St Jobst was reserved for women. St Peter was also for women.<sup>90</sup> Like other hospitals, these had been funded throughout the middle ages by a variety of private bequests, and, like other forms of charitable welfare in 1525, the administration and provision of these endowments became the responsibility of Nuremberg's city Senate.<sup>91</sup> Unlike Nuremberg's other charitable bequests and institutions, however, the medieval system of care for lepers resisted integration by the centralizing impulse that lay behind restructuring social welfare. Lepers could not be incorporated into the hospital, lest they infect others. Lepers were seldom citizens of Nuremberg. Unlike Nuremberg's other smaller institutions, which were closed down in favour of concentrating on the *Heilig-Geist-Spital*, the city retained its various leper-houses, and, for the first fifty years following the establishment of the common-chest, a centralized system of alms-giving, the Senate attempted to retain the status quo. However, it was the charitable character of leprosy that became a problem.

The *Sondersiechenschau*, the viewing of external petitioners, was a charitable tradition in Nuremberg that dated from 1394. It stemmed from a private endowment that provided the opportunity for those diagnosed with, or suspected of having, leprosy to receive a medical consultation. A strange system governed admissions, and it was this that the city most wished to change. Once a year, during Holy Week, the city opened its gates for three days and nights to foreign beggars. On Holy Tuesday, lepers and those claiming to be such, were admitted within the city walls. They gathered in the main market square in Nuremberg, directly outside the church of St Sebald on the north side of the river, where they were fed. On Wednesday they met with the municipal physicians. Those who were 'cured' received certification of their healthy status. Those diagnosed with leprosy were eligible to claim the remainder of the endowment: food and drink for two more days, and a new suit of clothes. Those who were cured and certified healthy obtained the chance to rejoin society. Those who had confirmation of their leprous status could beg admission to the city's leper houses. All petitioners, regardless of status, received a meal. A priest heard confessions on Wednesday, and on Thursday the lepers were allowed to take communion in the church of St Sebald. On Friday the unsuccessful petitioners, as well as those patients deemed 'cured', had to leave the city. According to the terms of the bequest, it was left to the Lazarus' doctor, a position that paid a mere 20 gulden a year, to diagnose whether the petitioners were actually lepers, and if so, whether they ought to be admitted. In the middle ages admission to the leperhouse was funded by a private endowment that also provided food, drink and clothing. In addition to this annual duty, the Lazarus' doctor visited the hospital on Wednesdays to see to the care of its inmates.

The *Sondersiechenschau* had been, since its establishment, a popular endowment. In the mid-fifteenth century it attracted around six hundred petitioners annually.<sup>92</sup> By the middle of the fifteenth century, the city had built a hospital specifically to accommodate the annual visitors during their four days inside the city.<sup>93</sup> But the sixteenth century saw a

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<sup>90</sup> Ernst Mummenhof, 'Die öffentliche Gesundheits- und Krankenpflege im alten Nürnberg', in *Festschrift zur Eröffnung des neuen Krankenhauses der Stadt Nürnberg*, Nuremberg, 1898, 1- 122.

<sup>91</sup> Willi Rüger, *Mittelalterliches Almosenwesen. Die Almosenordnung der Reichsstadt Nürnberg*, Nuremberg, 1932.

<sup>92</sup> Robert Herrlinger, Volcher Coiter (1534 - 1576), (Nuremberg: M. Edelmann 1952), 35.

<sup>93</sup> Luke Demaitre, 46. I have found no other reference to this hospital.

rapid growth in the number of petitioners. In 1462, there were 600 petitioners. In 1527, 666 leprosy patients accompanied 2,205 beggars.<sup>94</sup> In 1574, 3000 beggars arrived in Nuremberg and 2540 were diagnosed with leprosy, all of whom petitioned for entry to the Lazarus. One doctor could no longer cope with these demands, and even the growing number of municipal physicians could not keep up with the vast number of petitioners. The strain on the financial resources of the city outgrew the contributions of its patrician benefactors. Moreover, growing fears about the transmission of disease made it all the more worrying for the centre of a relatively small city to contain so many potentially infectious ill. In response to the unprecedented number of sick in 1574, the city commissioned a number of its doctors to review the problem.

Volcher Coiter's written opinion on leprosy was the longest, the most detailed and the most worked out of the various submissions made by municipal physicians, and it was also, not coincidentally, the set of recommendations eventually adopted by the council. Coiter described the essence of the *Sondersiechenschau* in terms of its material attributes, rather than its charitable components or its medical process. Although he talked about providing 'not simply for the physical, but also for the spiritual', what is provided is strictly practical: 'clothes and alms'.<sup>95</sup> The medieval idea behind almsgiving involved more than the material, the act of giving was an interaction that involved both giver and gifted. In the specific case of the *Sondersiechenschau*, what had traditionally been given was an additional interaction between doctor and leper. And although it is the participation by the medical personnel that provides Coiter with the authority to write about its reform, he removes the concept of interaction completely. The endowment is defined by the material things given. The role of the doctors is characterized in light of their jurisdiction, their role in deciding who is eligible to receive the things given. The biggest problem as defined by Coiter relates to material supply, it is simply a question of demand: 'for in so short a time, with so many thousands it is not possible to do much, and we need order and industry to inspect, otherwise error and shortcomings prevail'.<sup>96</sup>

Removing the principle of charitable interaction, or *caritas*, from the endowment allows Coiter to make the most far-reaching of his recommendations. It is subtly phrased, almost oblique, but it meant a definitive change nonetheless. Coiter moves the *Schau* outside the city.<sup>97</sup> He provides a medical justification for the scheduling of the inspection. Because doctors are examining the patients predominantly by their appearance, they must be sensitive to the way in which temperature impacts their appearance. Spring is good for this, because the patients are subject to no extremity in terms of weather. The official recommendations are relatively conservative. In most cases they recall the status quo: that the doctors do not give more than three days to the inspection, they look them over in two or three sections and then they can decide to view the most pressing cases, they must work together; the sick are overseen so that they line up in an orderly fashion and are

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<sup>94</sup> Fritz Dross, *Seuchenpolizei u. aertzliche Expertise*, 288-9.

<sup>95</sup> StadtB N, Ms Cent V 42, fol. 153v- 155v, reproduced in Herrlinger, *Volcher Coiter*, Anhang I, 124 -126. Here p. 124: 'dass sie jerlichs hie nitt allein leiblich, sondern auch geistlich gespeisset, mitt kleidern unnd ein ziemlichen zeerpfennig versehen werden sollten'.

<sup>96</sup> 'das in so einer kuertzen zeit, mitt soviel tausenten nicht wohl mueglich gewesen, ordentliche unnd vleissige besichtigung zu gebrauchen, daher dann nochmals aller jrthumb unnd mengl entstanden.'. Herrlinger, 124-5

<sup>97</sup> dass die leutt, so bey der Thuer der schau verordnet: Herrlinger, 126.

only seen once. Despite the fact that they are competing, Coiter takes pains to identify the common impulse and professional association between the physicians. A lovely piece of by-play is his reference to '*den andern Herrnphiisicis, meine mitt-collegis*', a thinly veiled reminder of the yet unfounded Collegium medicum.

The pageantry, scope and size of Nuremberg's *Sondersiechenschau* have proven irresistibly attractive to historians of leprosy and early modern medicine, and its reevaluation in 1574 has been the subject of some scrutiny. Luke Demaitre used the event to illustrate the way in which medical judgment on leprosy changed, concluding that: 'The credibility of the examined patients and of the medical examiners eclipsed leprosy itself as the paramount issue in judgments'<sup>98</sup> More recently Fritz Dross has written about the growth and role of medical expertise and experience in diagnosing leprosy, and, coming at the problem from a different angle, about the desire for 'spatial purity', that removing the disease from within the city walls indicated. But what is important at this juncture, in the narrative of medical reform, is the demonstration by the *Lepraschau* opinions, of the medical grounds for charitable reform. The willing adoption by Nuremberg's city council of these reforms heralded a shift in the place of medicine within the city.

The case of leprosy, which had a special place in Nuremberg's charitable and medical legacy, is a good example of the way in which moral obligation became a medical matter. The treatment of lepers clarified and focused the point of medical contact, because a *medical* diagnosis was required for entry. Within the already unusual context of leprosy, the case of the *Sondersiechenschau* (the viewing of external patients) proves even more illuminating, because it pertained to all lepers, rather than merely those who were citizens. Leprosy was, on the one hand, a charitable problem and on the other hand, a medical malady. Moving the *Sondersiechenschau* was, on the one hand, just common sense. It removed the threat of contagion, and it reduced significantly the attraction of the event to itinerant beggars more concerned with entry than with any diagnosis. But it also removed the main charitable component of the event. While there had always been a medical component to the *Lepraschau*, the *purpose* of the bequest was charitable: while the main benefit to the patients was facilitated by the doctors, the main charitable component was that lepers be admitted to the city, that they *share* communion.<sup>99</sup> The challenge to the citizens of Nuremberg couldn't have been clearer. The city's motives in removing the *Lepraschau* were obvious, and their use of medical justification demonstrates no shift in power per se, but in so doing they removed the main component of the charity. They turned the *Lepraschau* from a charitable, Christian, moral ritual, to a medical service.

On the civic side, the reform of leprosy in Nuremberg illustrates the growing centrality of medical justifications and medical vocabulary to civic decisions about welfare. The reform of the *Sondersiechenschau* was also a practical consolidation of the various components of medicine, collected but undefined in the duties and obligations that bound the physicians' employment. Written three years after Camerarius submitted his manifesto, and a scant twelve months after Joachim Struppius' text was published under the auspices of the Augsburg council, Coiter's text also bore a certain resemblance

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<sup>98</sup> Demaitre, 52.

<sup>99</sup> There were obvious ritual parallels to Jesus' association with lepers.

to these, more politically ambitious works of medical reform. His presentation was similar to Camerarius; although his text was nowhere near *that* long, it contained a carefully worded introduction, some general consideration of the problem at hand and a thought out justification for the relatively circumscribed set of changes he proposed.

Coiter's document demonstrated the growth of shared expertise, the centrality of diagnosis to the sense of learned medical expertise and collaboration between physicians. As a successful plan for action, his text marked a rare moment of harmony, in which the professional ambitions of the municipal physicians and their changing conception of their own medical mandate met the senate's requirements for municipal order. Above all, the case of leprosy, and Coiter's treatment of it, demonstrate the combination of theory and practice *in practice*. His written submission was an encounter of medicine in action; the same problem which the physicians had collectively encountered in a more oblique fashion in botany, anatomy, in print and with pen, in margins and on letters. Coiter's description of leprosy shows medicine in action, both as it was, and as it was thought to be.

## Conclusion

The post of municipal physician claimed roots in antiquity and precursors in the middle ages, but in Germany it was a new civic feature.<sup>100</sup> It created novel conditions in Germany for the practice of medicine, but before the religious reformation it lacked specifically defined duties. Physicians were employed by cities to provide medical care and protection for urban communities, but how and in what way were questions left unanswered by the tepid, sporadic regulatory tools of the oath and infrequent ad hoc senatorial directives. Nor was the practice of medicine uniform from city to city, or from physician to physician. Career paths in Nuremberg varied greatly. Coiter, Camerarius, Palma, Wolff, Ayser and their colleagues among the municipal physicians, pursued very different intellectual interests, and treated patients with varying social profiles and diverse medical afflictions. In the chapters that follow, a greater and more precise sense will be gained of some of their biographies, careers and agendas. But what repeats from chapter to chapter, physician to physician and from the production of medical thought to the application of medical practice, what the municipal physicians in Nuremberg had in common, is a concern with the boundaries of medical practice, its possibilities and its limits.

The outcome of the role of municipal physician could thus radically differ, both in terms of the social function the doctor was understood to provide, and in even greater terms, what medicine was understood to constitute. To name just a few idiosyncratic local elements: in Bologna, the contractual relationship between physicians and citizens was understood to depend upon the procurement of a cure.<sup>101</sup> In Venice, municipal physicians could be regulators (*protomedici*) or practitioners, members of the *Collegium*

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<sup>100</sup> See Vivian Nutton, 'Continuity or Rediscovery? The City Physician in Classical Antiquity and Mediaeval Italy,' in Andrew Russel (ed), *The Town and State Physician in Europe from the Middle Ages to the Enlightenment*, (Wolfenbuettel, 1981).

<sup>101</sup> Pomata, *Contracting a Cure*.

*medicum*, which admitted a variety of strictly defined strata of practitioners.<sup>102</sup> In England, physicians first proliferated as private practitioners and regulation preceded their acquisition of administrative functions; and Margaret Pelling has documented a resistance to magisterial duty on the part of physicians.<sup>103</sup> Although a College of Physicians existed in London since 1518, it was, in the stakes of the profession and the practice of medicine more generally, far closer to the corporate guild structures governing other professions and trades in the city than the *Collegium medicum* would be in Nuremberg. The complexity of systems of regulation also created different tiers of practitioners, both general divisions between surgeons, apothecaries and doctors, and more internal hierarchies between *protomedici* and municipal physicians. Even among the Imperial cities of Germany the prominence of learned physicians elicited differing reactions. In Augsburg, dispute over the treatment of pox created enduring competition between the city's *stadtaerzte* and their *wundarzneyn*: trained, regulated surgeons. In Cologne these surgeons acquired jurisdiction over the treatment of pox to the exclusion of learned physicians. This was a result of circumstance, which in Nuremberg inevitably means a result of religious reformation and the urban restructuring it provoked.

With stability, political legitimacy came to be defined in a more positive sense, as the community's ability to provide moral, spiritual and material order. In Nuremberg, the emergence of corporate municipal medicine coincided with a particular moment of moral government. In the sixteenth century, this concept of order, and welfare was defined in part by changing religious values, but was also elucidated and administered by medical professionals. What is clear is that political power, and civic authority were not coterminous. The political and social status of Nuremberg's citizens met fitfully, with give and take on either side. Political power, in the strictly defined sense of the power to act explicitly in the official channels of politics, legislative, administrative and judicial, was reserved to the patriciate and the members of the council. But civic authority was far more diffuse, moreover it could and did change depending on the situation.

This story, of the rise and organization of municipal medicine in Nuremberg is, at least in part, a story about the rise and organization of another urban authority. To be a *stadtarzt* meant one thing, and, with their upwardly mobile marriages, their portraits and rich clothes, their property, their investments and their applications to nobility, the physicians were concerned to make it mean more. However, despite the apparently entrenched role, political power, in the strictly defined sense of the power to act explicitly in the official channels of politics, legislative, administrative and judicial, was reserved to the patriciate and the members of the council. Social standing did not translate into political power, and political power and civic authority were not coterminous. Civic authority was far more diffuse, and, as we shall see in chapter 5, it diffused in unpredictable ways as the century progressed. At the same time, medical learning banned from the echelons of government met only imprecisely the demands and day-to-day substance of medical practice. The methods and condition of medical practice were as problematic for the municipal physicians as their place in the city. The conditions of care were not well defined by the city oaths, and, as we shall see, neither the conditions

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<sup>102</sup> Richard Palmer, 'Physicians and Surgeons in Sixteenth-Century Venice', *Medical History*, 1979: 23, 451-460. Stable URL: <http://dx.doi.org/10.1017/S002572730005208X> Accessed June 2011.

<sup>103</sup> Margaret Pelling, *Medical Conflicts*.



of medical care, nor the conditions of the municipal physician's practice were easily regulated.

Medical authority in the sixteenth century provided a vocabulary for civic policy, a personnel for civic administration and a set of answers, of varying effectiveness, for some of the century's most enduring civic problems. It arose without challenging the hegemony of the city council, and it existed in a separate sphere to the more entrenched authority of the secular lawyers. Nor did the relationships between clerical administration and medical authority turn fractious, although competition between doctor and priest existed and continued to exist both in the literary imaginations and in social reality.

The city's regulations and treatment of its different practitioners also had a foundational role in the definition not just of how medicine ought to be organized but what in *essence* it was. The physicians rose from membership in the broad spectrum of the medical marketplace to dominance over it. They did so, as we shall see in Chapter 6, partly by consolidating their jurisdiction over the various components of medical practice, and partly by expanding the social role of their expertise. The professionalization of medicine has often been assumed to have occurred at the expense of other members of the *Heilberufe*, the professionalization of some via the de-professionalization of others. In Nuremberg, the professionalization of medicine occurred as the result of the appropriation of practices traditionally associated with other members. The growth of medical authority is, thus, also the story about the change and dis-organization of traditional Galenic divisions between theory and practice in the face of practical demands.

## Chapter Two: Theory and practice in sixteenth century Galenic medicine

### Introduction

From grammar school to university to the medical faculty, early modern physicians were educated in stages, at each stage attaining familiarity with different foundational texts, critical techniques and heuristics.<sup>1</sup> As was common among children of the burgher class in most Imperial cities by the later sixteenth century, all the Nuremberg physicians attended a grammar school. Indeed Heinrich Wolff, Melchior Ayrer, Joachim Camerarius and Georg Palma attended the *Melanchthonsschule* in Nuremberg. Volcher Coiter was taught by Regnerus Praedinius in the St Martin Schule in Groningen. After grammar school they moved to university. Palma, Camerarius, and Ayrer all pursued their arts degree in Wittenberg, where anatomy had formed a key part of the curriculum since its introduction by Melanchthon in 1547.<sup>2</sup> For their medical degrees, their paths diverged, not only from each other but also from their medical contemporaries in the rest of Europe. Whereas French doctors attended Montpellier or Paris, English doctors attended Oxford or Cambridge, and Italian doctors any one of the numerous excellent Italian universities, their German colleagues tended to go abroad to receive their medical education. More so than any other country, German students flocked to Italy. Not only did medicine occupy a more prestigious and powerful position in Italian academia than in German faculties, the universities which particularly excelled in medical teaching - the real destinations for German students - lacked theological faculties altogether.<sup>3</sup> Heinrich Wolff received his doctorate in Avignon, Ayrer and Camerarius both graduated from Bologna. Georg Palma matriculated in Padua, but graduated back in Germany, one of the first victims of the tightening of religious conformity in Italian universities in 1565.<sup>4</sup>

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<sup>1</sup> Nancy Siraisi, *Medieval and Early Renaissance Medicine*; Nancy Siraisi, *Avicenna in Renaissance Italy: The Canon and Medical Teaching in Italian Universities after 1500*, (Princeton: Princeton University Press, 1987), Cornelius O'Boyle, *The Art of Medicine: Medical Teaching at the University of Paris 1250-1400*, (Leiden: Brill, 1998); Andrew Cunningham and Ole Peter Grell (eds.), *Medical Centres of Expertise*; Vivian Nutton & Roy Porter (eds), *The History of Medical Education in Britain*, (Amsterdam: Rodolpi, 1995); *Beloved Son Felix: The Journal of Felix Platter, a medical student in Montpellier in the Sixteenth Century*, London: 1961.

<sup>2</sup> Melanchthon also designed the curriculum of the Grammar school in Nuremberg. See Heinrich Wilhelm Heerwagen, *Zur Geschichte der Nürnberger Gelehrten Schulen in dem Zeitraume von 1526-1535*. (Nuremberg, 1868). The influence of the reformed and Lutheran pedagogies on the subsequent development of medicine has a slender but strident historiography. See especially, Vivian Nutton, 'Wittenberg Anatomy', in Ole Peter Grell and Andrew Cunningham (eds.) *Medicine and the Reformation*, (London: Routledge, 1993), 11-32; Jürgen Helm, 'Religion and Medicine: Anatomical Education at Wittenberg and Ingolstadt', in Jürgen Helm and Annette Winckelmann (eds.) *Religious Confessions and the Sciences in the Sixteenth Century*, (Leiden: Brill, 2001), 51-70.

<sup>3</sup> On the relative status of theology and medicine in the German universities see Paul F. Grendlar, 'The Universities of the Renaissance and Reformation,' *Renaissance Quarterly*, Vol. 57, No.1 (Spring, 2004), 1 - 42.

<sup>4</sup> König, *Der Nürnberger Stadtarzt Dr. Georg Palma*, pp. 14-20. On religious conformity in Italian Universities see Paul F. Grendler, *The Universities of the Italian Renaissance*, (Baltimore: Johns Hopkins University Press, 2002).

By any standards, in the early modern cities which employed them, physicians were highly, highly educated individuals. A university doctorate in medicine was a prerequisite for appointment to the position of municipal physician. It is important to recognize that even practicing physicians who never published or engaged in overt forms of 'elite' intellectual production, including those like Paracelsus who condemned elite learning, were, simply by virtue of graduating as physicians, highly learned. When physicians were employed in Nuremberg, the Senate hired not just a practitioner of medicine, but the discipline and education of an academic physician. The skills-set of the learned physician involved his mastery over a general body of knowledge and his ability to think deductively about diagnosis. It was on the basis of this general, universal knowledge that learned physicians claimed jurisdiction over more specialized medical subjects, like surgery, midwifery or pharmacy. One thing that remained the same throughout the sixteenth century, despite the Nuremberg medical reformation, regardless of the Nuremberg physicians' changing authority, was their claim to belong to a Galenic, philosophical, educated realm of medicine. Municipal physicians were educated doctors who shared with other doctors a grounding in Galenic medicine and adherence to Aristotelian natural philosophy; but they were doctors who encountered more than others the demands of practice.

Engagement with the world of medical practice broadened and in some cases refocused the physician's medical education. The tension between the non-abstract - the specific diagnoses, the individual patient, medical treatment - and the prevention of disease as a general principle was something that confronted early modern medical practitioners. And thus the municipal physicians sought to categorize the practice of this thinking as they did other practices.

Although medicine claimed to adhere to a universal philosophy, even in its most learned iteration, early modern medicine was inherently practical.<sup>5</sup> Medicine depended upon context, upon the particular, and it was not possible to think in purely philosophical terms about the medical body. The Galenic body did have principles, but the most important of them was the infinite variability of its manifestations. Both the Galenic body and Galenic medicine relied upon this individuation. Galen, because ancient, because Aristotelian, included rules of knowledge, but that did not make medicine 'philosophical'. Municipal medical practice introduced further complications to the already vexed question of medical knowledge. That the physicians were highly educated within a scholastic medical pedagogy, did not mean that they were not interested in practice, or that they felt their learning was sufficient, or elevated above the experience gained by practice. It might, however, explain just why it was that physicians felt so keenly the inadequacies of their various educations, or felt so threatened by circumstances which conspired to undermine them.

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<sup>5</sup> The uncertain status of medical knowledge was recognized as far back as antiquity. Hippocrates defined the work of the physician as that of a craftsman, and medical knowledge as *techné*; Galen described the physician as a philosopher and described medical knowledge in abstract, universal terms. The inclusion of medicine among the faculties of medieval universities meant that by the later middle ages, medicine occupied a position straddling the fences between technical and philosophical knowledge. See Ludwig Edelstein, 'The Hippocratic Physician,' in Ludwig Edelstein, *Ancient Medicine*, (eds) Owsei Temkin & C. Lilian Temkin. Trans C. Lilian Temkin. (Baltimore: Johns Hopkins UP, 1967), 87-110.

The purpose of this chapter is to place the *practice* of municipal medicine in its intellectual context. It follows a narrowing focus on practice; there is a shift from the general to the specific; from the broader world of medical humanism to the relatively smaller world of Nuremberg. The jarring disconnect between what physicians were learning, writing about and doing was felt by the physicians themselves, who were startled out of a mode of quiet, humanist reflection into a social agitation by the circumstances they found in Nuremberg. The chapter thus looks at what medical students learned. After clarifying the context for early modern medical practice, it turns to a unique development in sixteenth century understanding of medicine, that is to say, the development of a discourse on the *organization* of medicine, and its reform, before examining what municipal physicians actually encountered in the daily demands of practice. Throughout the sixteenth century, among medical humanists and working physicians alike, there was a trend in print and in action, to encounter the material, imprecise circumstances of medical practice. Rethinking specific elements of medical practice had an overall, expanding effect on the development of medicine as a whole. This sets up the discussion in chapters 3, 4 and 5 of printing, collection and correspondence as techniques in the rethinking of specific elements of medical epistemology.

The development of practice did not mean the decline of theory. The Paracelsian critique of learning, Durer's text on artisanal epistemology, the explosion in print of practical, technical 'how-to' books which are often seen as subversive statements, at worst pitting an undervalued, repressed group of practitioners against a solid, established 'elite', at best, claiming respect for a type of knowledge too long unappreciated. But learned practitioners were just as interested in practice as their less educated colleagues. Their interest in practice characterized sixteenth century science, in the sense of written discourse about natural philosophy, medicine, law and theology (the cosmos). The most foundational texts in medical humanism evinced this practical bent, as did the trajectory of physicians' careers within courts, universities and, most importantly, cities. Doctors were aware, were actively seeking, a methodological link between what they were doing, and what they *should* do. Thus, as these practical challenges grew in the sixteenth century, physicians began to reflect on the constituent parts of medical practice and thereby - albeit cautiously and indirectly - on the discrete systems of thought these practices actually engaged. Their intellectual, very specific professional identity came to encompass material previously belonging 'merely' to practice. Medicine grew more practical, not just because the physicians *did* more, but because they used what they did as fodder for their theoretical tasks. Municipal medicine, with its rules and regulations and wide pool of patients, represented not a 'bringing down' to earth of Aristotelian or Galenic universals, but a raising up - a widening generalization, an abstraction into the modern notion of general principles - of medical particulars.

### **Galenic medicine - practice in theory**

Grammar schools taught Latin and some Greek via a mixture of classical, often Roman writing, for example Cicero or Virgil, with contemporary humanist translations,

for example Melanchthon or Erasmus.<sup>6</sup> In the lifetime training of the doctor, this foundational education was first supplemented by the basic arts degree, which was considered a propaedeutic for medicine in Italy, in the same way that it formed the basis of the theology and law degrees awarded in Germany. For the most part, German doctors completed their standard arts degrees in newer German universities, taking advantage of the pedagogical reforms of the sixteenth century. There they were trained in the scholastic arts of logic, rhetoric and grammar, in rudimentary mathematics, fairly comprehensive astronomy, and in Wittenberg at least in basic (Aristotelian) anatomy. Aristotelian natural philosophy provided the intellectual context for the reception of Galenic medicine, and the epistemological framework within which it was understood.<sup>7</sup> This meant, among other things: a basic familiarity with the humanist controversies of the earlier sixteenth century, as well as a certain fluidity, perhaps even skepticism in terms of their attitudes to received textual knowledge.

In contrast to the reformed pedagogies espoused in Wittenberg after Melanchthon, and variants on it taught by other German universities, the advanced education provided by the medical schools in Italy did not stray far from the scholastic models of teaching.<sup>8</sup> Despite the broad heyday of humanism, the teaching of medicine in the universities, even by the end of the sixteenth century, remained, at a pedagogical level, traditional and scholastic. The medical curriculum reflected the epistemological distinction between *theorica* and *practica*, but both branches of medicine were taught via lectures, disputations, and expositions of standard texts, of which the core was formed from works by Galen, Hippocrates and Avicenna.<sup>9</sup> The medieval use of Arabic translations had not entirely given way to newer humanist editions; Rhazes's writings on disease remained a frequent subject of lectures. 'New sciences' crept in slowly through the course of the century. By the middle of the sixteenth century, anatomy was a minor subject in most medical faculties. There were university gardens in Florence, Padua, Ferrara and Bologna, and the majority of Italian universities sponsored chairs in anatomy and botany (sometimes the same professor). In Florence, it was obligatory to attend the two dissections performed annually.<sup>10</sup> Giovanni Battista Da Monte (Montanus: 1498 - 1551) introduced innovative clinical teaching in Ferrara and Padua, where he also founded the botanical garden.<sup>11</sup> Vesalius famously (or infamously) taught dissection in private. After

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<sup>6</sup> On the changing curricula in early modern grammar schools see Anthony Grafton & Lisa Jardine, *From Humanism to the Humanities; education and the liberal arts in fifteenth and sixteenth century Europe*, (Cambridge, MA; Harvard University Press, 1986); Robert Black, *Humanism and Education in Medieval and Renaissance Italy; Tradition and Innovation in Latin Schools from the Twelfth to the Fifteenth Century*, (Cambridge: Cambridge University Press, 2004).

<sup>7</sup> Charles B Schmitt, 'Aristotle among the Physicians,' in Andrew Wear et al (eds), *The Medical Renaissance of the Sixteenth Century*, (Cambridge: UP, 1985), 1 -15.

<sup>8</sup> Nancy Siraisi, *Medicine and the Italian Universities* (Leiden: Brill, 2001); Siraisi, *Medieval and Early Renaissance Medicine*, especially chapter three: 'Medical Education', 48 - 77; Cunningham and Grell, *Medical Centres of Excellence*; Paul Grendler, *The Universities of the Italian Renaissance*, esp. Chapter 9, 'The Medical Curriculum', 314- 352.

<sup>9</sup> Nancy Siraisi, *Medieval and Early Renaissance Medicine*, p. 71: These were the brief Galenic compendium known as the Tegni, Microtechné or Ars parva; the Hippocratic Aphorisms; and sections of Avicenna's Canon.

<sup>10</sup> Katherine Park, *Doctors and Medicine*, p. 61 citing, Statue of 1387/8, Alessandro Gherardi, Statuti, 74.

<sup>11</sup> John Henderson, *The Renaissance Hospital*, 247.

Vesalius, there were public anatomies in Padua at Christmas and Carnival, and additional dissections by university professors of anatomy in class, at least until the disputes provoked by Girolamo Fabrici in 1586.<sup>12</sup>

Official university statutes seldom reflected the available training in practical arts of medicine. In Ingolstadt, for example, a curriculum set sometime between 1556 and 1560 specified 120 set texts, all of which were on Galen and Hippocrates, while the catalogue of lectures published in 1571 actually devotes a chapter to lectures after Vesalius.<sup>13</sup> Although 'practice was the acknowledged goal of university medical education'<sup>14</sup>, theory was privileged above praxis: there were more professors, they taught for longer, they claimed the morning lecture spots, and they earned more than their praxis-oriented colleagues. Clinical training, anatomical autopsies and botanical lessons were more often private pursuits. Oversight of private teaching grew stricter in the late 1580s.<sup>15</sup> The German students who attended the Italian universities in the years between Vesalius and 1580 thus benefited from a window in which the practical teaching of medicine flourished before regulation arose to curb it. Before looking at the ways in which physicians practiced, and the disconnect they felt their practice caused, one should look, much as the physicians themselves did, at the way in which medicine, both in theory *and* practice, was *supposed* to work.

The fundamentals of the Galenic body are well known: health relied on the proper balance of four humours, blood, phlegm, black bile and yellow bile, and sickness arose from their imbalance, their 'disorder'.<sup>16</sup> The infinite variability of a body's complexion, the schema within which the essential characteristics of the body's health - humours, pulse, temperature etc - were organized, meant that the 'proper' balance varied from person to person, as did the causes of their imbalance, which could be environmental, emotional or most often material, which was a result of putting the incorrect material into the body. Galenic medicine in practice thus relied on a 'mixture of environmentalism and humoralism'<sup>17</sup> and it had two functions. The first was to guard against disease, to provide protection and advice to the healthy. The doctor's role was often about maintaining rather than restoring health. To live in this continuum between health and disease was a delicate balance; the healthy were constantly on guard to prevent a lapse into illness. The doctor's protective function was sought by patients and provided by means of regimens, a tailor-made programme balancing diet, exercise and emotional well-being. It was also solicited by institutions, like hospitals, and by the city, especially in the case of guarding against plague.

The second medical function was interventive. Whereas preventative medicine concentrated mainly on preserving the body's status quo, interventive medicine was intended to alter rather than to preserve. As such, it was more involved with the sick than

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<sup>12</sup> Paul Grendler, *The Universities of the Italian Renaissance*, 491.

<sup>13</sup> Jürgen Helm, 'Protestant and Catholic Medicine in the Sixteenth Century? The Case of Ingolstadt Anatomy', *Medical History*, 45 (2001), 89.

<sup>14</sup> Nancy Siraisi, *Medieval and Early Renaissance Medicine*, 72.

<sup>15</sup> See for example the ban on private anatomizing in Padua, sponsored by Girolamo Fabrici in 1586: Paul Grendler, *The Universities in Renaissance Italy*, 491 - 495.

<sup>16</sup> See the chapter on 'Medical Doctrine,' in Colin Jones & Lawrence Brockliss, *The Medical World of Early Modern France*, 85 -169.

<sup>17</sup> Lindemann, *Medicine and Society*, 13.

the healthy, it was centrally concerned with temporal readings of the body (diagnostic and prognostic) and it employed treatments of varying degrees of invasiveness to affect physical change.

The division between theory and practice was a division neither between learning and application, nor between the Aristotelian concepts of theory and praxis. Medical intervention was a matter of theory *and* practice: the theory of diagnosis and prognosis, the practice of attaining the evidence in order to diagnose and predict, and, increasingly, the matter of treating the results of the various investigations. Learned medical intervention involved the discrete components of diagnosis, prognosis and treatment. These constituents of intervention were mental/epistemological processes or tasks in their own right, active thought processes that relied on the received Galenic principles about the body. The intellectual and methodological processes of diagnosis - figuring out what the disease was - and prognosis - calculating its outcome - were different, while the application of medical treatment fell more or less entirely within the realm of medical practice.

The manner in which these tasks were carried out, the epistemological context for diagnosis and prognosis, and the philosophical framework within which treatment of the body was understood to effect, changed over time.<sup>18</sup> Ancient and medieval medicine could be mantic, semiotic or inferred. That is, the framework that informed interpretation in the case of diagnosis or prognosis could either be divinatory, without reference to the patient's physical condition, or it could take parts of the body and the whole constitution as signs and use semiotic processes to read the physical condition. It could also begin with general circumstances outside the body, the environment, the season and so forth, and from them draw inferences about the nature of disease.<sup>19</sup> Among the sixteenth century physicians of Nuremberg, what we see is a strong emphasis on semiotic medicine, and an increasingly linked conception of medicine as involving diagnosis, prognosis *and* treatment.

In terms of the actual process of medical care, the first step was to diagnose the patient.<sup>20</sup> Since medieval times, ostensibly since antiquity, the art of diagnosis lay at the heart of the physician's skill set, separating him from other potential practitioners of medicine. It was a complex art, which depended upon detecting the relationship between sign (symptom) and signified (disease), both of which were made infinitely more complicated by the lack of a definite structure on which to hang these concepts. Complexion, which proposed itself as the organizing schema for medical semiotics, was individual and thus infinitely variable. Cause of disease, on which definition and decisions about treatment depended could be natural, unnatural (non-natural) or against

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<sup>18</sup> See Paul Norbert, 'Diagnose u. Prognose' in Stefan Schulz et al (eds), *Geschichte, Theorie und Ethik der Medizin. Eine Einfuehrung*. (Frankfurt: 2006), 143-153.

<sup>19</sup> See Ludwig Edelstein, *The Hippocratic Prognosis*, 70.

<sup>20</sup> See Claudia Stein, 'The Meaning of Signs: Diagnosing the French Pox in Early Modern Augsburg', *Bulletin of the History of Medicine*, 80, 4 (2006), 617-647; Roger French, 'Sign Conceptions in medicine from the Renaissance to the early 19th century', in Roland Posner, Klaus Robering & Thomas A. Sebeok (eds), *Semiotik. Semiotics. Ein Handbuch zu den zeichentheoretischen Grundlagen von Natur und Kultur. A Handbook on the Sign-Theoretic Foundations of Nature and Culture*, Vol. 2, (New York; Walter de Gruyter, 1998), 1354-1362; Ian Maclean, *Logic Signs & Nature in the Renaissance*, 282-4; Nancy Siraisi, 'Disease and Symptom as Problematic Concepts in Renaissance Medicine', in Eckhardt Kessler & Ian Maclean (eds), *Res et Verba in the Renaissance*, (Wiesbaden 2002), 217-240.

nature (*contra-natural*). Each cause would involve different sets of symptoms and entail a different relationship between them.

While diagnosis was a central concept throughout Galen's writings, there was no one absolute statement about its process, and Galen was inconsistent on the distinctions between disease, sign and signifier. In attempting to reconcile these inconsistencies, sixteenth century physicians produced scores of commentaries on, and new editions of Galen's four nosological treatises: *De morborum differentiis*, *De morborum causis*, *De symptomatum causis* and *De symptomatum differentiis*.<sup>21</sup> But, while the sixteenth century produced a great quantity of commentaries on Galen, the sum total of these attempts, to synthesize and/or extract useful material, did more to highlight the problems with the sources than solve them.<sup>22</sup> Commentary on and revisions to Galen were, of course, not the only recourse that sixteenth century doctors who debated the process of diagnosis had. Galenic or Aristotelian astrological medicine also provided guidelines for the interpretation of signs. Brief forays into Platonic or alchemical philosophy provided counterbalance to enduring debate about the inconsistencies and failures of Aristotelian and Galenic semiology. There were occasional or abortive attempts to construct alternatives. Paracelsus, debatably, built a philosophy of signs from a consideration of astrology.<sup>23</sup>

Even with these theoretical attempts to systematize the process of diagnosis, in their day-to-day practice of medicine, most physicians diagnosed in ad-hoc ways. As Claudia Stein has pointed out, 'the world of medical reasoning on the meaning of physical signs and the daily practice of diagnosing and treating them,' were often worlds apart.<sup>24</sup> This is one reason for the enduring popularity of certain symptoms as signifiers, like urine, the use of which continues to be (affectionately) ridiculed or (sympathetically) defended. When so many symptoms existed only in relation to other shifting sands, it must have been a relief to have something so viscerally observable. Early modern physicians interacted, in discourse and in practice, with a tumultuous variety of physical signs. Some of these were common enough, and controversial enough, that they generated their own corpus of texts, urinoscopy, for example, or temperament, or pulse.<sup>25</sup> Specifically Galenic diagnostic elements, humours, temperament, transcended formal Galenic semiotics in which they were to be read together, and acquired a kind of public 'persona', entering public medical awareness as individual agents, while the specificity of

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<sup>21</sup> Galen, *Omnia Opera*, ed. C. G. Kuehn, 20 Vols. Leipzig, 1821-33. Vols 6 & 7. Ian Maclean has dealt with this corpus: See Ian Maclean 'Foucault's Renaissance Episteme Reassessed: An Aristotelian Counterblast.' *Journal of the History of Ideas*, 59 (1998), 149 - 66, especially 158-66; and *Logic, Signs and Nature in the Renaissance*.

<sup>22</sup> Nancy G Siraisi, 'Disease and symptom as problematic concepts in Renaissance medicine' in Eckhard Kessler & Ian Maclean (eds), *Res et Verba in der Renaissance*, Wiesbaden: Harrassowitz Verlag, 2002, 217-240. This was by no means reason enough for sixteenth century physicians to deviate from the Galenic superstructure. Siraisi suggests that the indeterminacy of Galenic medicine might even have been attractive.

<sup>23</sup> On Paracelsian semiotics, see Massimo Luigi Bianchi, 'Signs, Signaturae and *Natursprache* in Paracelsus and Boehme', in *Res et Verba*, 200 - 207.

<sup>24</sup> Stein, *Negotiating the Pox*, 15.

<sup>25</sup> Roger French sketches urinoscopy and pulse in: French 'Sign Conceptions in medicine from the Renaissance to the early 19th century'. On temperament, see B. Nance, 'Determining the Patient's Temperament: An Excursion into Seventeenth Century Medical Semeiology,' *Bulletin of the History of Medicine*, LXVII, 1993, 417 - 38.



the particular body in question reduced the organizing schema to metaphors. Outside the formal semiotics imperfectly communicated by Galen and alongside texts about the process of diagnosis, medical authors attempted to propose, via detailed anthologies of precise, clinical observations, categories of ontological symptoms. Also increasingly in the sixteenth century, there were concepts of ontological disease: pox, for example, and plague, '*morbo*'.

In literature, what most attempts to systematize the practice of diagnosis had in common was a focus on signs. More specifically, they had in common the question of what signs to scrutinize. They collectively problematized the provision and examination of signs. By the sixteenth century, then, diagnosis was a primarily semiotic activity. But the generation of signs was not simply an intellectual problem, it also relied on the social situation of the doctor and his relationship in the community. Because Galenic medicine depended on an idealized version of the patient in good health, diagnosis and prognosis depended upon the patient's participation. More specifically, it depended on clear and direct communication between physician and patient. Much of the information required by the doctor could not be gleaned from examination in that it had to be relayed by the patient. Communication in the sixteenth century was a very general cause for concern, and doctors, like other members of society, worried wholeheartedly about the way in which communication could corrupt, as well as protect, health. Written focus on the semiotics of diagnosis was thus supplemented by a small, vernacular body of texts that addressed diagnosis as an act relying on communication and shared expectations. In texts such as *Spiegel der Artzney (Mirror for Medicine)*, authors like Lorenz Fries and Johannes Drysander, addressed the participation of the patient in the process of diagnosis. Together, they laid down rules attempting to govern the interactions between physicians and patients.

Because of the importance of the patient and his narrative to Galenic medicine, municipal physicians and learned practitioners of medicine in the sixteenth century were increasingly concerned about the 'psychology' of medicine: the practical results that the relationship between the patient and the practitioner could bring to bear. At the heart of correct diagnosis was proper knowledge on the part of the physician about the patient. It followed logically, that the more a physician knew about the environment, habits and daily life of his patient, the better his care. Municipal physicians, rooted in the community, were thus more proper providers of medical care than even the most famous or learned physician outside of that community. But outside of a claim to power, the municipal physicians in Nuremberg were genuinely concerned with the impact that the patient's knowledge of his own illness could have.

After diagnosis came prognosis and treatment. The intellectual problem of prognosis has received less attention than diagnosis in the historiography of early modern medicine. Much of the clinical, detailed observation about the conditions and symptoms of disease in Hippocratic writings, which both historians and early modern commentators assumed existed to aid diagnosis, was actually used for the purpose of prognosis. 'It was believed that all this infinitely detailed observation of diseases was made so that the physician might *know* what was wrong with the patient, in order to proceed from the

diagnosis of disease to the correct treatment.<sup>26</sup> But prognoses of the outcome of disease evolved from different motivations and purposes than diagnoses.

Prognosis has often been linked to astrological medicine,<sup>27</sup> but more properly speaking it was a form of semiotics that depended on detecting and interpreting the periodicity of signs/symptoms and forecasting outcome in diseases.<sup>28</sup> Essentially, the art of prognosis linked diagnosis with outcome. It was fundamentally temporal. It involved predicting the course and outcome of illnesses over time, but, unlike modern prognoses, it involved a conception of time that reached backward as well as forward. It encompassed the patient's present condition as well as the past, and it also involved the construction of a kind of alternative history. Just as the physician balanced the diseased body against a constructed view of the body restored to health, he had to measure the progression of illness against the supposed progression of the patient in the absence of the physician's intervention. Diseases were thought to involve a fundamentally temporal dimension; that is, there was a natural 'rhythm' to disease that involved peaks and troughs, a kind of cyclical reading of its highs and lows. Prognosis as learned theory was based on Hippocrates' *Prognostics*<sup>29</sup>, but as with diagnosis, theory about the interpretation of signs resisted general application, while more speculative forecasts were made freely, by patients, family, physicians and practitioners alike.

Part of the reason for the relative obscurity of prognosis in the history of medicine might have been because, in cases where it was negative, it was often withheld. Communicating their hopelessness to patients was to be avoided. Despite involving the patient rather critically, prognosis was, more than diagnosis or executive decisions about treatment, a learned medical practice that happened in private. Nonetheless, medical reputations were formed around prognosis. Volcher Coiter, for example, who provided long case histories with passages about his medical prowess, rooted his own (high) opinion of his medical capabilities, not in his cures, which were few and far between, but in the virtuoso courses of treatment he provided, which staved off death rather than effecting health. Defying the natural prognosis, as Coiter on occasion did, could be considered a great achievement, quite apart from actually effecting a 'cure'. The relationship between treatment and cure in the early modern period was thus not linear, or successive, as it is now; treatment did not necessarily have to result in a cure, nor was its aim always to effect a cure. From the point of view of the physician, treatment was intended to manage or alter the prognosis.

This distinction between treatment and cure as end-games of prognosis, could be seen to provide a means of differentiating the aims and expectations of physicians from those of their patients. While defying a bad prognosis was cause for medical bragging, delayed death was unlikely to sound as good to a patient. From the point of view of the afflicted and society, medical treatment should re-establish the patient in the civic world. Stein, who looks at the point at which patients were allowed to leave pox hospitals in Augsburg, and Midelfort, who looks at the point at which petitioners were granted entry

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<sup>26</sup> Ludwig Edelstein, *Hippocratic Prognosis*, 79-80. Emphasis mine.

<sup>27</sup> Nancy Siraisi very cutely criticizes herself for this, see Siraisi, *Medieval & Early Renaissance Medicine*, 135, note 39.

<sup>28</sup> Ludwig Edelstein, 'Hippocratic Medicine'.

<sup>29</sup> For the proliferation of this texts see: Richard Durling, 'A Chronological Census of Renaissance Editions and Translations of Galen', *Journal of the Warburg and Courtauld Institutes*, 24 (1961), 230 - 305

to hospitals in Wurzburg, agree that the social definition of health had more to do with helplessness than with any medical judgment about health or illness.<sup>30</sup> There is, nonetheless, a lot of evidence to suggest that 'treatment' as distinct from 'cure' was an acceptable end-game to patients too. From the point of view of the patient, there is evidence to suggest that self-sustenance was the aim. The return of the patient to a point where they could work, or were able to 'get by', was viewed as a cure.

For physicians, the simple disappearance of physical signs was often misleading. Fries warned patients that: 'Only when a disease's natural causes hidden in the invisible inner body had been identified and successfully eradicated through the application of appropriate medicine, could one hope for an improvement in the sufferer's condition.'<sup>31</sup> Camerarius would repeat this injunction when he criticized quacks for selling remedies which *appeared* to effect relief, but actually failed to cure the disease. On the other hand, effective treatment did not necessarily have to end in a cure. Physicians may not have been intellectually satisfied with this result, but they both respected its necessity and took advantage of it. 'To the medical practitioners, patients were healthy when they were able to resume daily tasks to earn a livelihood without too many difficulties.'<sup>32</sup> Similarly, in Nuremberg the physicians annually declared a portion of the inmates of the city's Lazarus to be cured.

The importance of prognosis and diagnosis might have been in question, but jurisdiction over them was not. They were part and parcel of learned medicine. Jurisdiction over treatment was less clear cut, if only because treatment was necessarily public. While always a central task of learned medicine, even in theory treatment lacked system. As symptoms were individual manifestations of a lurking, hidden disease, treatment attacked them, it was therefore by definition progressive and multifaceted. The physical application of treatment was often mediated by, or undertaken by, those versed in the applied medical arts: surgeons, apothecaries, bathers or midwives.<sup>33</sup>

Practical treatment essentially took one of three general approaches, although in the course of a treatment more than one would be used. The first, and most basic, was similar to that used in the prevention of disease: the regulation of food, diet and exercise all fell under the general heading of regimen. Because disease or ill-health was caused by a variety of environmental factors, treatment via regimen attempted to produce the ideal conditions for the body's restoration to health. This could mean a change in location, to arrange better air, or a change in diet, or exercise or daily life. Doctors often concerned themselves with a patient's emotional health, prescribing quiet, or rest, or contemplation or activity as necessary.

If rearranging the external environment produced no result, the next step in treating a patient was pharmaceutical or surgical. Basic surgery involved blood-letting (phlebotomy), purgatives and plasters. There were many printed guides to surgery that explained the subject in the sixteenth century, although it is debatable whether such books intended to 'teach' the methods. Illustrations were rough, and descriptions were ready; overall they included neither enough precise material to inform the non-

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<sup>30</sup> Stein, *Negotiating the Pox*; Midelfort, *Madness in the Sixteenth Century*.

<sup>31</sup> Stein, *Negotiating the Pox*, 47-8.

<sup>32</sup> Stein, *Negotiating the Pox*, 170-1.

<sup>33</sup> See Chapter 1.

experienced reader about procedures, nor a vocabulary sophisticated enough to convey the necessary information. Like medical texts they were often written by experts, and referred to stores of learning and expertise that differentiated the authors from their readers. On the other hand, *wundarzney* (surgery) handbooks were more consistent than other vernacular medical treatises. For obvious reasons, local editions of guides to surgery varied less wildly than did recipe books for remedies.<sup>34</sup>

A more tenuous problem was 'medicine' itself, the administration of pharmaceutical remedies. In general medical interest in pharmacy grew in the sixteenth century.<sup>35</sup> Remedies, 'medicines', were of two sorts: simple and complex. Simple remedies were basic herbal potions, at the most basic level they had single ingredients understood to have specific curative powers. Ginger for digestion, for example. More frequently, they were easy-to-make compounds of herbal ingredients, small recipes that involved mixing single ingredients.<sup>36</sup> Complex remedies, on the other hand, were medicines produced via pharmaceutical preparation, distillation, for example, or other forms of chemical alteration. They could, and increasingly and controversially did, include non-botanical ingredients, such as minerals. Pharmacy was a Galenic subject, but an Arabic interest. Although Galen used simples and wrote about minor pharmaceutical procedures, Arabic medicine concentrated on pharmaceutical remedies and the art of distillation and medical pharmacy was transmitted to Europe through medieval Latin translations of Arabic pharmaceutical texts.

The concern with pharmacy sets us up for an exploration of medical humanism, because it introduces very clearly the first, major problem that confronted practicing physicians of all sorts across early modern Europe; namely, the insufficiency of what they learned to adequately explain the conditions with which they were faced. The recovery of Galenic medicine, which lay at the heart of the project of medical humanism, entailed a rejection of Arabic sources. Medical humanists would confront the task of reconciling better, more efficacious and complicated methods of pharmaceutical distillation with their desire to utilize purified Galenic precepts and a Dioscoridean canon of plants that was, to put it simply, evidently smaller than the number of plants actually available. This gap between text, expectation and evidence was repeated in other circumstances not prophesied by Galen. When physicians confronted plague, when they advised on pox, when they treated patients, they found themselves faced by challenges and opportunities that their classical education did not prepare them for. The demands of practice both provoked medical humanism and contributed to it in equal measure.

## Humanism and medical practice

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<sup>34</sup> Compare, for example, Franz Renner's text with the bestselling *Handbuch der Feldarzney* by Hans von Gersdorf. (Hans von Gersdorf, *Feldburch der Wundarzney*, Strasbourg, 1517.) Renner, one of Nuremberg's municipal surgeons, wrote a text describing his art in 1572.

<sup>35</sup> For a practical demonstration see Richard Palmer, 'Pharmacy in the republic of Venice in the Sixteenth Century,' in Wear (ed), *The Medical Renaissance*, 100- 117. See also the essays in Roy Porter and Mikulas Teich (eds.), *Drugs and Narcotics in History*, (Cambridge: Cambridge University Press, 1995).

<sup>36</sup> By the sixteenth century simple remedies were part of the lay field of medical knowledge and belonged to a domestic field of expertise. On the ramifications of their growing complexity on household (predominantly female) knowledge, see Andrew Wear, *Knowledge and Practice in English Medicine*, 47-63.

Galen and scholastic medical education had been neither more nor less inadequate to the task of urban municipal medicine in the past, and the conception of confrontation and adaptation as the essence of the medical career was present in medieval medical texts. In the sixteenth century, however, the tools available for this negotiation were new: print, correspondence and the city itself. The 'raw materials' available to the physicians were changing, as were the ways in which they understood and engaged with these materials. The quality of their colleagues was improving. The range of diseases with which they were presented was broader, as were the methods available to combat them. The novelty of the municipal physician in imperial cities in Germany, the attraction of the position to the top layers of the academically educated, coinciding with the opportunities for urban restructuring after the Reformation, all gave rise to a set of circumstances peculiar to the German lands of the Holy Roman Empire. But outside of the circumstances within which medicine operated, the inclusion of social circumstances *as a medical interest*, was, at a basic level, an unprecedented development within the broad concerns of medical discourse. Galen didn't write about medical organization. Hippocrates didn't encounter the problems of balancing civic authority with environmental concerns. In sixteenth century medical books, Galen, Hippocrates and classical authors remained the dominant medical authority, but the structure of medical *concern* changed. In the main what interested medical writers substantively, was the practice of their subject, rather than its hypothetical allegiance to ancient medicine.

The turn to practice was not in itself a novel feature in sixteenth century medicine. In his seminal article on the leading place of Nicolò Leonico (1428 -1524) and the University of Ferrara within medical humanism, Vivian Nutton caricatures the whiggish presentation of the sixteenth century as the point of origin of modern science:

'In three short skips, medicine passes from medieval to modern, from the authority of the book to the authority of observation, from a backward-looking search for ancient and classical precedent to a forward-looking expectation of the triumph of the new science. A new botany, a new anatomy, and, within a few more years, a new physiology and a new chemistry, if not a whole new scientific revolution, are created.'<sup>37</sup>

Nutton is correctly skeptical of the 'modernity' of such developments, their intellectual novelty, and the rapidity with which they occurred, and it is now commonly accepted that medical humanism entailed the continuity of Galenic scholarship, and a project for the revival of ancient medical sources.<sup>38</sup> Medical humanism was a programme for the textual restoration of Galen, Hippocrates, Dioscorides and, with more limited applicability, Pliny. The publishing agenda kicked off in 1525, when the first works by Galen were ushered into print, and it continued through the century.<sup>39</sup> But even with these

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<sup>37</sup>Vivian Nutton, 'The rise of medical humanism: Ferrara 1464 -1555', *Renaissance Studies*, Vol. 11, No. 1  
2. He footnotes this observation: 'This period is typified by such excellent general surveys as A.G Debus, *Man and Nature in the Renaissance*, (Cambridge, 1978), N. G Siraisi, *Medieval and Early Renaissance Medicine* (Chicago; 1990), and D. C. Lindbergh, *The Beginnings of Western Science*, (Chicago, 1992)'.

<sup>38</sup> See Andrew Wear et al (eds.), *The Medical Renaissance in the Sixteenth Century*; Andrew Wear, *Knowledge and Practice in English Medicine*.

<sup>39</sup> See Richard Durling, 'A Census of Galen'.

disclaimers understood, renaissance medicine clearly and obviously demonstrated a trajectory towards medical practice.

Early modern physicians called on humanist methods for the better use of *effective* medicine. Like humanism more generally, medical humanism had a strong philological component, and pedagogical ramifications.<sup>40</sup> But where humanists like Petrarch, Leonardo Bruni and Erasmus devoted themselves to uncovering a systematic philology, medical humanism was humanist in the sense that it derived from the same philological encounter with classical texts, but the endeavours that motivated humanists were tools for physicians to create more effective medical treatment. Medicine was fundamentally ontological, fundamentally material, and as such could never be rethought in purely abstract terms. Where humanists like Melancthon reformed university curricula to better reflect Aristotle, humanist physicians campaigned for the incorporation of more practical medical subjects. Leonicensino taught botany in Ferrara, Da Monte introduced clinical teaching, and, as we have already seen these practical subjects crept onto medical curricula throughout the century. Perhaps the truest thread connecting medical humanists with their more famous brethren, was the re-evaluation of *virtù*; the place of the active life in political philosophy directly validates the place of practice in medicine.

Philology, pedagogy, and publications all demonstrated this trend towards practice. It is evident in the growth of academically educated physicians writing about 'new' subjects, as, for example, surgery, pharmacy, comparative anatomy and botany.<sup>41</sup> The most foundational texts in medical humanism were often about the *materia medica*. In 1490, Nicolò Leonicensino (1428 -1524) published *On the errors of Pliny and other doctors in medicine*, a text that criticized Pliny himself for his misidentification of plants from the Dioscoridean canon, and, at greater length, the use of Pliny in Arabic medicine 'which as every Renaissance scholar knows, dethroned Avicenna as prince of physicians and replaced him and Pliny with Dioscorides, Galen and Hippocrates.'<sup>42</sup> In it, he

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<sup>40</sup> Medical humanism is most frequently described as a philological movement. See Walter Pagel, 'Medical Humanism - A Historical Necessity in the Era of the Renaissance', in Frances Maddison, Margaret Pelling & Charles Webster (eds.) *Essays on the Life and Work of Thomas Linacre, ca. 1460 -1524*, (Oxford: Clarendon Press, 1977), 375 -386; Jerome J. Bylebyl, 'Medicine, Philosophy and Humanism in Renaissance Italy', in John W. Shirley & F. David Hoenerig (eds.) *Science and the Arts in the Renaissance*, (Washington DC: Folger Shakespeare Library, 1985), 27 -49; Nancy Siraisi, *Medieval & Early Renaissance Medicine*; Daniela Mugnai Carrara, 'Epistemological Problems in Giovanni Manardi's Commentary on Galen's *Ars Parva*', in Anthony Grafton & Nancy G. Siraisi (eds.) *Natural Particulars; Nature and the Disciplines in Renaissance Europe*, (MA: Massachusetts Institute of Technology, 1999), 251 -274. On the pedagogical ramifications of medical humanism see Jerome J. Bylebyl, 'The School of Padua. Humanistic Medicine in the Sixteenth Century', in Charles Webster (ed.) *Health, Medicine and Mortality in the Sixteenth Century*, (Cambridge: Cambridge University Press, 1979), 335-370.

<sup>41</sup> Vivian Nutton, 'The rise of medical humanism: Ferrara 1464 -1555'; Vivian Nutton, 'Humanist Surgery' in Andrew Wear, Roger K. French & Ian M. Lonie, (eds.) *The Medical Renaissance of the Sixteenth Century*, (Cambridge: Cambridge University Press, 1985), 75 -99.

<sup>42</sup> Nicolò Leonicensino, *De Plinii et plurium aliorum medicorum in medicina erroribus*, Ferrara, 1509. On Leonicensino and the subsequent controversy around Pliny, see Charles Nauert, 'Humanists, Scientists, and Pliny: Changing Approaches to a Classical Author.' *AHR*, Vol. 84, No. 1, (Feb, 1979), 72 - 85; R. K. French; 'Pliny and Renaissance Medicine', in R. K. French & F. Greenaway (eds), *Science in the Early Roman Empire: Pliny, his Sources and his Influence*. (London, 1986), 252- 81. On Leonicensino and his place in medical humanism, see Vivian Nutton, 'The rise of medical humanism: Ferrara, 1462 -1555'.

condemned both Pliny and Avicenna for the misidentification and misuse of plants. When he compared Pliny to Dioscorides, Leonicensis explicitly noted not only the plant, the species as object, but as an object of *use*. New subjects naturally meant new techniques, findings and methods. This emphasis on personal experience and the mechanics and methods of use connected humanist pharmacy to other novel medical interests, like surgery, anatomy and botany. Focusing on the growing importance of the visual, and the new conception of natural history, respectively, Sachiko Kusukawa and Brian Ogilvie have written about the development of observation in botany.<sup>43</sup> Examining compendia of medical case-studies, which began to be published in the middle of the sixteenth century, Gianna Pomata brings together the development of particulars within the history of science with the growing emphasis on case-studies in humanist medicine. She conceptualized this development as heralding the birth of observation as an 'epistemic genre'.<sup>44</sup>

The growing recognition of the importance of medical practice is even evident in medical nomenclature, which by the sixteenth century had standardized across academic as well as popular medicine. *Medicus*, rather than *physicus* was the designation of choice for learned, academic physicians in universities and in print. This had significant implications. While the medieval practice of *physicus* was oriented around the Aristotelian 'first causes', *medicus* centered on manifest effects.<sup>45</sup> Thus, while those who claimed the status of *medicus* actively placed themselves in the world of learned medicine, the epistemological implication in this designation reflected the trend of their interests toward the applied medical arts.

An element of all of this writing was a strong sense of self-criticism and self-reflection. About five years after Leonicensis, his contemporary Gabriele Zerbi (ca. 1435 - 1505) published *Rules of Caution for Physicians*. Although the title suggests a similar topic to *On the errors of Pliny and other doctors*, Zerbi's text was more a reflection on conduct and disposition, closer to the (equally humanist) genre of etiquette than textual criticism. *Rules of Caution* was a gentle reflection on the temperament and disposition of the physician as a scholar and a gentleman. It was, in this regard, closer to Galen than the antagonistic tract by Leonicensis. Zerbi, who was an anatomist of note with an unusual interest in gerontology, talked about a very different element of practice: behaviour. Other texts carried this focus on behaviour forward, as for example in the writings of Fries and Dryander.

These texts, about behaviour within and organization of medicine, were novel, innovative and a break from the tradition of Galenic medicine.

In Germany this was exacerbated both by the reforming impulse present in general legislative bodies, and the relative novelty of humanism in the late fifteenth and early sixteenth centuries. Whereas in Italy Petrarch had criticized physicians, and introduced at least a paradigm of hostility between physicians and humanists, in

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<sup>43</sup> Sachiko Kusukawa, *Picturing the Book of Nature; Image, Text and Argument in Sixteenth Century Human Anatomy and Medical Botany*, (Chicago: University of Chicago Press, 2012); Brian W. Ogilvie, *The Science of Describing*.

<sup>44</sup> Gianna Pomata, 'Observation Rising: Birth of an Epistemic Genre, ca. 1500 - 1650'. in Lorraine Daston and Elizabeth Lunbeck (eds) *Histories of Scientific Observation*, (Chicago: Chicago University Press, 2011), 45-80.

<sup>45</sup> Philip Reynolds, *Food and the Body*, 133.

Germany, humanism and medical humanism arose in tandem. The humanist programme for textual restoration and the political desire for medical ordinances have rarely been put together. In point of fact, the doctors engaged in one were engaged in the other. Take, for example, Leonhard Fuchs (1501 -1566), whose work, *Errata recentiorum medicorum* reads like a mandate for the anti-arabic humanists.<sup>46</sup> Fuchs has often been credited with bringing medical humanism to the German academy. However, *Recent errors* is a work of textual criticism only secondarily; at heart it is a clarion call for better, more careful scrutinized medical botany. This dissatisfaction with the conditions of medicine was repeated in classically botanist texts, most notably the work of Fuchs' near-contemporary Pietro della Matthioli (1501 -1577), whom Camerarius would later translate. Matthioli's concern with medical circumstances goes beyond the conditions governing the sale and preparation of plants and remedies. The Italian physician, *leibarzt* to Emperor Ferdinand II, added to his commentary on Dioscorides a lengthy complaint about fraudulent medical practitioners, particularly snake-oil sellers.<sup>47</sup>

What made the medical reformation a 'movement' distinct from general trends in healthcare or hygiene, separate to the parcel of other reforms issued by urban communities in the wake of the Lutheran Reformation or in the process of state-formation, was its internal point of origin; it came from within the nascent profession of medicine. In this respect, medical reformation was not a novel aim in the sixteenth century, but it was a novel *subject*. Concern with practice, criticism of behaviour, and the influence of political and legal restructuring came together in a small, but vocal discourse which explicitly addressed the need to reform the organization and provision of medicine and medicines. In the sixteenth century, a printed discourse emerged to strengthen and order medical practice in its social context. Among the proponents of medical reform were Otto Brunfels, Adam Lonitzer, Johannes Lange, Thomas Erastus, Johannes Crato, Joachim Struppius. Each of these writers sought different changes and wrote in different idioms. But, like the physicians in Nuremberg, each author was a practicing physician. Together they represent the variety of shapes that concern with practice could have.

Reformation meant the codification of traditional principles, not the introduction of something substantially new. In the history of Germany the concept of reform remains most strongly connected to its religious iteration, which sponsored confessional divisions that engulfed greater social and political change. But the notion of reform predated theological controversies. '*Reformacion*' had what can best be described as a political heritage. It meant not the 're'-ordering of something, but the 'ordering'. In 1479, Nuremberg's civic 'reformation' denoted a statement of the political order.

The earliest mention of 'reformation' in a medical sense, was provided by Otto Brunfels (ca. 1488 - 1534).<sup>48</sup> In 1536, the Strasbourg printer Wend Riel published a

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<sup>46</sup> Leonhard Fuchs, *Errata recentiorum medicorum LX. Numero, adiectis eorundem confutationibus, in Studiosorum gratiam, iam primum aedita. Leonhardo Fuchsio Medico, Authore.* Haganoë in aedibus Iohanni Secerii. 1530.

<sup>47</sup> Pietro della Matthioli, *Dei Discorsi DIM Pietro Andrea Matthioli sanese medico cesaro... nella sei Libri di Pedacio Dioscoride.* Venice, Felice Valgriso, 1585. See Bk. 6. Cap. 40.

<sup>48</sup> On Brunfels: P.W.E. Roth, 'Otto Brunfels nach seinem Leben und litterarischen Werken', *Zeitschrift fuer Geschichte des Oberrheins*. NF 9, (1894), 284-321; Miriam U. Chrisman, 'Otto Brunfels', in Peter G. Beitenholz & Thomas Brian Deutscher (eds), *Contemporaries of Erasmus. A Biographical Register of the Renaissance and Reformation*, Vols 1-3. (Toronto; UP, 1985), p. 206. See also: G. Baader, 'Mittelalter und



posthumous pamphlet by Brunfels titled 'The Reformation of the Apothecaries', (*Reformation der Apotecken*).<sup>49</sup> The pamphlet was addressed to the city council of Bern, where Otto Brunfels had served as municipal physician from the time of his graduation until his death, and it responded to, and attempted to solve a problem that Brunfels delineated in two registers. The first was the perseverance of Arabic medical scholarship; the same concern that provoked Leonhard Fuchs to write near contemporaneously. The second was the local supply of pharmaceutical remedies. These were related to each other by Brunfel's interest in herbal botany, and his strong distrust of the growing popularity of complex, distilled remedies.<sup>50</sup> Brunfel's reformation had three components: first, the *Ordnung*, the normative depiction of proper order intended to shape the conduct of and relations between apothecaries; second the oath, to entrench a set of duties and a relationship between apothecary and city; and finally a discursive treatment of certain remedies which were deemed particularly troublesome. He recommended that the physicians inspect the apothecaries annually, that the apothecaries be forced to use common recipes and methods of preparations, and that complex distillatory innovation be banned.

Brunfels had a strong connection to the religious reformation.<sup>51</sup> As a humanist, a theologian, a botanist and a physician, he was emblematic of the rise of practical medicine, and the combination of his interests was a foreshadowing of things to come. Like the Nuremberg physicians after him, Brunfels was fundamentally interested in treatment. For him the most important facet of medical care was the acquisition and provision of herbal-based remedies. He had not yet, however, moved pharmacy into the remit of physicians. For him, it remained an apothecarial pursuit. Bern passed no new regulations based on Brunfel's text, and later local municipal physicians achieved no comparable level of fame. However, Brunfels introduced *reformacion* as a term with actual, real purpose, and he took apothecaries as his object of reform, anticipating the long competition that would take place in Nuremberg.

After Brunfels, other vernacular pamphlets with similar structures and frameworks followed. Adam Lonicer (1528 - 1586) wrote the most famous of these - *Reformation oder Ordnung fuer die Hebamme*, (*Reformation or Ordinance for Midwives*) in which this municipal physician in Frankfurt argued both for a serious study of gynecology, and for a relegation of midwives to a lower rung on the medical ladder. As cities began to pass new medical ordinances, the association of order and reformation

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Neuzeit im Werk von Otto Brunfels,' *Med-hist Journal*, XIII (1978), 186 -203; and 'Medizinisches Reformdenken und Arabismus im Deutschland des 16 Jhs', *Sudhoffs Archiv*, LXIII(1979), 261-296. On Brunfel's 'evangelical' career, see Erich Sanwald, 'Otto Brunfels 1488-1534. Ein Beitrag zur Geschichte des Humanismus und der Reformation. 1. Haelfte 1488 -1524.' Ph D Diss Munich, 1932.

<sup>49</sup> Otto Brunfels, *Reformation der Apotecken, welche inhaltet vil guter stueck/ die eynem yeglichen fast nuetzlich sein/ so seiner gesundtheyt gern acht haben will/ als nemlich von rkeuttern/ wurtzeln/ safft/ samen/ blumen/ ole fystigkeyten/ gebranten wassern/ Juleph/ und anderm/ wie man solche ding bekommen/ behalten und brauchen soll*, Strasbourg, 1532.

<sup>50</sup> The first of his major works, *Herbarum vivae eicones*, a three volume compendium of medicinal plants with detailed illustrations by Hans Weidetz, was published in 1530.

<sup>51</sup> Brunfels published a series of pamphlets with increasingly overt mystical tendencies, similar in tone to lay pamphleteers preaching a social theology, e.g. Haug Marschalk. His support for Andreas Bodenstein von Karlstadt and his sympathies for the Anabaptists grew more marked, eventually driving a wedge between him and the more conservative Strasbourg reformers.

continued. Passau termed its medical ordinance a 'Reformation of Paussau's doctors and apothecaries.'<sup>52</sup>

Practical, vernacular literature was one mode of reform, but the legacy of self-criticism and humanist reflection can be seen even more strongly in other physicians. Johannes Lange's *Medicum de Republica Symposium*, (*A symposium on medicine within the republic*) appeared in 1554. Lange (1484 -1565) was a humanist of what *he* would have considered a more respectable pedigree than Brunfels.<sup>53</sup> Considered 'the most widely read of the humanist physicians' by Vivian Nutton, Lange was educated in Bologna, Ferrara and Pisa, before entering the service of Friedrich, Elector Palatine in Heidelberg. It was for the Elector that Lange wrote *A Symposium on Medicine in the Republic*, a messy, unlikeable eighty-page rant about the bad practice of medicine.<sup>54</sup> Brunfels wrote very specifically about medicines as material, processed remedies. For Lange the problem was '*Medicorum*', a much more comprehensive idea of medicine as a body of knowledge, a profession, and a relationship between physician and the ill, with a far more sweeping malaise. Although he did not address the subject at length, it is clear that Lange was sensitive to medicine as a set of relationships between patient and physician. He wrote that in times of great disease, 'certain ignorant physicians spread false information, which causes great harm, failing to cure and sapping strength.' Worse they cause disheartenment, so that those with diseases refrain from seeking out experts with the power to help them.' In the tradition of Lorenz Fries, Walther Ryff and Johannes Drysander, Lange viewed medicine as a set of codified relationships between practitioner and patient, and he took a dim view of other practitioners preying upon this status quo.

Lange never went further than propaganda in his attacks on deviants and outsiders, and he left concrete plans and prohibitions to other authorities. Above all other possibilities, for Lange, the solution to bad medicine was good medicine, and the only positive suggestion Lange made was to improve medical education, which was in keeping with his emphasis on learning and collaboration as foundational to medicine. On the other hand, despite his vagueness relative to Brunfels, Lange's was the more efficacious text. Lange's local university, Heidelberg, was reformed in 1558 under Count Otto Heinrich, and in the series of debates about the course it should take, Lange submitted a number of recommendations, several of which found their way into the renewed statutes.<sup>55</sup> Lange was a model humanist, and other physicians wrote in a similar mode.<sup>56</sup> Thomas Erastus, Theodore Zwinger and Georg Rheticus, for example, all wrote

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<sup>52</sup> *Reformation Passawerischer Ärtzt vnd Apotecker Ordnung : Wie es mit den Ordinariis Physicis vnd Medicis, Jhres verdiensts, verehr vnd besoldung halber gehalten, Auch in was tax alle vnd jede Artzneyen, es seyen Simplicia oder Composita, in den Apotecken daselbst sollen verkaufft werden; Mit angehencktem Teutschen Register*, Passau, 1586.

<sup>53</sup> On Lange's career see: V. Fossel 'Aus dem medizinischen Briefen des pflazgraeflichen Leibarztes Johannes Lange', *Sudhoffs Archiv*, vii (1914), 238 - 52. Vivian Nutton counts him the most widely read of the humanist physicians: Nutton, *Humanist surgery*, 94.

<sup>54</sup> Johannes Lange, *Medicum de Republica Symposium*, Basel, 1554.

<sup>55</sup> Nutton, *Humanist surgery*, p. 95 cites: E. Stuebler, *Geschichte der medizinischen Fakultät der Universität Heidelberg 1386 - 1925*, Heidelberg, 1926, 33-42.

<sup>56</sup> Humanist political thought of this sort was not ideologically driven ('not dedicated to ideological strife') but, as Robert von Friedeburg put it, 'to a technical inquiry of how to perform the office of government best under varying circumstances. In Germany, university based scholars in particular attempted to establish their own academic inquiry into 'prudential civilis', the best technique to organize government and manage

critiques of Paracelsian medicine, which responded to many of the same problems that Lange identified and made similar calls to purify medical teaching and control medical learning.

As far from Lange, as Lange was far from Brunfels, the movement for reform came to a head, unsurprisingly, in the context of later sixteenth century city, with the writings of Joachim Struppius (1530 -1606) author of *A useful reformation, (Ein Nutzliche Reformation)*, by far the most systematic and most inventive of the reformers.<sup>57</sup> Struppius' medical career was varied. He was promoted to Doctor in 1561, and practiced in Friedberg until 1563 when he moved to Frankfurt. He was municipal physician in Frankfurt from 1563 to 1575, when he moved again, becoming the *Leibarzt* to Landgrave Georg I of Hesse-Darmstadt. In 1584 he became municipal physician in Darmstadt where he died in 1606. He displayed a mildly esoteric fascination with mummies; he published a pamphlet on their burial customs in 1574 that went through several editions in both Latin and German. His therapeutic approach, which we have brief record of, concentrated primarily on diet.<sup>58</sup> The text that we are concerned with here was published in Frankfurt in 1573, while Struppius was municipal physician there. Whereas Brunfel's interests were in botany and his text focused on pharmaceuticals and apothecaries, where Lange was devoted to humanism and advocated pedagogical reform, Struppius' interpretation of medicine was particularly concerned with the environmental impact, and his text took the shared concerns of the sixteenth century physicians and expanded them into a blueprint for the reorganization of the entire city's public health and hygiene.

Struppius adhered most closely to the kind of physician popularized in sixteenth century vernacular textbooks like Drysander's or Fries' *Spiegel der Artzney*.<sup>59</sup> At the same time, he demonstrated the way in which the city sharpened the abstract Galenic focus on the body and its environment. He utilized Galenic nosology, while demonstrating the later sixteenth century emphasis on therapeutic medicine, focusing on combining the three treatments available: diet, regimen and pharmacy. What Struppius did, that previous literature on medical reform did not, was to use the components of medical practice to claim authority over the environment in which he operated. He did this in two ways. He used the emphasis on therapeutic medicine and diagnosis to establish precedence over the entire sphere of medical practitioners in the city, claiming visitation rights and jurisdiction not just over apothecaries, but over midwives, surgeons and other specialists as well. Even more innovatively, he used the emphasis on regimen and constitutional medicine to claim authority over the structure of hygiene and environment within the city, previously within the scope not of other professional groups but of the city council.

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civil affairs.' See: Robert von Freideburg, *Self-Defence and Religious Strife in Early Modern Europe: England and Germany, 1530 -1680*, (Aldershot: Ashgate, 2002), 15.

<sup>57</sup> Joachim Struppius, *Nutzliche Reformation zu guter Gesundheit/ und Christlicher Ordnung/ Sampt hierzu dienlichen erinnerungen/ waser gestalt es an allen dritten/ wie auch allhier zur Seelen und Liebe wolfarch/ ze. loeblichen und nuetzlichen zuhalten*. Frankfurt, 1573.

<sup>58</sup> Joachim Struppius, *Ioachimi Struppium Antidotarii Antitrimatstigi, id est, Medelatrium extremorum Dei flagellorum, Libri I. Adumbratio, Qui est de corporali nec non Sprituiali. Anchora/ Famis, sitis, valetudinisque mortalium. Durch Gottessegen/ neue Speisskammer/ und Speisskelller in corstehenden hungers noten/ Landstheuerungen/ und kriegslaufften/ Sampt anmuetiger Haussapotecken nd Juchenartzen*. Frankfurt, Martinum Lechlerum, 1574.

<sup>59</sup> The increasing presence of municipal physicians in imperial cities gave rise to greater amounts of literature reflecting on medical practice as a relationship.

Struppius' text moved through separate issues in a series of chapters. 'Of Spiritual Medicine and the wellbeing of the Soul'; 'Of Physical Health and its preservation through Sound Air and Cleanliness in the City'; 'On inspection and oversight of the apothecaries', 'Of herbs and plants', 'Of anatomy and dissection of the dead', 'On visiting and oversight of the hospitals', 'Oversight of the plague-houses', 'Care of lepers'; 'Other useful and important ordinances'; 'On the duties of true Christian midwives'; 'On travelling foreigners, sorcerers, crystal-seers, and enemies of the Christians - Jews and the like', and a final untitled chapter on the uses and justifications of the text as a whole.<sup>60</sup> In each chapter the message was basically the same. Struppius asserted a lack of order and coherence within the regulations governing the object - Sound Air, Cleanliness, (he has a long passage on the maintenance of the city's walls) - which, crucially endangered the health of the population. He then recommends that the municipal physician be put in charge of overseeing improvements. Struppius interpreted the traditional civic emphasis on safeguarding welfare as protection of the city's health. In doing so he positioned physicians as the fulcrum for a new civic ethics based around health and welfare rather than the medieval emphasis on charity and alms-giving, or even the reformation emphasis on common welfare and order.<sup>61</sup>

Like Brunfels, Struppius advocated the inspection of apothecaries, although unlike Brunfels, Struppius spoke about this not as an innovation but as an established custom. Reflecting the developments in pharmaceutical medicine and botany in the intervening period between Brunfel's *herbarium* and contemporary texts such as Matthioli, Struppius paid close attention not just to the ingredients and instruments found in the apothecary but also to the methods used therein. Like Brunfels, Struppius tackles the oath as the first means of regulation. Counting the developments since Brunfels, Struppius places the Dispensatorium at the center of in-house regulation.<sup>62</sup> Struppius called for two visitations per year, to take place in spring and autumn.<sup>63</sup> The purpose of this was to examine the *Materia medicamenta*, the bases for simples. Struppius asserts this, and then immediately builds on it. On the premise that the apothecaries substituted one ingredient for another, or often did not pay attention to the conditions of the individual ingredients, and because a level of knowledge about both the ingredients (*speciebus*) and the composite recipes (*Composition*) was necessary, Struppius recommended that a municipal physician (*Ordinarius medicus*) conduct the inspection of the apothecaries.<sup>64</sup> Although Struppius was concerned with regulating pharmacy, actual participation in pharmacy was still fundamentally the apothecaries' purview. His own interest was not vested in pharmacy, and because of this he makes an excellent observer

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<sup>60</sup> Von Geistlicher Artzney und wolfahrt der Seelen; Von der Leiber Gesundheit durch gesunde lufft und reinigung der Stette; Von besichtigung und versehung der Apotecken; Von den herbatation und kreutereyen; Von der Anatomy und Schneidung der verstorbenen; Von versehung und besichtigung der hospitalen; Von versehung der Pestilantzheuser; Von versorgung der Sondersiechen; Von anderen nutzlichen und notigen Ordnung; Von dem Ampt treuwer Christlicher Wehemutter/ Item der Seugamen/ re; Von den Landtfehrern/ Zaubern / Christallsehern/ re. Item von Feinden der Christen/ Jueden / und Jueden genossen; Im. XII Capitel 1. Von vielfaltigem nutz und ehr/ so uber solchen Ordnungen gehalten.

<sup>61</sup> These are of course massive generalizations.

<sup>62</sup> Struppius, Reformation, 10r.

<sup>63</sup> Struppius, Reformation, 8v. In a later chapter he describes the two harvests coming in May and August. See 12r.

<sup>64</sup> Struppius, Reformation, 8v-9r.

of the kinds of changes that had taken place within the practice of preparing and manufacturing remedies. Thus he mentioned their garden and laboratory, which they ought to have as properly theirs. Furthermore, he devoted a separate chapter to the having and holding of plants, something that physicians and apothecaries have in common.

Struppius placed his text very firmly in the environmental context. He carved out a sphere of control primarily by reference to the city and its air. Air, in the way it operated in the text, was a point of entry for control over the greater environment, both as a medium for spreading infection or illness, and an essential element for the protection of health. Air, of course, could not be regulated. But the legislation Struppius proposed is quite specific. Twice a week, most likely on Wednesdays and Saturdays, the city should be cleaned. Particular attention was to be paid to the disposal of waste. Specific requirements for disposal of waste and management of refuse also applied to other trades or handworkers, such as fishmongers or butchers, executioners and gravediggers. Corpses and their disposal received detailed attention. (Particularly unexpected might be his reference to the city walls, which are to be built, he writes, of clean and intact soil, and not of excrement. One wonders.)

Struppius wrote about the institutions of medical care as well as the members of the medical marketplace. Throughout the sixteenth century, hospitals in Imperial cities, as well as those established by secular and ecclesiastical courts, increasingly came under the provenance of medical authority. Medical inspection of hospitals was nothing new. In Nuremberg it was the first reason for the city to ever employ a physician. Hospitals in other cities had physicians attached to them from the fourteenth century, so Struppius was not making a novel claim. By integrating the traditional institutions of poor relief into the larger framework of civic welfare, guided by the provision of health, rather than morals, Struppius was able to graft closer regulation in general to a concept of civic welfare. Of course, focus on an institution also meant focus on patients. Struppius extended similar concerns for three groups of patients: residents of the hospital, plague-victims and lepers. From a medical point of view, participation in the hospital was justified on the basis that many residents, particularly young people could be easily cured of their ailments.<sup>65</sup> He framed the cure as a traditional aim of alms-giving, the function of which was according to Struppius, to provide care for the helpless.<sup>66</sup> If the helpless could be cured, so much the better. This was less likely for plague or pestilence, and Struppius left the primary care of such patients to surgeons, rather than physicians. They were to undertake cures and treatments as they saw fit, and dispose of the bodies in a timely and efficient fashion.

Although Struppius' text was published by the Egenolph press in Frankfurt, at the time run by Adam Lonicer and specializing in medical texts, it never found the same audience that Camerarius' unpublished near contemporary pamphlet did. Perhaps displaying prescience, Struppius dedicated his work not to his own city council, but to the medically progressive city of Augsburg, who endorsed the book's 1573 edition. Like *A Useful Reformation*, not one of the texts here considered can be said to have caused

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<sup>65</sup> Struppius, p. 16v. dass viel Personen asus solchem gefengnus können zeitlichen erldiget werden/ sonderlich junge Person/ denen in irer krencken zu helffen.

<sup>66</sup> Struppius, p. 16v. Welches so es recht versehen/ wuerden frommen leut unnd einer Erbaren Obrigkeit Allmosen viel besser angelegt werden/nemlich an die/ welche lange zeit entweder von wegen unheilbaren schwachheiten/ oder wegen des hohen alters/ so an sich selbst ein Krencke ist/ gantz und gar zu bette ligen müssen. On this definition of/ function of hospitals see Erik Midelfort, *Madness in 16th Century Germany*.

reforms. Nonetheless, what these individual demands for reform illustrate is a recognition of the need for change from within the ranks of university educated, Galenic physicians of sixteenth century Germany.

### **Municipal Medicine in Practice**

There was no blueprint for municipal medicine. Despite its achievements, the concerns and conclusions of medical humanism were also insufficient to explain or encompass the demands of medical practice in the city. When Joachim Camerarius, Georg Palma, Volcher Coiter, Heinrich Wolff and the other physicians arrived in the city of Nuremberg, they swore an oath, infuriatingly vague in its terms, which nevertheless conferred a huge obligation on its taker. As we have seen in Chapter One, they swore to protect and to treat the citizens of Nuremberg, whether they could pay or not, to the best of their ability. From Nuremberg's point of view, then, municipal physicians combined the twin but separate functions of providing treatment and protection. Nowhere did the oath hint at how the physicians might undertake these duties. Many of the challenges they faced, recurring epidemics, poverty, malnutrition, even gunshot wounds, were new and peculiar to the civic context. The demands were uneven. Plague spiked intermittently, individual patients varied from physician to physician. There were also non-medical factors informing these demands. As we have seen in Chapter One, in certain circumstances the Nuremberg Senate co-opted physicians as agents of the state. Municipal physicians justified civic policies on leprosy, contributed to civic decisions about hospitals, hygiene and the regulation of drugs and made decisions about each other, as well as their competitors in the medical marketplace. Little of this was pre-empted by their education, or by the Galenic philosophy to which they ascribed.

In meeting the challenges of medical practice, the following chapters show more clearly the way in which doctors thought through the means at their disposal: botany and anatomy, libraries and collections, letters and correspondence. In a broader context we also know from Camerarius' manifesto and from the reformation that followed it exactly how the physicians responded to the general circumstances of social medicine. Harvesting evidence for the day-to-day minutiae of medical care is more difficult. We know what Galenic medicine thought the body ought to be, and we know what rare, unusual, miraculous or marvelous cases were thought to present themselves in the sixteenth century, but what physicians actually encountered in the city was different than either theoretical text-books or collected case-studies might suggest.

As well as botanists, anatomists, reformers, a busy corporate elite and learned intellectuals, the physicians were a loose assortment of individuals confronted with a relatively motley set of medical tasks. Civic employment meant that certain medical problems were held in common. All the physicians in Nuremberg had dealings with so-called lepers. All of them probably dealt with pox, and all of them, certainly, were concerned by and involved in the prevention and treatment of plague and other epidemics. On an individual level, however, the kinds of medical cases seen by physicians generally depended upon the profile of their patients, and the geography, economy, social composition and political landscape of the city in question. Complaints brought to the municipal physicians in Nuremberg ran the gamut between mundane and horrific. The municipal physicians had very different clienteles. Melchior Ayer, who

spent many years in the *Heilig-Geist-Spital* worked with poor and helpless. Heinrich Wolff's patrician patrons would have presented, for example, far more cases of gout than of malnutrition. Volcher Coiter reminisced about his prowess in the face of horrific accidents. Camerarius dwelled at length on cases involving fever. Georg Palma spent years collecting remedies for a set of diseases ranging from epilepsy to stomach ache. We have far less record of their daily practice than one might wish, but we are lucky to have what there is. The way in which Nuremberg physicians responded to particular medical cases demonstrate the gap between learning and the conditions of practice, but they also show a developing confidence in practice as a means of building medical learning. Their case-books, notebooks, research and learning all demonstrate the importance of clinical observation, incremental treatment and trial and error approaches, over the application of Galenic learning.

When he died in 1598, among the things that Joachim Camerarius left behind was the preliminary notebook draft for a medical text, never completed.<sup>67</sup> Although he wrote almost nothing down in detail, he parsed the book completely into the sections he planned, and jotted down the contents he deemed necessary. The result is a literal skeleton of the book he had planned to write: outline and draft were carefully recorded, perhaps to be later filled in, perhaps only as an aid to thinking. Apart from a thwarted ambition to write, if not publish, a general medical textbook, and thus, a clear demonstration that Camerarius *had* medical interests, the skeletal book yields an interesting anatomy of municipal medicine.

Camerarius followed the same basic Galenic framework as other comprehensive medical texts, such as Lorenz Fries' *Spiegel der Artzney*, but he proportioned them slightly differently, veering away from what Galen considered to be most important and towards what he observed most frequently. Although he continued to use Galen's framework as an organizing schema through which to view his professional activity, the text reflects a personal practice of medicine. It is a mismatched index to the practice of medicine in the city.

In the nitty-gritty details Camerarius' notebook demonstrates his terror of fever, and it goes into some detail as to why. It was both one of the most filled-in sections of the book *and* it was *intended* to be even longer, demonstrating that Camerarius actually came across fever often enough to make a number of observations, and that he wanted his eventual text to reflect this real circumstance. In terms of space and page-count, Camerarius accorded fever almost three times as much space as other ailments, and carefully distinguished between all the different causes it can have. The remedy for fever must be carefully thought out. If the cause of the fever is misdiagnosed, the remedy can exacerbate it and kill the patient. Camerarius' fear of fever stems from the fact that fever was unsystematic. All the theory one learned about humors, bodies, complexions only served to heighten fear. Try as they might, they could not exhaustively catalogue its causes, and they saw it not as a symptom, but as a disease in itself. Simple seeming ailments could mutate at the drop of a hat into raging fevers which would kill the patient, while his or her physician vainly attempted diagnosing its cure. Practice, in this instance, would never conform to theory. But, at the same time, the simple act of writing down, observing and commenting on a case by case basis and by including his own experience

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<sup>67</sup> UB Erlangen.

within the rubric of Galenic medicine, Camerarius clearly felt that theory *could* include practice.

The earliest of Palma's Nuremberg notebooks was a *receptbuch*, a record of his first two years treating patients as a municipal physician. This small folio survives in the German National Museum.<sup>68</sup> As a young doctor, Palma made note of the patient's name, only occasionally the disease for which he or she was being treated, and sometimes an indication of the treatment used, usually a list of ingredients. Although not terribly informative about his day-to-day medical practice, the book nonetheless indicated the kind of business that medical practice was. Palma saw his first patient, one Paul Breuning, on May 25th, 1568. By the 14 June 1568, he was seeing multiple patients a day, although, and it can be presumed that this was similar for other municipal physicians; he did not see patients every day. When we compare this short record of practice to his research over the course of his career, in his collections of remedies, Palma assiduously researched treatment for conditions like epilepsy, ulcers, gout, digestion problems and for illnesses like cancer. But the bread and butter cases were more likely to be chronic, but not life-threatening problems, small aggravations that persisted through several visits and, judging by the pages and pages of different remedies Palma jotted down, many courses of treatment too. Recipes for cramps, indigestion, hangovers, headaches, sore teeth, bad tempers: these and innumerable others were the daily minutiae of medical matters.

This book tells us two things. Although sixteenth century collections of clinical observations seemed to linger on the rare, the monstrous or the horrific, their purpose was generally to assert the ability of medicine to treat the common, the natural and the normal. Sixteenth century authors were concerned with standardizing the 'norms'. Publishing projects, like Schenk's *Observationes* or Pieter Van Foreest's actively sought to define and describe exactly what that commonplace was. The reason why the commonplace could be explored through examination of the rare, was that the division between traumatic, terminal illnesses and mundane, common-place ill health was not clear cut. As the example of fever demonstrates, what might appear to be common place could transmute rapidly into something far more serious. The most dangerous maladies, then, were not the most rare or unusual cases, but the common-place, omnipresent, uncontrollable results of illness. The second thing is that physicians attempted to control outcome primarily by controlling courses of treatment, rather than calculating, or recalculating diagnoses or prognoses.

The Nuremberg physicians were not equally interested in pharmaceutical remedies. Camerarius, the author of several significant botanical treatises experimented with forms of treatment and various preparations. Palma mined texts of all genres for new pharmaceutical information, and filled reams of notebooks with annotated recipes. Georg Marius published on the new element *terra sigillata*. But in general, pharmacy formed a part of the Nuremberg physician's repertoire. It uniquely formed a part of the city's medical landscape. Not only did Nuremberg have a renowned botanical garden, established and run by Geog Öllinger, it was also the home of the first German pharmacopeia. They were also interested in treatment, specifically procedural, incremental treatment.

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<sup>68</sup> GNM, HS. 100.822.



We know details about some of Coiter's patients from his published anatomical observations, which in many instances drew on real-life case studies, among them victims of gunshots, lingering illnesses, and sudden accidents. Most of these, however, were patients he treated, or bodies he autopsied, before arriving in Nuremberg, and all of them were patients who died. For his surviving patients, his more effective treatments and his less surgical interests, we have less evidence. Nuremberg was his first post as a municipal physician, and the city necessarily brought him into contact with numerous patients, among them one Anton Breem. In 1570, Volcher Coiter recommended Breem make a medical pilgrimage to the waters at Wildbad in the Black Forest. Before Breem left, Coiter wrote up a detailed set of instructions intended to guide the treatment that Breem, under the temporary supervision of whoever was bathing master in the waters of Wildbad, would then have to administer for himself. Palma, whose interest in collecting the recommendations and remedies of his local colleagues we'll look at in chapter 4, copied the regime by Coiter into his personal manuscript collection.<sup>69</sup>

The text for Breem was long and involved, and covered not just the taking of waters in various forms, but the whole 'regime' *while* taking the waters. Coiter left strict guidelines for his patient's nutrition, and sleep, for the time of day he was to take waters, and for the ways in which he was to ingest and apply the mineral water. 'The use of baths', Coiter wrote, 'is threefold, that is, one drinks it, bathes, and pours it on one's skin.'<sup>70</sup> The recommended course of treatment lasted fifteen or sixteen days. As a form of treatment, taking water combined interior and exterior therapeutics; there were nutritional, minerological (pharmaceutical) and topical aspects to it, as well as something verging on the less charted dimension of either spiritual or psychological relief. This was further complicated by the need to prepare one's body and one's environment to best receive waters, and then to maintain one's regimen through the course of treatment. As all of these depended on a number of variables, Coiter issued his patient an exhaustive list of permutations and combinations. The time to bathe was early morning, and Breem was told to spend up to three hours immersed in the waters. The water had to be warmed before it was drunk. Just the right amount of wine had to be consumed alongside it. Sweating was encouraged as a sign of progress. The spa waters were not the only component of a water cure, Coiter listed a variety of herbal and pharmaceutical remedies that should be ingested alongside taking the waters. Food was important. Breakfast was a fresh egg, fried over the fire, although later in the day eggs, milk and cheese were to be avoided. Fish was unhealthy. 'Natural' food was good, so was young chicken and poultry, veal and the like. Other foods were fine in moderation. In general, Coiter recommended that Breem eat an alarming amount of food, but the times and quantities he should eat over a two week period varied, and, because there had to be a long interval between bathing and eating, his meal times were actually infrequent. To control his appetite, Coiter suggested Breem eat, soft food first. If the weather permitted, Coiter instructed Breem to do a little walking, three or four hours after eating.

What does this tell us about the treatment Nuremberg's municipal physicians provided? First, that diagnosis involved recommending a course of treatment, and

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<sup>69</sup> StadtB N, Ms. Cent V 42, fol. 23 - 30.

<sup>70</sup> Der gebrauch des badts is dreierly, nemlich das man es trinckt, badt unnd sich aufs hauptt lassen fallen oder giessen.

entailed, as a natural extension, control over the course of treatment. Coiter's specifically surgical interests were in harmony with forms of therapeutic remedies that existed at the boundary between 'inner' and 'outer' medicine, and it is no surprise that of all the Nuremberg physicians, he was the one most interested in balneology.<sup>71</sup> But in the relationship he maintained with his patient, Coiter, like other physicians, was moved to extend his jurisdiction far past the point of diagnosing a medical problem, or even selecting a course of treatment. Spa treatment had a longer tradition in Germany than elsewhere, and each mineral spring was usually overseen by a bathing-master, a man with recognised medical expertise in the area, whose job was to devise a plan for his visitor's stay.<sup>72</sup> Coiter's text effectively requisitioned this job. In the end, we cannot know whose instructions Breem followed, but his physicians certainly claimed the right to dictate treatment as well as to prescribe it.

In terms of the quality of care on offer in Nuremberg, we can see that Coiter spent time and effort devising a detailed, particular regimen for his patient. His instructions might have involved an extension of the physician's authority and control and an undermining of the bather's, but this shouldn't mask the very real concern with the practical effects of treatment the text demonstrated. Coiter attempted to foreshadow every variable, and to take into account all the possible signs that the treatment was or was not working. A particularly involved passage, for example, discussed the most desirable amount of sweat the baths should produce. If there was not enough sweat, or if there was too much, Breem should rest in bed. It's clear from the structure and organization of Coiter's text that, like Camerarius' proposed medical manual, Coiter used a general, prescriptive framework for the construction of the bathing regimen, and then was forced to make dramatic and minute modifications in order to render it applicable to an individual. This concern with the effectiveness of the course of treatment reveals, too, just how much medical efficacy depended upon the patient. Ultimately Anton Breem was the person in control of his own treatment, and thus it was the patient who was also the agent of the physicians' incursion in to the realm of bathing.

The way in which Coiter thought about, wrote about, and recommended mineral waters be used, demonstrated more than an interest in applying an empirical medical treatment. By melding surgical concerns with topical application, plus a Galenic emphasis on regime, he imbued balneology with a form of medical learning that was supposed to be unavailable to most bathing masters, and was absent from many balneological pamphlets. For Coiter, treatment involved both Galenic and pharmaceutical elements. It was not just pharmaceutical, it was procedural and incremental.

To drive this point home, in Nuremberg, physicians were paid regardless of the success of their treatment. This was a particularly idiomatic understanding of the role of the physicians. In other cities, like the well-documented case of Bologna, a contractual relationship between physicians and patients made effecting a cure - or reaching a satisfactory agreement on the success of the treatment - necessary in order for the doctor to claim his salary.<sup>73</sup> The physicians in Nuremberg were paid twice over, as we have

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<sup>71</sup> No surprise given his Paracelsian tendencies, Heinrich Wolff was the other physician with an interest in balneology.

<sup>72</sup> Sixteenth century balneology: see Richard Palmer, 'In this our lightye and learned tyme': Italian Baths in the Era of the Renaissance', *Medical History*, Supplement No. 10, (1990), 14 -22.

<sup>73</sup> Gianna Pomata, *Contracting a Cure*.

seen. They received an annual stipend, and could, in addition charge patients on a case-by-case basis. By both public and polity then, physicians were paid for their professional diagnosis, prognosis and recommendations on treatment - *not* for the cure that did or did not occur. Paying physicians for treatment, even (especially) treatment that did not end in a cure, gave value to the process of medicine; it separated medical treatment from effect and granted it, as an incremental process, social value.

Treatment necessarily focused on the individual, but protection took place at a general level. When the practical effectiveness of one on one medical treatment was overwritten by concern for a general population, the balance between protection, intervention and cure was thrown off balance. As the private body was held in balance by its own idiosyncratic mix of humours and its existence within its surrounding environment, public medicine, the maintenance of a city population's wellbeing depended on a variety of profoundly unstable circumstances. In the course of the sixteenth century specifically medical threats to the city at large affected the duties of its doctors. A municipal physician's duty, as we have seen, was to treat the citizens of the city that employed him. In the case of private patients, this was visible most often in the response of doctors to medical complaints. When dealing with the public at large, however, the preventative role of the physician is clearly apparent. The most public, the most widespread and the most culturally significant of these was the threat posed, and indeed the very real damage caused, by plague.

Plague in Nuremberg was a recurring problem. Episodes exist on record from 1532, 1565, sporadically through the 1570s and 1582, of which the latter was a vast devastation responsible for the deaths of three of the city's physicians as well as many hundreds of its citizens. Between 1532 and 1533, more than 6,000 deaths were counted in Nuremberg, of which the vast majority occurred outside the city's hospitals.<sup>74</sup> Plague was only one disease that threatened the sixteenth century cities, pox, leprosy and other epidemics also claimed their share of fear and terror. In the course of the century, the city also suffered epidemics contemporarily identified as 'Hungarian plague' (probably typhoid) or 'English disease' (probably the sweating sickness).

Across early modern Europe, plague had demographic, psychological, economic, structural, hygienic, linguistic, pedagogical, religious and cultural effects. Such was the importance of plague to governments, municipal, religious and secular, in the sixteenth century that its threat has been considered an explanation for the growing place of medical authorities in the urban landscape. The divine wrath of plague was a judgment on moral disorder, and the practical devastation it wreaked was a remonstrance to public and political disorder. Because of this, instances of plague created cultural and political moments when the profoundly medical motivated and was met by creative input from other kinds of thinkers and rulers. Governments, patients and physicians looked for recourse to remedies in a wide array of sources and strategies. Their actions in these critical moments demonstrates the essentially political nature of the provision of medical care, and the different actions of various political bodies provide illustrations of the kinds of rule that existed, and the kinds of political communities that constituted otherwise similar polities. These could vary. Writing about Italy, Samuel Cohn emphasizes that far

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<sup>74</sup> Fritz Dross, 26-7.

from weakening the state formation, the plague crisis generated new forms of authority.<sup>75</sup> Although the city's patriciate took very different measures, this was also the case in Nuremberg. In this case, however, the generalness of plague can be seen as a mechanism, by which private medical expertise was transmuted into general medical authority.

Nuremberg's response to plague, in each of the instances when it was detected, was to crack down on regulations, oversight and government. This is visible in the many ordinances that date from the various plague years. The disposal of bodies, of waste, the care and maintenance of supplies, the slaughter of animals, the sweeping of streets, the running of the *Heilig-Geist-Spital*, the preservation of water, the importation of goods, all of these and more were stringently regulated during times of plague.<sup>76</sup> They turned this attention to detail on themselves. Sophisticated record keeping ensured that the details of plague were well documented. One of the city's policies was to implement statistical comparisons of the various death tolls across different plague years and presumably some measure of success or failure of various policies was measured against this. In May 1585, they printed a single page with a set of instructions for the preservation of the city's cleanliness during an onslaught of pestilence.

The Nuremberg physicians however, unlike some of their counterparts in other imperial cities, swore no oath specific to plague.<sup>77</sup> Recognizing quite probably that such oaths were singularly useless, the Nuremberg council instead offered financial enticements. To doctors who remained in the city, the senate would pay an extra gulden for every patient they treated. The danger for the physicians during times of plague was indisputable; plague decimated the medical population in proportion to the general losses. In 1582, the worst year of plague of the century, Nuremberg lost three of its doctors, Heinrich Wolff, Justinus Mueller and Georg Ruckher.<sup>78</sup>

On the part of the city and on the part of the doctors, response to the plague among physicians emphasized collaboration and uniformity. There were never complaints in Nuremberg about doctors leaving during plague, and the fact that some of the most eminent of the doctors died providing treatment suggests that a good proportion of them took their duties in times of crises seriously. On 2 September 1585, for example, a group of the Nuremberg doctors met to discuss a proposal by Dr. Anton Fuchs for treating an epidemic of plague. Among other things, the physicians determined first, that it was necessary to treat plague with pharmaceutical remedies, that diet and regimen were not enough, and second, that proper treatment in this manner required better regulation of the city's apothecaries.<sup>79</sup> While individual doctors in Nuremberg produced plague booklets and tracts over the course of the century, it is noteworthy that in response to particular instances of plague, the doctors banded together. In this instance it was by preference, but in other instances the city government insisted on this display of uniformity.

In 1572 the Nuremberg council commissioned its doctors to write a report on an epidemic, previously unknown to the city. The subsequent work, produced through the collaboration of the municipal physicians, and titled simply *Anzaig und Bericht der*

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<sup>75</sup> Samuel Cohn, *Cultures of Plague*

<sup>76</sup> StadtA N Coll Med B/19. 470- 487.

<sup>77</sup> On these oaths see Andrew Russel (ed), *Town and State Physician*.

<sup>78</sup> See Mummenhoff, *Das Oeffentliche Gesundheits-und Krankenplege*.

<sup>79</sup> StadtA N B/29, 474, fol. 1 - 4a.

*stadtarzney*. As a response to a political threat to the city's physical welfare, first and most importantly, the text established an immediate consensus. Rather than the more normal form involving a compendium of different cures, the slender pamphlet gathered together the opinions of the doctors, producing one single voice asserting a single theory. Any literary notions of authorship or ownership evidently took a back seat to the official office of the municipal physician and the welfare of the city and the citizens they served.

As the doctors first describe it, the 'Hungarian Disease' was a pestilential fever, caused by an impurity in the blood. Once it set in, the fever grew daily and was accompanied by spots (*flecken*). The impurity could be caused by many things, but was most often brought about by bad food or drink, particularly fortified or heated wine. (strong wine) According to the doctors this disease, which appeared unprecedented and was obviously causing widespread fears, was not new at all. Rather, it appeared in Greek works by Herodotus and Aetius. What the doctors would do first is describe its principal characteristics and signs, allowing the panicked citizenry of Nuremberg to distinguish the pestilential fever from the common fever.

As opposed to the many texts on the plague, the pestilence or the simple preservation of good health that circulated widely in the sixteenth century, this short pamphlet concentrated on a specific people of Nuremberg, rather than the imagined or abstract patient. As such, it incorporated many of the problems and concerns that nuanced a doctor's duties to a *city*, rather than a paying public. Chief among these was the problem of stratification: the division of the populace according to wealth. This had nothing to do with status or lifestyle, and everything to do with money and quality of life. Poverty was a medical problem; the poor could not afford treatment. Even if the doctors, in accordance with their civic oaths and obligations, saw the poor, the remedies they prescribed were often out of reach. Provision of prescriptions was the business of apothecaries rather than physicians, and the former were not obliged to provide for free what were often very expensive concoctions of rare or exotic ingredients.

One reaction to this was the attempt to provide alternative remedies using less expensive substitutes for the richer ingredients. But the problem of poverty extended further than the cure. The poor could not afford the food and drink available to the rich. For the Hungarian disease, or any disease caused by imbalanced diets or regimens (arguably, for some doctors, this was the root cause of all disease), this was especially problematic.<sup>80</sup> For example, to guard against contracting the Hungarian pestilence, the doctors listed the following ingredients as essential components to a healthy diet: *Rosen*, *Negelein*, *Agrest* (the juice of unripened grapes - lat. *omphacium*), *Limonien und Citronen*, *kreusel oder stichelperlien*, *saurampfer*, *Petterlein* and *Weichsellatwergen*.

The cause of the disease explicitly dictated its treatment, which was given in two steps: first, treating the fever and, second, applying the remedy. As with all fevers, cooling the patient was crucial, although the doctors warned not to do this with water, rather the aim was to dry the patient out. He or she would need to be bled, with the aim of ridding the body of the poisonous bile. Then, one could apply the remedy. The 'cure' in this instance, or the two cures if one counts the recipe for the poor as a separate prescription, was relatively complex.

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<sup>80</sup> *Was Speiss und Tranck belanget/ dan den reichen und ein ordnung gegeben werden/ aber der armen wird ubel gewarttet/ welche nicht der gesundheit/ sondern der notturft nach ihr leben anstellen müssen.*

Although the information was given to the city, it's not clear exactly from the text just where the line was drawn in terms of independent treatment. It was expected that the poor would be forced to treat, administer, and even prepare the cure themselves. Thus their remedy included simple instructions for preparation. By contrast, the complex list of ingredients for the rich was simply stated. The remedy included neither instructions nor precise quantities. Following the official prescriptions came a separate prescription for strength that was also, presumably to be administered after the fever broke, and a brief discussion of two popular folk remedies, one from the Tyrol and the other from Hungary itself. The hierarchy is clear, a simple statement of fact. Those who could afford doctors would do so, there was no question of that. For the poor however, information would have to suffice. The doctors took seriously their lack of ability to pay for more complex treatment, and listed not one but several courses of treatment. None of these were regarded as adequate substitutions for the care a doctor could provide, but their provision discharged the doctors' duty.

If the municipal physician's duty to the city's council extended as far as ensuring periods of absence, in certain instances the duty of medical care could be discharged *in absentia* through writing. Treatment then, or the presence of the doctor at a bedside was less important for the city than the perception that medical authority *existed*, and was being focused on matters of medical organization. The city wanted answers to these questions from its doctors: how to keep the healthy population healthy, where to put the diseased bodies and how to prevent further new epidemics. Order, fortitude, and consensus were *literally* the cure. Tackling a practical, terrifying and previously unknown disease by manner of writing might not have seemed like the most effective means of halting its incursion. Nor, it is safe to say, given the number of deaths in its immediate wake, was it. But it demonstrates the fact that faced with widespread devastation and crisis, the city wanted order even more than it wanted individual medical innovation.

## Conclusion

Municipal medicine in Nuremberg thus demanded that physicians combine the two functions of medicine that had been kept apart in other areas of Europe, as long as the contractual notion of medicine survived. With more far-reaching consequences, the city created the idea of public medicine, a medical duty that the city had to protect the health of a general populace. Neither of these duties was accepted by the physicians in a clear-cut fashion. Medical protection was general, and medical treatment was particular. Protection provided the grounds for the municipal physicians' authority within the city, while medical treatment would provide the grounds for their claims to primacy over other healthcare professions. Treatment was also often problematic, the demands of medical care were not necessarily answered by recourse to the physicians' individual academic educations. Municipal medical care, then, was an amalgamation of the doctor's presence, the part he played between the myriad other healthcare professionals, the quality of education and training he had at his disposal and his contribution to the general maintenance of health. The provision of such medical care to the individual and in individual instances, that is to say, the bread and butter of medical practice, was still the standard against which *effective* medical care was measured.

Achieving medical effectiveness was not easy. Even in its most orthodox incarnation, medical learning confronted new phenomena, like the massive influx of plants from the New World, which undermined the applicability of classical authorities. Attempting to refine and recover ancient knowledge could reveal shortcomings, as in Vesalian anatomy. In both medical humanism and medical practice, Galenic language and rhetoric effectively disguised what was really a far more abundant and vital concern with the particularities of practice. Medicine as privately practiced in Nuremberg paid more attention to trial and error treatment than it did to the Galenic formulae of diagnosis or prognosis. At the same time, rather than abandoning Galen, physicians incorporated their confidence in the efficacy of method into their learned conception of medicine. This medicine as practiced reflected medical humanism, which called for reform from within, confident that an unfettered primacy in the medical marketplace would resolve the problems it faced.

Despite general consensus on the nature and scope of the problems facing the medical profession, and a growing awareness within the medical profession of what it, as a body, ought to think about and do, two reasons, before Camerarius, prevented the confluence of all these various voices. First, there was no concept of medical authority to which cities could turn and on the basis of which physicians could make claims; and second, the conditions presupposing an idea of movement did not obtain. Problematically, for concepts of medical reform, there was no normative past. The concept of medical 'reformation' remained a concept rooted in other discourses, theological, legal or political. As the scope of medical interest grew, medical authority remained, through the early years of the call for change, mutable. Reform gradually migrated, from politics or religion, into medical discourse.

They used what was representative about their educational background and social status to reflect on these demands, and, as the next few chapters illustrate, they came up with things that we simply don't have sources for in other cases. Concepts of medical reform thus drew on tradition and custom, but were generated and structured by the desires of medicine. Implementation needed more than this. In their dissatisfaction with patients, apothecaries and the structure of medical organization, the municipal physicians were representative of educated medical practitioners in Germany and abroad. But in their ability to organize and the distinct set of conclusions they drew from pondering this situation, the physicians in Nuremberg and other Imperial cities, launched a movement without comparison.

**Part Two**  
**Medicine and Practice**



## Chapter Three: Anatomy, botany and the pursuit of practice

### Introduction: Municipal physicians, municipal publications

Were it not for their crucial role in Nuremberg's medical reformation, Volcher Coiter and Joachim Camerarius would be remembered dimly for their contributions, idiosyncratic and dutiful respectively, to the histories of anatomy and botany. During their tenure as physicians in Nuremberg, both men published several important texts. Camerarius' subject was botany, and his greatest contribution to the field was the revised German edition of Pietro Andrea Mattioli's six volume commentary on Dioscorides:

*Kreutterbuch*.<sup>1</sup> *Kreutterbuch* was more than just a translation, by replacing illustrations, adding entries and changing applications, Camerarius turned a humanist commentary on Dioscorides into a vernacular handbook of pharmaceutical botany. The book was the result of a grand collaborative project, with contributions from physicians across Camerarius' far-flung correspondence network, and illustrations originally commissioned by Conrad Gesner for his unpublished *Historia Plantarum*. *Kreutterbuch* was published by Christian Egenolph in 1586, and went through numerous other editions in 1590, 1600, 1611 and 1626. Though the best known, *Kreutterbuch* was not Camerarius' first published work. He had previously written a book on agriculture, and a tract on plague. After *Kreutterbuch*, Camerarius' next publication was a comprehensive Latin handbook of plants, *Hortus Medicus*, which included the first local florilegium compiled by his friend Johannes Thal. Despite his distinguished, hard-working career as an author of botanical treatises, Camerarius is probably best known to posterity for his 1595 emblematica, an early example of what would become a very popular genre.<sup>2</sup>

Volcher Coiter published fewer books than Camerarius, though his original contribution to the subject was greater. As a lecturer in Bologna, Coiter had produced two small guides to anatomy, which, though cheap, short and riddled with errors nonetheless contained early examples of tabular anatomy which would come to be standard.<sup>3</sup> The innovative presentation of the anatomized body foreshadowed his later work. *Extarnarum et Internarum principantium humani corporis* (1572) and *Lectiones Gabrielle Fallopii de partibus similaribus humani corporis* (1575) were works of comparative anatomy, and included the result of long study in Bologna as well as post mortem autopsies of patients, private dissections of executed criminals and public anatomical demonstrations. Among the animals Coiter dissected (and in some cases vivisected) were many domestic or local animals, such as pigs, squirrels, hedgehogs, moles, goats (specifically female), a mouse, a

<sup>1</sup> Joachim Camerarius, *Kreutterbuch deß Hochgelehrten und weitberühmten Herrn D. Petri Andreae Matthioli*, Frankfurt, Sigmund Feyerabends, 1586. (Hereafter: *Matthioli Kreutterbuch*).

<sup>2</sup> Joachim Camerarius, *Symbolorum & Emblematum ex Animalibus Quadrupedibus Desumptorum Centuria Altera*, Nuremberg, Kaufmann, 1595. The literature on early modern emblematica is too great to summarize here. For Camerarius' contribution see especially K.A.E. Enenkel & A. S.Q. Visser, *Mundus emblematicus*; *Studies in neo-Latin emblem books*, (Belgium: Brepols, 2003). On the potential relationship between Camerarius' botanical interests and his emblematica, see William B. Ashworth Jr, 'Natural history and the emblematic world view,' in David C. Lindberg & Robert S. Westman, *Reappraisals of the Scientific Revolution*, (Cambridge: Cambridge University Press, 1990), 303 -332.

<sup>3</sup> Volcher Coiter, *Tabulae Externarum partium humani corporis*, Bologna, 1564; and *De ossibus et cartilaginibus*, Bologna, 1566. These two works were both relatively simple tabular compilations intended to accompany lectures.

frog, but also rarer and presumably more expensive animals: a leopard, a crocodile, a newt/lizard (stellionum) a salamander, a tortoise, a crane, a parrot, a starling, and even a sea-urchin. Most notably, he had an unusual interest in ornithology.<sup>4</sup> According to Coiter himself, he was the first since Aristotle to recreate the famous 'chicken in the egg' experiment, in which he dissected eggs on consecutive days to trace the embryological development of the chicken. This exercise in patience and precision was an achievement which has earned him the dubious moniker 'Father of Embryology'.<sup>5</sup>

Pursuit of the body's structure and pursuit of the plant may not, at once, appear to have much in common. Nor, apart from their friendship and profession, do the two authors resemble one another. Camerarius edited into German, his botany was a collaborative work, driven by and aiming to produce consensus. Coiter's anatomy was iconoclastic, Latin and private. Reading botany and anatomy together however, reveals similarities, methodological and disciplinary. Both botany and anatomy took legitimacy from, ancient sources and both underwent revival and change in the course of the sixteenth century. Both employed and were innovative in their use of visual imagery. Both were activities with manual dimensions, sensual explorations involving tactile practices and material observation. But these are characteristics, symptoms of similarities, rather than pathologically the same. Fundamentally, what botany and anatomy had in common was a shared orientation around philological and philosophical questions of identification. The philosophical component of both anatomy and botany aimed at the heart of identification.

The near coincidence of *De historia stirpium* by Leonhard Fuchs in 1542 and Vesalius' *De Fabrica* in 1543 represents the parallel progression of botany and anatomy in the sixteenth century. By the time Camerarius was publishing, almost a century had passed since the appearance of the first early modern compendium of plants.<sup>6</sup> In 1499, a new Greek edition of Dioscorides was published by Aldus Manutius. In 1516, two Latin translations appeared, by Barbarus, a Venetian physician, and Joannes Ruellius a French physician. But the two bestselling translations of the sixteenth were both by Pietro Andrea Mattioli, (1500-1577), who produced an Italian version of Dioscorides in 1544 and an expanded Latin edition in 1554.<sup>7</sup> Mattholi's books sold over thirty thousand copies.<sup>8</sup> Alongside the recovery of Dioscorides, a small but steady publishing project in vernacular botanical texts gradually gained traction. Botany was omnipresent on the bookshelves in universities and towns across Italy and southwestern Germany. Pursuit of

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<sup>4</sup> 'Volcher Coiter', in Ludwig Choulant, *History and Bibliography of Anatomic Illustration in its relation to anatomic science and the arts*, (Chicago: Chicago University Press, 1920), 209- 210; Ernest Stresemann, *A History of Ornithology from Aristotle to the Present*, (Cambridge MA: Harvard University Press, 1975).

<sup>5</sup> Most recently by Werner A Mueller, *Developmental Biology*, (New York; Springer Verlag, 1997), 4. This is dubious not just for its obvious anachronism, but also because Coiter's interest in the chicken was far more ornithological than it was embryological.

<sup>6</sup> A matter of some debate, but the earliest of those proposed is Giovanni Filippo De Lignamine, *Jo. Phil de Lignamine, Herbarium Apuleji Platonici ad Marcum Agrippam*, Rome, 1481/3. Identified by Konrad Wickert, *Das Camerarius Florilegium*, (Erlangen: Universitätsbibliothek Erlangen, 1993), 1.

<sup>7</sup> Pietro della Matthioli, *Dei Discorsi DIM Pietro Andrea Matthioli sanese medico cesaro... nella sei Libri di Pedacio Dioscoride..* Venice, 1544; Pietro Andreae Matthioli, *Sensensis Medici. Commentarii in sex libros Pedacii Dioscoridis Anazarbei de Medica materia.* Venice, 1554.

<sup>8</sup> Karen Reeds, *Botany in Medieval and Renaissance Universities*, (Cambridge MA; Harvard University Press, 1975), 21.

the subject occupied a spectrum in the Holy Roman Empire that ran the gamut from 'exploration and discovery of exotic foreign plants,' to 'importation of dangerous and illegal New World ingredients,' to local observation and gathering, and to pottering around in a backyard. Conrad Gesner, who compiled a guide to the gardens of the Holy Roman Empire recognized variety between gardens, the loci of botanical cultivation, just as there was variety among botanical texts.<sup>9</sup> Municipal gardens proliferated among the southwestern imperial cities - unlike, say, Italy, where university gardens were more common.<sup>10</sup> Like Italian university gardens, municipal botanical grounds often attained a degree of institutional continuity. In the case of Nuremberg, cultivation of the garden of medical ingredients, originally established by Georg Oellinger, passed from apothecaries to Camerarius.<sup>11</sup>

As for anatomy, in Coiter's time, the subject was still reeling in the wake of Vesalius. The publication of *De Fabrica* revitalized and challenged the discipline, and, in the wake of its new-found popularity, the diffusion of anatomical knowledge and speculation alike was characteristic of the period.<sup>12</sup> Most practical vernacular medical texts included basic guides to human anatomy, often with rough woodcuts. Like botany, the subject of anatomy lent itself to illustration and inspired new kinds and new uses of images. The popularity of fugitive sheets, interactive illustrations and the sale of expensive anatomical treatises among those who could afford them, was matched by the massive sales of smaller, cheaper pamphlets.

Anatomists attempting to verify Galen's findings were often forced to rethink or re-identify the association between a named 'part' of the body and its function. They were also confronted with the problem of integration - dealing with 'new' parts of the body and dealing with the human body's relationship to that of animals.<sup>13</sup> The place of anatomy in medicine was, by the middle of the sixteenth century, fairly well established. The place of dissection within anatomy, however, was not yet fixed. As anatomical knowledge spread, dissection became more common. The dissection of human bodies, however, remained unusual enough that it was subject of much discussion and justification, both on the part of its proponents and its practitioners.<sup>14</sup>

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<sup>9</sup> Conrad Gesner, *Horti Germaniae*, Strasbourg, 1561, fol. 237v - 38r. Ogilvie makes the point that botanists used all kinds of gardens, public and private, their own and other peoples. Ogilvie, *The Science of Describing*, p. 155.

<sup>10</sup> Ogilvie, *The Science of Describing*, 152.

<sup>11</sup> Gesner, *Horti Germaniae*, p239. O. Ge Olingerus pie memoriae, Norimbergensis Simplicium medicamentorum mercator: qui & ipse multo tempore magno studio hortum coluit: & iconibus stirpium variarum eegantissime pictis, volumen sibi confecit, & fillios (ut audio) eruditos reliquit: qui pulcherrimum hoc optimi parentis propositum doctrina sua peregrinationibus confirmata, Deo fauente, illustrabunt.

<sup>12</sup> Even more so than botany, anatomy lent itself to the kind of small, cheap publications that abounded in the vernacular. In addition, most practical vernacular handbooks of German medicine included at least the rudimentary sketches illustrating anatomical knowledge.

<sup>13</sup> Andrew Cunningham, *The Anatomical Renaissance*, (Aldershot; Ashgate, 1997); Jonathan Sawday, *The Body Emblazoned; Dissection and the Human Body in Renaissance Culture*, (London: Routledge, 1995); Cynthia Klestinec, *Theatres of Anatomy. Students, Teachers and Traditions of Dissection in Renaissance Venice*, (Baltimore: John Hopkins University Press, 2011).

<sup>14</sup> Andrea Carlino has suggested that so taboo was this handling of the dead that anatomy was further isolated in the sixteenth century - corralled into the theatres and shrouded with ritual and performance in order to render it 'safe' and acceptable. See Andrea Carlino, *Books of the Body. Anatomical Ritual and Renaissance Learning*, Trans. John Tedeschi and Anne C. Tedeschi (Chicago: University of Chicago Press,

Underlining the tenuous status of dissection, Andrea Carlino has written evocatively of: 'The fragile and ambiguous epistemological status of anatomy that the classical tradition had bequeathed to Renaissance medicine'<sup>15</sup> Although the practice of botany was less controversial, its claim to epistemological status was just as fragile. The motivating problem for humanist botany in the early sixteenth century was the identification of the Dioscoridean canon of plants. Its focus on names and identification prevailed, or even increased, with the sudden rise in the volume of plants known and identified.<sup>16</sup> Medical botany required that apothecaries and doctors use the same name for medical ingredients. Far-flung European natural historians required consistency in order to communicate. For both medieval medical botany, and renaissance natural history, providing a means for the identification of plants was key. How to identify, what to identify and how to communicate identity: these were questions without philosophical heritage or tradition. Dioscorides and Galen provided templates for early modern attempts to communicate the specific identity of plants of bodily parts and functions, but Dioscorides and Galen were *wrong*. This is not a whiggish observation about a backwards, ancient medicine; this was a real and terribly troubling problem for those who believed in the power and necessity of plants and in knowledge of the body. Both Coiter and Camerarius were fundamentally aware of the incompleteness of their respective bodies of knowledge.

If the original intellectual purpose of both botany and anatomy was philological, for these two physicians the stakes were medical. Reading anatomy and botany together we see a new emphasis on method as the basis for understanding - as the bridge between theory and practice. This hands-on, structuralist approach is quite different to the perception of how academically educated physicians in early modern Europe usually comported themselves. But for both Coiter and Camerarius knowledge was immanent in practice. This emphasis arose outside, though not necessarily in contradiction to, the Aristotelian categories of epistemology that traditionally divided medicine. It was put to a medical purpose that was not philosophical, but rested on efficacious treatment. In turn, like medicine itself, both botany and anatomy relied on practice to reveal truth.

Elsewhere this dissertation measures change in the *conception* of medical practice via the material practices themselves. Examples of such changes are the way in which Camerarius claimed greater jurisdiction over diagnosis, the way in which prognosis came to extend into treatment, and making deductions on the basis of how physicians thought about what they were doing. Study of the anatomical and botanical treatises however, reveals the conceptual work that fleshed out and explained these practical changes. In their writing on plants and parts of the body, the thought of Camerarius and Coiter is

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1999). Conversely, the dissected body was held by some natural philosophers, including Melanchthon, to constitute a form of reverence. Andrew Cunningham has examined justifications for anatomy as a demonstration of God's work - the reason for Melanchthon's inclusion of anatomy as a foundational course in Wittenberg's reformed curriculum. See Andrew Cunningham, *The Anatomical Renaissance*. See also Jürgen Helm, 'Religion and Medicine: Anatomical Education at Wittenberg and Ingolstadt', in Jürgen Helm and Annette Winckelmann (eds.) *Religious Confessions and the Sciences in the Sixteenth Century*, (Leiden: Brill, 2001), 51-70.

<sup>15</sup> Carlino, *Books of the Body*, 6.

<sup>16</sup> Estimates that the number of known plants increased from about 400 to about 3000 over the course of the century, demonstrate the extent to which such identities could be puzzling and novel.

available to us, as a mirrored reflection of what they were doing. Anatomy and botany provided operational tools for conceptualizing medical practice, as well as a model for its implementation.

Anatomy and botany were first and foremost medical subjects, and Coiter and Camerarius pursued them for a medical purpose, i.e. to improve medical *practice*. This concern with medical practice in turn guided the way that Camerarius and Coiter handled anatomy and botany's characteristic considerations of identity and resulted in the need for specificity. Both anatomy and botany reflect the shift to practice in the municipal physicians' conception of what medicine actually *was*. As we have seen in chapter 2, the demands made on medical practice in the sixteenth century presented themselves without the benefit of a pre-established paradigm, a working vocabulary, or a body of authority. In the first instance, this challenged sixteenth century physicians and humanists alike to recover their Galenic heritage, to broaden its boundaries and reapply it in daily life. Neither Coiter nor Camerarius caused this shift toward practice, and their pursuit of anatomy and botany did not necessarily *cause* any great change in medicine or its practice. At the same time, for both these Nuremberg physicians, anatomy and botany were contiguous with medical thinking. They sought to categorize the practice of this thinking as they did other practices. They took as their cues other bodies - the bodies of plants for example, or the bodies of the dead.

In Nuremberg's medical reformation, in the re-imagination of medical practice and its eventual organization, anatomy and botany were load-bearing subjects. This was not an accident; there was something integral about how Coiter and Camerarius imagined the link between practice and theory through the metaphors of the body and the garden. As this chapter progresses, it moves through the consecutive steps taken by the municipal physicians from the imbuing of their subject with medical purpose and application, to their pursuit of material methods adequate to the need for specific, accurate identification, and finally to the result - a system of identification that did not just read signs, but actively generated them.

The modest but enduring fame of Camerarius and Coiter is symptomatic of the way in which medical history was, for many centuries, written as a record of progress; but it also demonstrates a very particular feature of that progress - that medical and scientific milestones in the sixteenth century all related to 'phenomena that could be visually observed.'<sup>17</sup> Botany and anatomy have been considered as part of a shift to practices of observation that preceded the scientific revolution.<sup>18</sup> In this historical narrative, both doctors played minor roles. Camerarius oversaw the addition of illustrations presumed to be by Jost Amann. Coiter had a more personal role as he

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<sup>17</sup> Martii Makinen, 'Efficacy phrases in early modern English medical recipes', in Taavitsainen & Pahta (eds), *Medical Writing in Early Modern English*, 158-179. Here, 164.

<sup>18</sup> Anatomy and botany played central roles in classical 'whig' approaches to the history of science. More recently, historians have emphasized the importance of their experimental character and material practices. See Brian Ogilvie, *The Science of Describing*, Kusukawa, *Picturing the Book of Nature*; Lorraine Daston & Elizabeth Lunbeck (eds), *Histories of Scientific Observation*; Lorraine Daston & Katherine Park, *Wonders and the Order of Nature 1150-1750*, (New York: Zone Books, 1998); Toby E. Huff, *Intellectual Curiosity and the Scientific Revolution, A Global Perspective*, (Cambridge: Cambridge University Press, 2011); Claudia Swan, 'Of Gardens and Other Natural History Collections in Early Modern Holland. Modes of Display and Patterns of Observation', in Robert Felfe & Kirsten Wagner (eds.), *Museum, Bibliothek, Stadtraum. Räumliche Wissensordnungen 1600-1900*, (Berlin: Hopf, 2010), 173- 190.

illustrated his anatomical treatises himself. Coiter was famous for his illustrations as well for the experiments and writings with which his publications are concerned. So detailed were his sketches, and so rare was it for a sixteenth century medical writer to publish his *own* illustrations, that in addition to his presence in (whiggish) compendiums of medical history, he merited inclusion in nineteenth century art history compendia as well.<sup>19</sup> While more recent history has, as discussed in the introduction, moved away from markers of progress, it has retained a focus on the visual.

Although both anatomy and botany have been imbued with epistemological significance by historians who place visual evidence at the heart of scientific progress; both Camerarius and Coiter, alongside their use of the visual also demonstrated an interest in non-visual means of identification. Coiter and Camerarius were not just writing about anatomy and botany, they were also practicing these two activities. In their writings there is much to be gleaned about the municipal practice of anatomy and botany and, through this, about their conceptions of medical practice. In Coiter's writing, we see anatomy practiced within the city - not as a public demonstration, but as a private, medical interest. In Camerarius, we see botany as a social practice, linking multiple private activities across a collaborative network, and practically integrating, via the garden, abstract ancient knowledge into the local environment. Looking at these two scientific pursuits, ostensibly the most visual of the sixteenth century medical subjects, as *practices*, both Coiter and Camerarius were fundamentally concerned with the limits of observation. The methods they created to identify parts of the body and plants were material processes, and this chapter follows their pursuit of the hidden, non-visual process which is a form of semiotics.

The visual habits of the physicians may seem ancillary to the question of medical reformation at hand. However, Camerarius' claim to medical jurisdiction in Nuremberg was based on the ability of learned doctors to diagnose. The demands made by Camerarius were predicated on a successful campaign to limit the practice of diagnosis, the practical connection between hidden and revealed signs, to the select group of physicians who were employed by the city, and to include within the process of diagnosis, decisions about treatment and jurisdiction over what treatment to pursue and to whom it should be assigned. Change in the perception and reception of the sphere of diagnosis directly affected the change in the organization and structure of medicine in the sixteenth century. The conceptual groundwork for this was reflected in the treatment of anatomy and botany.

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<sup>19</sup> Bäumer describes him a 'typically' Renaissance, by which she means standing between tradition and empiricism. Anne Bäumer, 'Der Nürnberger Arzt Volcher Coiter: Anatom und Zoologe', *Medizinhistorisches Journal*, Vol. 23, No. 3/4 (1988), 224-239.

### Volcher Coiter (1534 -1576): Cutting open Anatomy



Fig. Volcher Coiter, 1534-1576

Imprisoned by the Inquisition in Italy, berated for graverobbing in Nuremberg, fugitive of city-debt in Gröningen and field-surgeon for Count Palatine Johann Casimir, Coiter's picaresque career won fame and fortune, before it was cut short, not on the field of battle but in the disease-ridden dregs of retreat. Volcher Coiter 'the Frisian', as he was occasionally referred to, was a native of Gröningen, and the son of a prominent patrician family. On September 5, 1555, he received a not ungenerous stipend from the city council to study medicine, presumably in the hope he would return. Shortly thereafter, at the age of twenty-one, Coiter absconded from his home town. His works refer to extensive travels to Louvain, France, Germany and Italy: he studied with Rondelet in Louvain, Eustachi in Rome and Fallopio in Padua, but he reappears again in record only in 1559, when he matriculated at Bologna. There he was promoted to *Doctor artium et medicinae* on March 24, 1562. Coiter remained in Bologna after his graduation and taught Chirurgie. This promising university career was dramatically interrupted in 1565 when he was imprisoned by the Inquisition. Although the reason for this remains unclear, on regaining his freedom he left Italy and never returned. In the autumn of 1566, he moved to Amberg, where he became the professor of medicine in the city's *Pedagogium*, founded in March scant months before. In later writings he described aspects of his medical practice in Amberg. As well as his medical teaching he practiced intermittently at the court of Ludwig of Bavaria. Coiter remained in Amberg for three

years, before leaving for Nuremberg, with his wife Helena (whom he possibly met in Amberg) in 1569.<sup>20</sup>

Even more so than his departure from Bologna, it was his arrival in Nuremberg that marked a professional and personal turning point in Coiter's career. There he entered the ranks of existing municipal physicians: Melchior Ayrer, Heinrich Wolff, Paul Weller, Justinus Müller, Johannes Schenk and Georg Rucker. He was already acquainted with Camerarius, but of the other doctors he befriended especially Georg Palma, who contributed illustrations to his written work. Along with fellow physicians Johannes Richter and Georg Palma, he was a founding member of the new music circle. He bought a house.

Although fruitful, Coiter's career in Nuremberg was not long. In 1576, he was summoned before council to answer complaints about his illicit graverobbing. Although there was no court hearing, Coiter was sternly reprimanded. At the same time, the Senate received a petition for Coiter's service from a neighbouring magnate, Johann Casimir, Count Palatine. Shortly thereafter, in 1576, Coiter joined the Casimir's army in a campaign against the French. Although he survived the largely unsuccessful campaign, on the return journey he contracted typhus. He died in Charlemagne at the age of forty-two.

Coiter wrote his most famous works in Nuremberg, and the civic context of his anatomy was tangible in his research and in his writing:

Our most worshipful Senate - which lends its help to those who devote themselves to the sciences, even as, for centuries past, it has been a zealous promoter of the arts - has extended particular kindness to me.... Nothing has more moved and stimulated me to undertake this task than the favourable circumstances I encountered in this most flourishing city, which has among its inhabitants, besides excellent teachers of all the arts and sciences, a famous painter and several engravers. It is plain how much benefit I have reaped from their labours. Should anyone feel that this my work has been of use to him, let him feel grateful first to the worshipful Senate of this famous city for its benevolence, and then to the most praiseworthy city of Nuremberg, the most renowned emporium of all Germany, home of innumerable arts.<sup>21</sup>

It might sound placatory, but there was truth in the praise Coiter bestowed on his patrons, the Nuremberg senate. Beyond the support provided by his employment - an annual salary of one hundred gulden, access to the patrician circles, and a foothold on which to expand his illustrious client-base, the Senate had lent him money for the preparation of engraving anatomical illustrations (his own work) and publishing his rather hefty anatomical treatise: 50 gulden in 1571 (not a loan that he ever repaid). More than that, upon receipt of the book, which - as the excerpt above might suggest - was dedicated to

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<sup>20</sup> Herrlinger, 11-29.

<sup>21</sup> Coiter, *Externarum et Internarum*, 2v: Preface to the reader. Nec vero nihil me commovit ac impulit occasio, quam reperi in hac florentissima civitate, quae ut omnis generis artium magistros excellentissimos, sic etiam insignem pictorem et sculptores habet, quorum opera quidnam adiumenti hac in re mihi allatum sit, quilibet facile iudicabit. Quare si quispiam usquam hoc meo labore se profecisse aliquid intellexerit, id totum primum amplissimi inclytae huius civitatis senatus benignitati, deinde Reipub Norinbergensi laudatissimae, et infinitis artibus instructissimae totius Germaniae emporio praeclarissimo, acceptum referet.



the Nuremberg senate, the Rat commissioned three of Coiter's colleagues to read and evaluate the text and when it was deemed of sufficient merit, the Senate paid Coiter for the book - a further 100 gulden.<sup>22</sup> This active support in Coiter's publishing endeavours was certainly a form of devotion to the sciences, and Coiter's dedication to his work rendered a cosmetic municipal gloss to the text. His book mirrored these strands - he was resident in Nuremberg when he wrote it, but the majority of his research had been carried out in Bologna. His writing was a bridge across his ostensibly interrupted career. The direction it took was as much the product of his career in Nuremberg and the direction his municipal career took him. He redefined his research in Bologna in the light of municipal service.

In keeping with other anatomical treatises, then, Coiter began with an explanation of and justification for, the activity he has chosen to pursue. He wrote: *'there are two causes for the invention [of anatomy], one for the Philosopher, one for the physician. For what concerns the Philosopher, is the same as what invented natural Philosophy: wonder, of course, which arises from intellectual contemplation.'*<sup>23</sup> The phrasing and sentiment are familiar here and Coiter's explanation of anatomy supports the historiographical reading of early modern anatomy as subordinate to or revealing of the principles and mechanisms of natural philosophy.

The second reason for anatomy was, according to Coiter, medical. He continued his brief excursion into 'Reasons' with: *'With regards to the physicians, who were ignorant of the causes and passions of internal members, on which the greatest part of the cure depends, they are introduced to the different human bodies. Hence it was the treatment of the different parts in which the cause was found, that interested physicians invented anatomy.'*<sup>24</sup> For physicians - and Coiter clearly identifies himself as a physician - the reason for anatomy is medical. Again, this was not in-and-of-itself controversial.

For Coiter, the purpose of anatomy was clearly medical, and the circumstances in which his knowledge had purpose and use, was medical. This sets him one degree apart from the majority (but not all) of other writers of anatomical treatises.

Plenty of anatomical treatises suggested a medical purpose of anatomy. Galen himself stated that knowledge of the parts of the body was necessary for the physician, and the medical purpose was reflected in the teaching of anatomy among medical faculties, as the eloquent phrasing of the Ingolstadt curriculum suggests: *'Philosophy is not a matter of imagination, but medicine requires autopsy or self-perception.'*<sup>25</sup> But, as

<sup>22</sup> In terms of the sort of basic, simple concerns, Nuremberg had offered him stable employment - he was paid 100 gulden a year - a privileged spot on the social ladder - he was admitted for example to the city's *Musikkreis*, otherwise the reserve of the Patriciate.

<sup>23</sup> Coiter, *Externarum et Internarum*, Fol 4v: Cap 2: *Inventione causa duplex est, alia ad Philosophorum, alia ad Medicum pertinet, Ad Philosophum quod attinet, eadem est cum Philosophiae naturalis inventione: nimirum admiratio, quae ex intellectus contemplatione proddit.*

<sup>24</sup> Coiter, *Externarum et Internarum*, Fol 4v: Cap 2: *Ad Medicos quod attinet, illi postque ingorant membrorum interiorum passionum causas, unde maxima curationis pars dependet, inducti sunt, ut humana diffecerint corproa. Unde curatio affecatum partium in causa fuit apud Medicos, anatomiae inventionis.*

<sup>25</sup> 'Non enim imaginaria est philosophia, sed autopsiam vel autasthesin desiderat medicina.' Juergen Helm, Protestant and Catholic Medicine in the Sixteenth Century? The Case of Ingolstadt Anatomy,' 88.

(translation his) a sentence explaining the curriculum and sent to the Uni Freiburg. See. Ernst Theodor Nauck. Der Ingolstaedter medizinische Lehrplan aus der mitte des 16 Jh. Sudhoffs Archiv, 40, (1956, )1-15.

this statement describes, the purpose of anatomy for humanist medicine, was to reveal knowledge of the human body, that is knowledge of the parts. When fully revealed this knowledge would be finite, real and knowable. Up to a certain point, dissection could interrogate knowledge previously held, but the real aim of dissecting bodies for late medieval and early Renaissance medicine was to explicate the same Aristotelian animal that the philosophers and theologians were also keen on demonstrating. Thus, on the one hand existed the practice of *dissecting* human bodies, performed in public to demonstrate the principles of natural philosophy, and on the other hand, the aim of acquiring anatomical knowledge of the human body in order to better practice medicine. The latter could be, and was, *demonstrated* by public dissection, but was not, was nowhere, tied to actual practice of dissection. Dissection and anatomy had never been synonymous, and up until this moment, somewhat ironically, dissection as the provider of anatomical knowledge was more germane to natural philosophy than to medicine.

What Coiter really added, for us and for the history of medical knowledge, is an understanding of anatomical practice and the central place of dissection within it. He saw dissection of the human body as the key practice in the *acquisition* of anatomical knowledge, and he argued for an understanding of the role of anatomy in *treating* disease - the role of anatomy in the efficacy of medicine, rather than in providing principles of medical knowledge. Because process was inherent to the structural content of knowledge, knowledge was immanent in the technical methods of its acquisition.

With regard to the foundational importance of the knife, Coiter wrote: '*The art of anatomy is to be learned far better by dissecting and observation than from books.*'<sup>26</sup> He continued to describe the essential nature of the subject: '*Anatomy is the art by which we dissect in the best way all parts of the human body, and particularly the minutest parts, so that their substance, size, shape, position, connections, use and everything we can ascertain by observation, may come to light.*'<sup>27</sup> This definition of anatomy provided for the subject as he saw it, first its own epistemology and second its own public good. For Coiter, his endeavour was a discipline, in the sense that it had both fixed truths and discrete methodologies, that stood in relation to each other: '*I say this art in truth has certain theorems, which are fixed, and which direct the artificer to carry out a given action.*'<sup>28</sup> In the apposite connection between the impulse and action, theorem and methodology is the defining addition made by Coiter to the sixteenth century consensus on anatomy.

Coiter conceived of his subject as involving a single, definitional methodology, employed regardless of the various functions that anatomy fulfilled. As we have seen, much of what he says agrees with the majority of his peers. He pays lip service to the familiar Galenic definition: the investigation of the parts of the animal and the

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<sup>26</sup> Coiter, *Externarum et Internarum*, Fol. 2v: Anatomicum enim studium prorsus istiusmodi est, ut potius ex dissectione et inspectione, quam ex libris addiscatur.

<sup>27</sup> Coiter, *Externarum et Internarum*, Fol. 4v: Anatomia est ars, qua optima ratione omnes corporis humani, praecipue partes minutissimas secare videamur, ut illarum cuiusque substantia, magnitudo, figura, situs, connexio, usus et quicquid sensu cognosci possit, pateat.

<sup>28</sup> Coiter, *Externarum et Internarum*, Fol. 4v: Cum vero artem, dico habere propria theoremata, quibus haereat, quae theoremata artificem impellunt ad verum actum perficiendum.

connections between them.<sup>29</sup> Of these parts, he writes, every single one is a subject in itself.<sup>30</sup> But the familiar definition ultimately fails to please Coiter, because it excludes the act of cutting. For Coiter this is the fundamental subject of anatomy - not the body, but the action of its cutting. Alone among his colleagues in print, he dismisses the focus on questions behind anatomy and end results. The human body may be the focus for doctors and the Animal body for philosophers, but in both, according to Coiter, knowledge is acquired through a manual practice and process, and what that knowledge means is inherently connected to the ability to acquire it. For Coiter, then, anatomy could be defined merely by the desire to investigate, nor by the subject of the investigation, nor even by results. An acceptable definition must include the *method*, which in itself comprises/ is constituted by a desire and a subject: the method links the abstract aim and the individual subject.

From the very definition of his subject, Coiter made his methodological focus clear. Dissection, he defined as the technical process of cutting. The language of anatomy is redolent with this imagery - the language of separating, isolating etc. Coiter puts it lyrically, but also practically. Chapter Seven of *Observationes* discusses in great depth the instruments by which the anatomist is known: knife, forceps, needle and thread. To anatomize one must read Galen, but to be an anatomist is to identify oneself by these objects of use. Prior to this focus on method, the anatomist, who took the body apart, demonstrated only an ability to parse and identify the various Galenic parts, not necessarily to understand the cause and effect of its workings. Now, an ability to dismantle and to recreate provided the basis for understanding the body, and its disease.

In linking the aim of generating knowledge, with the results arrived at and the method of anatomy, Coiter was also making a statement about the individuality of the iteration of anatomical procedure. The question of the individuality of the Galenic body had posed problems for anatomists in the past, who wished to add to the philosophical store of knowledge by means of investigating individual specimens. They had tried to resolve this dilemma by promoting the 'ideal' subject as a healthy body in perfect condition, and there are numerous records - including ones generated by Coiter - of doctors refusing corpses too far decayed to add useful information about the ideal state. (And indeed, such consideration of a taxonomic series of individual specimens formed the basis for encyclopedic systems of knowledge, including those proposed by Bacon roughly contemporaneously.) This was not, however, exactly what troubled physicians. For anatomy, the problem of names occurred on two levels - the philological problem (of verifying or correcting Galenic anatomy) had philosophical ramifications. Anatomists who attempted to verify Galen's findings, were often forced to rethink or re-identify the association between named 'part' of the body and its function. They were also confronted with the problem of integration - dealing with 'new' parts of the body, dealing with the human body's relationship to the body of animals.

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<sup>29</sup> Coiter, *Externarum et Internarum*, Fol 4v: Definitur et hoc modo, anatomia est corporis, praecipue humani disectio, per quam ciusque partis substantia, magnitudo, figura, situs, connexio sive mutua communio et usus intellegitur.

<sup>30</sup> Coiter, *Externarum et Internarum*, Fol 5v: Cap V. He even interrogates this definition, to produce a distinction between philosophers, who need to study the range animals (the Animal) as a whole, and the medici, who must look at the entirety of Man.

Effectiveness, like disease and its cognates, was also a matter of deep individual specificity. It was not abstract knowledge that Coiter's anatomy sought to add, but medical effectiveness. Coiter put technical, structural knowledge to practical, procedural purpose. What Coiter proposed study of the human body to provide was not just greater knowledge about the ideal nature of that body, but evidence about the way in which it, at a given moment, deviated from that ideal nature. That is, the ultimate value of anatomy resided not in the body, but in the disease. This was medical, as we have already seen. But it wasn't just medical either, it was also linked fundamentally to medical *practice*.

Consider again the phrasing: *'With regards to the physicians, who were ignorant of the causes and passions of internal members, on which the greatest part of the cure depends, they are introduced to the different human bodies. Hence it was the treatment of the different parts in which the cause was found, that interested physicians invented anatomy.'*<sup>31</sup> The parts of the body are here important for their function in treating, in providing a cure, they are repositories for disease and agents for its eradication. The medical purpose here asserts a body which exists on the medical spectrum - that is, it is not pure, ideal, or in health. Knowledge of its parts has purpose toward a cure, toward *treatment* rather than for any greater philosophical gain in knowledge, even towards the parts of disease - cause and treatment - rather than the Galenic parts of the body. He wrote: *'For if concealed disease, knowledge of which could only be obtained by means of dissection, were discovered in those days, then we need not doubt but that a much greater number of diseases, which are - moreover - more serious and more dangerous, and which were unknown to the ancients and ourselves alike, will be discovered in the present unhappy time, which years and ages have exhausted.'*

This was not just a literary construct, or a framing device. Coiter directly addressed the interpenetration of anatomy and medicine in 'real-time' circumstances through a series of case-studies. In some, he demonstrated effective use of anatomical knowledge to produce cures or successful medical treatment. In other unsuccessful cases, he demonstrated the use of anatomy in improving *future* medical treatment, a kind of elevation of medical efficacy above the trials and tribulations of the immediate demands of medical practice. The former is important as it shows how crucial the practice of anatomy was to Coiter's social identity, and the latter crucial to the role that anatomy played in improving practical medicine and, further, its step-by-step process of diagnosis.

But in other unsuccessful cases, anatomy also served as a way into medical treatment.<sup>32</sup> In 1570, Coiter autopsied a woman whom he had unsuccessfully treated in Nuremberg after her death, and found a *'scirrhum pugni magnitudinem exedentem'*, a huge cancerous growth at the entrance to her stomach. Her liver, and pancreas were also riddled with tumours.<sup>33</sup> In *De Observationes: De vescia sub liene aqua plena inventa*. He

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<sup>31</sup> Coiter, *Externarum et Internarum*, Fol, 4v: Ad Medicos quod attinet, illi postque ingorant membrorum interiorum passionum causas, unde maxima curationis pars dependet, inducti sunt, ut humana diffecerint corproa. Unde curatio affectuum partium in causa fuit apud Medicos, anatomiae inventionis. (Introductio: Cap secundam).

<sup>32</sup> Coiter, *Externarum et Internarum*: Chirurg Miscellan. Fols. 116-7.

<sup>33</sup> Coiter comments seldom on the patients as people, but he makes an exception for this woman. He says, with a certain amount of incredulity, that through eight years of suffering, she preserved her spirits, living as best she could, bearing children nihilo secius (quod valde mirum est) utcunque commode, laete ac hilariter visit, liberos procreavit. He includes a brief account of this in *De Observationes* in a chapter

wrote: *'In the year of Our Lord, 1565 in the home of the excellent and esteemed physician Doctor Ceasar Odonis, professor in ordinary of practical medicine in Bologna... I dissected many bodies, among them one who had been hung'*.<sup>34</sup> In Bologna, he also dissected Camillus della Volta, a man of sixty years of age. He confirmed the diagnosis of renal calculus, finding that the right kidney and been changed into thick, stinking pus and that the bladder was violently ulcerated and inflamed.<sup>35</sup> Also in Bologna he dissected a maid, who had worked in the house of Julius Caesar Bovius. Coiter found blue stones in her gall-bladder, which presumably contributed to her death of *'age and sickness'*.<sup>36</sup> In 1566, he dissected the professor of theoretical medicine in Bologna, Joannes Peregrinus, who had died of dropsy. The autopsy was secured due to the intervention of another professor, Hieronymus Cardanus. They found *'the right thoracic cavity to be entirely full and distended with water; the lung was intact, the viscera in the lower abdomen were corrupted and devoid of all juices, and there was no water in the abdominal cavity. But everywhere there adhered to the mesentery, the peritoneum, the guts, the spleen and the liver, in short to all the intestines, vescicles of different sizes and filled with clear fluid.'*<sup>37</sup> Later on, he narrated the details of an autopsy he performed while still employed in Amberg.<sup>38</sup> This woman, a needle-worker, developed pain in her head, fever and madness. 'People', Coiter does not specify whom, believed she suffered from the Hungarian sickness (*Vulgis duxit Ungaricum illum morbum fuisse*), a disease which many doctors and Coiter emphasises, German doctors and barbers completely ignorant of anatomy (*multi Medici et praecipue barbitonsores in Germania anatomiae prorsus ignari*) considered caused the brain to putrefy and breed worms. Thus they treated for worms. In this case, and in others, Coiter says that there was no evidence of worms. Coiter makes a reference to other brains that he had studied, and also indicates that such a practice was common in Padua and Venice.<sup>39</sup> There is a sense of frustration in the text, as Coiter grappled with the enormity of the implications. The Hungarian disease was common 'last year' and while he does not go so far as to draw the conclusions of treating every sufferer incorrectly, he paints a compelling picture of misery in what he *did* find: inflammations and abscesses in the membranes and the brain... brains that were

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entitled *'De scirrhis ventriculi orificio mesenterio omento et iecinor adnatis.'* (Cancerous growths at the entrance to the stomach, in the mesentery, the omentum and the liver). Coiter, *Externarum et Internarum*, Chirurg Miscellan, Fol. 121.

<sup>34</sup> Coiter, *Externarum et Internarum*, Fol. 119. Anno Domini 1565 in aedibus excellentissimi ac eximii Medici Doctoris Caesaris Odonis in schola Bononiensi practicae ordinariae professoris primarii... multa seculi corpora, et inter caetera suspensum.

<sup>35</sup> Coiter, *Externarum et Internarum*, Fol. 120.

<sup>36</sup> Coiter, *Externarum et Internarum*, Fol. 122.

<sup>37</sup> Coiter, *Externarum et Internarum*: Chirurg Miscellan. Fols. 116-7.

<sup>38</sup> *Historia de femina ex febris ardente cum phrenesi mortua, in qua docetur in cerebro viventis animalis vermes minime posse generari.* The History of a Woman who died of violent fevers and madness, in which it is shown that it is unlikely that worms can be generated in the brain of a living creature. *Externarum et Internarum*, Fol. 110.

<sup>39</sup> Coiter, *Externarum et Internarum*, 110. Intellexi tum Venetiis, tum Patavii, multorum, qui ex febris cum lenticulis, vel ut Italico vocabulo utar cum petechiis, occubuerant, capita aperta, et nullos in iis vermes deprehensos.

completely putrefied and filled with fetid, green masses.<sup>40</sup> While the anger at ignorant doctors is obvious (*nonnulli Medici*), an aside hints at bigger problems. Coiter had dissected several brains, and criticized other anatomists for their treatment of this hard membrane. *'In dissections they have taken this membrane to be part of the spinal cord, and when they have dissected the vertebrae they have removed the hard membrane with the cord. But if they had opened the membrane, they would have seen a wide open space, which in patients suffering from rheumatism, sciatica or gout, becomes full of a thin fluid or a sticky slime'*.<sup>41</sup> There is a general problem in medicine, for Coiter, which stems from the Galenic recommendation to always dissect the perfect specimen. For Coiter, in order to adequately treat illness, one must dissect bodies in the various stages of illness as well.

In each of these cases, the purpose of the dissection and the lesson Coiter drew from it was to correct, not an academic understanding of the workings of the body, but a medical understanding of the treatment of disease. Not only was anatomical investigation applicable to individual cases, but also to a more general understanding of the canon of diseases. This is a more purely physiological interpretation of disease. If the purpose of anatomy for Coiter was *medical*, even more specifically the purpose of dissection within medical knowledge was toward a cure, toward *treatment* rather than for any greater philosophical gain in knowledge. It was not knowledge that anatomy sought to add, but effectiveness.

Coiter's work, as we can see in the archival records, was, at root and branch, based on human dissection, performed firsthand. And, as his writings rather exhaustively demonstrate, he dissected a lot of people. It was not, however, enough for his taste. He bewailed the infrequency of dissection in the introduction to *Internal and External Parts*:

Oh, if only the magistrates and the people everywhere would allow true physicians and surgeons, well versed in anatomy, to dissect dead bodies in order to unearth unknown diseases and their causes, then some diseases could be more easily and more effectively be treated. (By physicians and surgeons, I do not mean arrogant, incapable barbers, who do not know the difference between the bladder and the stomach, between worms and the nerves, or between lungs and liver, and who talk nonsense not only to the public but even to a few gullible doctors.)<sup>42</sup>

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<sup>40</sup> Coiter, *Externarum et Internarum*, 110, *Invenerunt autem inflammationes et abscessus vel in membranis, vel in cerebro.... in quibus plusquam cerebri partem dimidiam undequaque putrefactam, eiusdem lateris ventriculum pure foetido.*

<sup>41</sup> Coiter, *Externarum et Internarum*, 110. *Opinor eos vertebrae dissecuisse et statim in duram menignem, quae fistuam spinalis medullae intus investit incidisse, atque eam liberatam cum medulla exampnam. Hinc cum dura membrana sua amplitudine, capacitatem lumborum vertebrarum expresserit, existimarunt hoc medullae ascribendum. Quod si hanc duram membranam aperuissent, invenissent spatium satis capax et vacuum, quod in arthriticis, ischiadicis et podagricis multoties tenui sero, interim pituita viscoso refertum deprehendi.*

<sup>42</sup> Coiter, *Externarum et Internarum*, 106. *Utinam ubique Magistratus et vulgus Medicis Chirurgisve veris in sectionibus corporum versatis (intelligi hic nolo barbitonsos arrogantes imperitosque, qui vesciam pro ventriculo, vermes pro nervis, pulmonem pro hepate demonstrant, et monstrosa tum vulgo, tum quibusdam credulis doctoribus narrant) ad morborum incognitorum eorundemque causarum indagationem, aperiendi corpora copiam facerent, medius fidius, nonnulli morbi foelicus et facilius curarentur. An important feature of Coiter's campaign against surgeons, is the grounds on which he bases his accusations of ignorance. Unlike physicians, who are understood by historians to have castigated other professions for failing to grasp the general philosophic truths as espoused by Galen -- Coiter refutes the position of barber*

This frustrating opposition to anatomy would appear to have plagued Coiter's busy career. In 1575, Coiter was summoned before the Nuremberg city council and reprimanded. The Senate recorded in its minutes that a complaint had been made that the municipal physician was spoiling graves and robbing bodies. This - it seems obvious - was unacceptable, and a strict rebuke was made to the 'Freisian' doctor. That seemed to close the matter; there is no record of other punishment. However, a throwaway line in the brief record of the event merits further attention. What irked the Senate, beyond the illegal disturbance of the buried bodies, was that Coiter had engaged in such behaviour after the Senate had taken pains to provide him with legal bodies for his interests. Ingratitude, flouting legal channels, pursuing extra-legal means - this provoked the city's ire. But the actual acquisition of bodies - that had been ceded as a medical right. Despite Coiter's complaint then, irritation, what was remarkable about his anatomical research was not just the frequency with which he dissected patients, but context within which he dissected bodies bequeathed by public authorities.

Further attention to the governmental records only confirms this. In the seven years that Coiter had been in the city's employ, he had been granted four bodies for dissection by the council. In 1570, Coiter autopsied a woman whom he had unsuccessfully treated in Nuremberg.<sup>43</sup> On 28 May, 1571 he received permission to dissect Margret Fuxin, after her execution.<sup>44</sup> In 1575, two men were executed and their bodies given to Coiter: Veiten Prendel von Speikern dem Meltzer and Jogen Schinden von Bairreut - thieves, and foreigners.<sup>45</sup> Beyond these four, he had also been offered others and declined them.<sup>46</sup>

It would appear that the council of Nuremberg recognized the medical value of Coiter's private research. The circumstances of the dissections themselves were thus out of the ordinary in terms of written record of sixteenth century anatomy. In Nuremberg, there could be no justification for anatomy pedagogically. The city had no anatomy theatre, no university and no guild system for its surgeons. While it's possible that Coiter had company when he dissected, the permission afforded him to do so must have been based only on the medical value of dissection and anatomical knowledge - a very public approval for a very private endeavour.

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surgeons on surgical grounds alone. It is *not* that they are unversed in philosophy. It is that their surgical activities - cutting, bloodletting, knowledge of anatomy - is lacking.

<sup>43</sup>Coiter, *Externarum et Internarum, De Observationes* in a chapter entitled 'De scirrhis ventriculi orificio mesenterio omento et iecinor adnatis.' (Cancerous growths at the entrance to the stomach, in the mesentery, the omentum and the liver).

<sup>44</sup> StA N, Rep. 60a, 1330, 18, 28 May, 1571. D. Volcker Koyter sol man zu lassen die Margret Fuxin nach volprachter straf zu anatomiren.

<sup>45</sup> StA N, Rep. 60a, 1328, 20, 19 April, 1575. Die verlesen urthl an Veiten Prendel von Speikern dem Meltzer und Jogen Schindel von Bairreut dem Dieb heut publiern und exequirn lassen. herrn D. Volckart Koyter vergonnen ine zu anatomirn und dem Nachrichter das schmaln zu lassen. Did it increase the likelihood of receiving the body, if the criminals in question were foreigners? Probably, with no family to intercede on their behalf.

<sup>46</sup> StA N, Rep. 60a, 1330, 18, 28 May, 1571. D. Volcker Koyter sol man zu lassen die Margret Fuxin nach volprachter straf zu anatomiren. The men in 1575 In Nuremberg he dissected executed bodies: Margret Fuxin, after her execution for an unknown crime, Veiten Prendel von Speikern dem Meltzer and Jogen Schinden von Bairreut - both vagrants and thieves.

That anatomical knowledge formed part of the public medical value is illustrated further by an episode that took place before Coiter travelled to Nuremberg. While still in the employ of Ludwig, Duke of Bavaria and Count of Palatine, Coiter was presented with a remarkable case.

Nicholas Graffereuter, was wounded when a cannon on which he was conducting maintenance exploded. In the process, a chip of the cannon entered his skull, while a second splinter destroyed his eye. He was brought home unconscious and imminent death appeared unpreventable. First Coiter had to win the case, which he did by an extensive debate with the court's surgeons. He recorded this not incredibly profound exchange along the margins of his own text. What is important for our consideration is the winning blow - he, unlike the unlearned surgeons - is skilled not only in Galenic medicine and philosophy (which obviously they are not) but in delicate dissections of the brain. In this case anatomical knowledge wins for him the privilege of medical practice and proceeds to guide his treatment - which is, as a result, successful. He collected bloodclots, fragments of wood and destroyed pieces of the brain from the wound, and treated the apparent suppuration according to the rules of the craft. The injured survived the bad infection, which lasted 4 months.

Coiter won the case on the strength of his anatomical skills. He was given bodies to privately dissect because the city and the families of the dead recognised the ability of the physician to perform retroactive diagnosis and thus improve future treatment. Although dissecting patients was fairly common by the sixteenth century, Coiter conceived of the task of dissecting dead patients and anatomizing human bodies as essentially the same. He evidently managed to convince the council of Nuremberg and the Duke of Bavaria that they had the same purpose.

Human dissection was the most difficult kind of anatomical research to pursue, both because of the relative scarcity of bodies, and the problematic nature such a scarcity posed for its findings. In the course of his interesting career, Coiter certainly dissected more animals than he ever did humans. His emphasis on comparative anatomy however, suggests that - just as he stated in the normative remarks about anatomy at the beginning of his text - Coiter saw his research on animals as adding to and aiding his pursuit of human knowledge. Coiter's statements about the intertwined nature of his medical career and his practice of anatomy come at the end of the tract in which he engages in anatomical research and speculation - he clearly links his medical career with his academic research.



## Joachim Camerarius (1534-1598): Cultivating botany



IOACHIMUS CAMERARIUS Ioach Babeberg Filius Med Doctoret Botanice celeberrimus  
 Nurembergensis Viri Doctissimi et Humanissimi  
 In Patria et in Regibus Germaniae et in Italia  
 et in Gallia et in Anglia et in Hispania et in  
 Polonia et in Russia et in Sibiria et in  
 Indis et in Africa et in Asia et in Europa  
 et in America et in Oceania et in  
 Antarctica et in Antarctica et in Antarctica  
 et in Antarctica et in Antarctica et in Antarctica

Fig. Joachim Camerarius (1534 -1598)

If Volcher Coiter sacrificed his private and professional life to his anatomical interests, Joachim Camerarius dedicated his carefully constructed personal and professional networks to the pursuit of botany. Camerarius was the established local to Coiter's renegade foreigner, the humanist gentleman to Coiter's grave-robbing privateer. If Coiter was exceptional among sixteenth century municipal physicians, Camerarius was exemplary.

The ins and outs of Camerarius' biography are characterized by three things: conformity to his father's legacy of civic humanism, participation in a massive network of correspondence, and the role of leadership he assumed in the medical reformation. Ostensibly, Camerarius came from Nuremberg. He was born there on November 6, 1534, son of the renowned humanist, Joachim Camerarius the elder, who was, at that time, teaching in the city's newly founded *Melanchthonsschule*.<sup>47</sup> When Camerarius the elder moved to Tübingen, he brought (in addition to his students, Heinrich and Hieronymus Wolff) his children - Joachim, Philip and Ludwig - with him. Joachim Camerarius the younger attended university in Wittenberg, where he studied with Melanchthon and Johannes Crato, and Leipzig, before continuing his medical education in Padua and Bologna. Like Coiter, he studied anatomy with Fallopio in Padua and with Aldrovandi in Bologna. He graduated in Bologna four months after Coiter and he then returned to Nuremberg, where he immediately took up the position of municipal physician, swearing

<sup>47</sup>On Camerarius the elder, see Stephan Kunkler, *Zwischen Humanismus und Reformation, Der Humanist Joachim Camerarius (1500 - 1574) im Wechselspiel von paedagogischem Pathos und theologischem Ethos*, (New York: Georg Olms Verlag, 2000); Frank Baron (ed). *Joachim Camerarius (1500-1574), Essays on the History of Humanism during the Reformation*, (Munich: Wilhelm Fink Verlag, 1978); Friedrich Staehlin, 'Humanismus und Reformation im buergerlichen Raum. Eine Untersuchung der biographischen Schriften des Joachim Camerarius', *Schriften des Vereins fuer Reformationsgeschichte*, Vol. 53, (Leipzig: 1936).

his oath in 1564. He married three times, without children. His last wife, Ursula, died in 1589. Camerarius worked until his death in 1598.

To say that Camerarius grew up in the shadow of his father is to understate their relationship; it is difficult to overestimate the importance of Camerarius' father to his biography. Camerarius had, until his father's death and beyond, an education guided by his father's pedagogical reforms, the same intellectual interests, the same group of correspondents. This extended into the medical. Although Camerarius the elder was, strictly speaking, a philologist, among the incredibly diverse range of sources he worked on he produced the Latin translation of Galen's *De theriaca ad Pamphilianum*. This text dealt with the plague remedies of theriaca and mithridatium, and the translation was included in the major sixteenth century editions of Galen's *Opera*.<sup>48</sup> Joachim Camerarius' decision to pursue medicine did not amount to a deviation from his father's interests. They certainly shared a set of interests around pharmacy, and, to a certain degree, Camerarius the younger continued a programme of translation and editing that his father had begun. For Camerarius, the pursuit of botany was the first break in the continuity between father and son, and between university and municipal employment. Whereas Coiter's anatomical interests ran from research into practice, Camerarius only properly began the pursuit of botany after he left university. His botanical interests also define his mature correspondence; under the rubric of botany new correspondents entered his circle, and his network was given practical purpose and physical reality as his friends exchanged plants and information.

Coiter and Camerarius were student friends. They graduated months apart in Bologna; Coiter, himself recently promoted to Doctor, gave the celebratory toast at Camerarius' graduation, on July 27, 1562. When Coiter was imprisoned, Camerarius rallied troops in his support. His letters to his brother, Philip show his anxiety about his friend's fate and his willingness to act on Coiter's behalf. Without evidence we can only speculate, but it seems likely that Camerarius had a hand in Coiter's move to Nuremberg. During Coiter's stay in the city, they corresponded on occasions when one or the other happened to be abroad. As municipal physicians, as students and even as intellectuals they have incidental things in common. At the same time, they could hardly be more different. Coiter's restless journeying reflects his intellectual progress, progressing in fits and starts, tied to specific bodies, diseases and episodes. Camerarius' contemplative and collaborative botany describes an altogether different nature.

Camerarius demonstrates even more comprehensively than Coiter, the degree to which a physician's intellectual programme of research and municipal medical practice could be intertwined. Unlike Coiter, who undertook a certain portion of his research in Bologna, before coming to Nuremberg, and published shortly thereafter, Camerarius worked in the city for almost a decade before writing a book. Like the bodies given Coiter, the ground for the garden came from the city.<sup>49</sup> Upon his arrival in Nuremberg, he took over the late Georg Öllinger's garden. The growing dominance of the medical

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<sup>48</sup> Jerry Stannard & Peter Dilg, 'Camerarius' Contributions to Medicine and Pharmacy: Observations on his *de Theriacis et Mithridateis Commentariolus*', in Baron (ed), *Joachim Camerarius (1500-1574)*, 152 -186: here, 152-3.

<sup>49</sup> On city gardens, see Dieter Hennebo, *Geschichte der deutschen Gartenkunst: Gärten des Mittelalters*, (Hamburg: Broschek, 1962), 166; Dieter Hennebo & Alfred Hoffmann, *Geschichte der deutschen Gartenkunst : Architekturischer Garten*, (Hamburg, Broschek, 1965), 26-34.

followed the same trajectory in both Coiter and Camerarius' writing, increasing in proportion and prominence as the physicians moved from the university to the city. In the case of Camerarius, however, his writing was driven by an interest in pharmacy, which predated his published work. Camerarius' manifesto, issued to the council in 1571, already set forth a proprietary interest in pharmaceutical treatment. This was an interest that also shaped, as we shall see in chapter 4, his elaborately constructed correspondence network, and there is a trajectory behind the passage of one work from and into another. From his first publication, *De re opuscula* through to *Hortus medicus*, Camerarius' botanical interests were medical. The medical imperative dictated a means of identifying plants that rested on collaborative attribution at the point of origin, and an end-game in pharmaceutical efficacy - that is, an abiding interest in the plant's utility. This interest in the acquisition of the plant to identify it had its counterpart in Camerarius' keen interest in cultivation.

In his dedicatory preface to *Kreutterbuch* (he dedicated the text to Elector August I of Saxony) Camerarius proclaimed that a keen need for botanical work had arisen due to the influx of herbs and fruits from 'far-flung lands', gathered, he suggested, under the patronage of Maximilian II.<sup>50</sup> In response, *Kreutterbuch* was an attempt to provide a reworking of the text to suit contemporary German needs. In his foreword he wrote: '*In recent times, not only physicians and the like, to whose profession the discovery and experience of Nature belongs, but also many other learned people have developed a special interest in the 'rei Herbariae', and they have in their own way given much effort and work.*'<sup>51</sup> Matthioli's edition of Dioscorides endeavoured to identify, locate and repurpose the ancient varieties of plants, as well as - through the Dioscoridean canon - provide a framework for the identification of new plants. It had already been given a German translation by Georg Handsch in 1563, who was responsible for the division of the plants into certain schema, and the inclusion of new plants that postdated Matthioli's work.<sup>52</sup> A Latin edition was published in Venice in 1565, two years after Handsch had rendered the text into German.<sup>53</sup>

At first glance, Camerarius' *Matthioli Kreutterbuch* and Handsch's '*New Kreutterbuch*', look roughly identical. There are slight cosmetic differences - Camerarius' volume puts the indices at the end, adds his own foreword and hides Handsch's between the appendices and the index. But for the most part, Camerarius adheres to the structure of Handsch's text, which is straightforward and formulaic. And he preserves Handsch's translation, and his additions to Matthioli's text, intact. This was partly by design:

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<sup>50</sup> Diesem ist hierinnen nachgefolget der hochloeblichste un tewre keyser Maximilianus II der mit grossen unkosten macherly auserlesene frembde gewachs/ kreutter un Furcht/ von weitgelegenen Landen und orten mit fleiss zusammen brigen/ unnd derselben mit gebuerlicher Cultur unnd Pflantzung hat warten lassen/ auch diese lust und recreation in seinen schwachheiten andern allen fuergezogen.

<sup>51</sup> Camerarius, *Matthioli Kreutterbuch* ii(r). haben zu jeder zeit nicht allein die medici unnd dergleichen Luet/ zu welcher Profession die erkundtung un erfahrung der Natur gehort/ sondern auch viel andere hohe Personen das Studium rei Herbariae fuer einen besondern lust un erfreliche ergetligkeit/ ihrer in ander weg viel gehabt muhe und arbeit.

<sup>52</sup> Pietro Matthioli/ Georg Handsch, *New Krauterbuch mit allerschoensten und artlichsten Figuren aller Gewechs/dergleichen vormalis in keiner srpach nie an tag kommen.... durch Georgium Handsch verdeutscht*. Prague, 1563.

<sup>53</sup> Petri Andreae Matthioli, *Sensensis Medici. Commentarii in sex libros Pedacii Dioscoridis Anazarbei de Medica materia*. Venice, 1565.

Camerarius presented *Matthioli Kreutterbuch* simply as a German translation of Matthioli's seminal work. What might have been minor deviations are therefore even more significant. It actually contained much that was new, and what wasn't new was repurposed, including its illustrations. Camerarius appropriated the work of Matthioli for medical purposes. This appropriation was evident in the index, the illustrations, the reappearance of much of the work in *Hortus Medicus* and in the extensive appendix affixed to the work, which gave precise details about pharmaceutical methods.

*Kreutterbuch* is divided into four books, with a set of appendices and extensive indices. 'The first book of herbs and trees,' deals with trees, plants and flowers, for example, lavender, ginger, cinnamon, pistachio, juniper, fir trees, larch trees, sycamore, ash, poplar, birch, elm, hawthorn. But it also includes fruits - limes, pomegranates, cherries, apricots, and prunes - not to mention nuts (many of which, admittedly, could count as trees): almonds, coconuts(!), hazelnuts. The second book, 'The second book: Descriptions of herbs/ their nature and working,' for the most part deals with grains, grasses and seeds. Corn, rice, maize, millet, sesame, buckwheat and flax are just a few of the examples included. The third section, imaginatively titled 'The Third Book describing herbs, their nature and works,' would appear to be more occupied with flowers. In this section we find, among other things, sunflowers. The fourth book is all flowers, making for (particularly when it has been coloured in by user) the most attractive set of illustrations. Within the various books, each plant group/ family receives a chapter, divided into the following categories: Form (*Gestalt*); Place of origin (*Stell*); Time in bloom (*Zeit*); Nature, power and working (*Natur/Krafft/ und Wirkung*)/ Uses in the body (*In leib*)/ Exterior uses (*Aussen*).

The first difference between Camerarius' *Matthioli Kreutterbuch* and Handsch's *New Kreutterbuch* was in their use illustrations. Camerarius has been remembered for commissioning illustrations. But in terms of quantity what he added, both to Matthioli and to Georg Handsch's German translation of Matthioli, was primarily text. Camerarius used some of the same illustrations found in Handsch's version, but reduced them in size, and he commissioned new illustrations to accompany to his new observations. Handsch did not include illustrations of the plant's various parts, which Camerarius did, and among the plant's parts Camerarius' illustrations also included a greater emphasis on the root. But the illustrations Camerarius included in his volume were smaller, and the ratio of text to illustration increased in proportion. He also added volume to the text itself, in the form of asterisked observations. These could include new varieties of a plant, discovered since Matthioli (and sometimes since Handsch).

Take, for example, the Iris. Camerarius listed by name the Iris Chacedoncia, the Iris Lusitanica biflora and the Iris florentina and 'many other sorts', and said that they have been discovered since Matthioli.<sup>54</sup> Of the irises in the wild, he said that they are too many to name: '*One finds them, some with white flowers, this one with a stem that is so high, and the other so scant that the flowers seem to grow almost out of the earth, and some that are lower still, found reaching a pale yellow, a purple colour, large and small, blue and the like.*'<sup>55</sup> These many new varieties came from different places and Camerarius

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<sup>54</sup> Camerarius *Matthioli Kreutterbuch*, 1b.

<sup>55</sup> Camerarius *Matthioli Kreutterbuch*, 1b. Man findt ir zweyerley mit weissen Blumen/ eine mit einem Stengel/ ein wenig hoch/ die ander gar nidrig/ fast auff der Erden die Blumen tragend/ wie sonst auch

added to Matthioli's very short consideration of the place of origin, a digression on the irises' geography, listing Latio, not far from Priverno, (Piperno) -- where he saw a whole mountain coloured blue with blooms. Other varieties that Camerarius mentioned were the result of Carolus Clusius' discoveries. In France, for example, one could find a dark brown variety with wide leaves. He added that the wild irises grow in June while the cultivated variety bloom in spring, that they blossom in the late night. He noted that one could distill the water from the petals of the Iris, and that mixed with other things it was good for dropsy. It was, he wrote, far stronger when it was distilled than when it was natural. Among the many remedies it could be used for, he noted particularly that one makes with the blossoms of the *Iridis Illyriciae*, combined with *Alantwurtz*<sup>56</sup> a sugar, which cleans and heals the chest and lungs.

Throughout *Kreutterbuch* Camerarius made similar additions. Some entirely new plants appeared, *Abutilon Avicennae*, for example.<sup>57</sup> Some plants were more changed than others, like cabbage (with radically new illustrations, new species, and new uses).<sup>58</sup> Some remained the same, for example, the humble onion.<sup>59</sup> Species and discoveries could be more general, like the *Seseli* - a herbaceous plant - to which Camerarius added unnamed varieties that were found specifically 'in Apulia' and generally 'by the sea and sandy places'.<sup>60</sup> Or they could be more specific, as for example was the case when Camerarius listed two new varieties of *Melissa*: the '*Melissa molucca*', the '*Melissa Fuchsii*'.<sup>61</sup> And some changes were more fundamental than others. In the case of zedoary, according to Camerarius many physicians had reached the conclusion that what was commonly called 'zitwar', i.e. ginger, did not match the description that Costi took from Dioscorides. That did not mean the spice was no longer to be used: Camerarius includes the list of recipes. Very occasionally, he contradicted the previous authors. In the case of Anemone, Camerarius questions Handsch's identification, because he has never heard of or seen another the same.<sup>62</sup>

The greatest addition that Camerarius made to the text produced by his two predecessors - Matthioli and Handsch - was to the section on *Natur/Krafft/Wirkung*, to

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solcher nidrigen mehr/ als bleichgelb wolriechend/ Purpurfarb/ gross und klein/ blaw und dergleichen gefunden werden.

<sup>56</sup> Alantwurtz is a composite described in Fuchs. Camerarius cites the recipe belonging to Campillo Veneris, See Leonhart Fuchs: *Das Kräuterbuch von 1543*. Von Alantwurtz. Cap. LXXXIX. Abb 134

<sup>57</sup> Camerarius, *Matthioli Kreutterbuch*, 136b -137.

<sup>58</sup> Camerarius, *Matthioli Kreutterbuch*, 139-40.

<sup>59</sup> Camerarius, *Matthioli Kreutterbuch*, 170 - 171b.

<sup>60</sup> Camerarius, *Matthioli Kreutterbuch*, 256b.

<sup>61</sup> Camerarius, *Matthioli Kreutterbuch*, 288b - 289.

<sup>62</sup> Camerarius, *Matthioli Kreutterbuch*, 201. 'Was es fuer Anemone seyn moegen/ die der Autor in seinem kreuterbuch abgemahlet/ kan ich nicht erachten/ weil sie sonst/ aussgenommen die dritte/ bey keinem andern zu finden/ auch nicht desgleichen/ die mit so viel Esten wuchsen/ ich selbst gesehen hab. Derwegen ist etliche andere besondere Arten/ die doch mit der Description des Autoris oberein kommen/hierher setzen wollen/ unnd uber diss etliche Blumen allerley Farben/ von Anemone, mit Buchstaben gezeichnet/ Als nemlich / A ist Weiss von Farben/ B Blaw/ C Gelb/ D gemengt Blaw und purpurfarb/ E shoen Rot. Desgleichen kan offtgemelter Carolus Clusius, bey dem etliche shoene Anemones Geschlechtes zu finden/ die andere nicht beschreiben/ und deren ich un andere viel von im bekommen hab/ sonderlich ein treffenliche schoene mit gefuellten roten Blumen/ besehen werden in obseruationem Hispanicarum lib. 2 cap. 22 und in appendice am end/ und im obseruationum Pannonicarum lib. 2. cap. 53& 54. It should be noted that the volume I was looking at, in HAB (Mf 2° 9) was very dutifully coloured.

the nature, power and use to which one could put ingredients. Within this section, Camerarius paid particular attention to the utility of particular plants as substitutions, or likely ingredients in medical remedies. Of *Acorum*, for example, he writes 'Because *acorum* is now found in many of our Gardens, and because it survives the cold well, where one can get it fresh, one should put it to use in the Diacoro and other Compositis.'<sup>63</sup> Writing about *Stoechas*, originally an Arabian plant (although Camerarius reports a single discovery on the mountains of St Julius near Pisa), Camerarius complains that it is almost impossible to obtain the plant fresh, or even old. He has been encouraging a friend, Gerog Ritteseln to find a way to grow the plant. In the meantime, he acknowledges the normal consensus that the plant is similar to lavender. Cordus and others recommend attempting to grow lavender - in itself a difficult task - under heat. But Camerarius is enthused about another possibility, discovered by Clusius in the mountains of Portugal and called by the locals Alichrin Francois, French rosemary. This, he thinks, is both more subtle and has small, notched leaves.<sup>64</sup>

In every case, the first means of identification was the name. Camerarius listed the plants name in every language he could - in Latin, Greek, Arabic, Italian, German, Spanish, French, Bohemian and Polish. He proceeded by family name, and then variants thereof, but there was no set means of distinguishing between different plants or between variations of single plants. Camerarius does so sometimes on the basis of who discovered the plant other times by size, colour, where it grows (wild or cultivated). Attribution was very important for Camerarius: it went beyond generating authority, it was an integral part of the plant's identity. So too were the changes that took place from species to species, between seasons and geography. There is also an element of time at play- on select occasions he distinguishes between the same plant that grows annually or perennially. He paid careful attention to the form of the plant, but only as one characteristic among many. Like time and season, the *mutability* of form became the touchstone, rather than the form's characteristics. Mutability was the obstacle to definitively identifying plants by itemizing their qualities. In response, Camerarius provided a means of identifying plants that relied on a compound, cumulative reading of distinct and different variables. He built on the concept of changeability, holding up for examination not the finite qualities of the plant, but the changes that took place, or, more importantly, could be *made* to take place.

Although Handsch included an appendix about distillation, very seldom indeed did he mention the process of distillation or its effects on the plants included in his text. Camerarius, on the other hand frequently addressed the suitability of a plant for distillation, and the effects that distillation had on a plant. This was, for Camerarius, a fundamental dimension of the plant, illustrated by the fact that he included these additions in the section on *Natur/krafft/wirckung*. Of *Scabiosa*, he writes: 'Distill the water with great care in a glass instrument. It is good for many illnesses, especially in the *Sterbsleufften*, for example, when it is repeatedly burned over the skin. One can also make syrups from it, in the same way that one prepares the syrup, *Carduo benedicto*' (a

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<sup>63</sup> Camerarius, *Matthioli Kreutterbuch*, 4. *Acorum*, (Sweet Flag). *Acorum* was included in the recipe for *Diacorum messue* in the Nuremberg pharmacopeia. See Cordis, *Dispensatorium*, 26-7.

<sup>64</sup> Camerarius, *Matthioli Kreutterbuch*, 238.

Dioscoridean simple).<sup>65</sup> More normally, considerations about distillation found their way into the list of remedies, as for example, with *Bellis maior*, which, when distilled, was good for cuts and breaks.<sup>66</sup>

Utility, particularly utility within medical remedies, was thus, for Camerarius, the imperative for identifying plants, philosophical or philological veracity. The information he included was unabashedly artificial; it involved processes that changed or altered the original specimen in definite ways. Nonetheless, so fundamental was the plant's purpose that testing it became for Camerarius an inherent component in the process of identification. Testing the use of plants as ingredients, connected the afterlife of a plant to the specimen. It addressed and involved human participation, bringing the plant's identity down to the level of socially constructed ingredient. It also assumed that the person doing the identifying had the medical or pharmaceutical wherewithal to conduct said distilling. This focus on human interaction as a component of the plant's identity, echoes back to Coiter's emphasis on knowledge revealed by the process of dissection. This was social, structural knowledge, produced by and immanent in human procedure. It was also compound, cumulative knowledge, to be tested and weighed in relation to other identifying factors.

Although, like Coiter, Camerarius paid close attention to the problem of linguistic identification, his belief that more was required than simple translation of Matthioli's text into the language of German is borne out by the way in which he shaped his new edition, and his shifting emphasis toward the plant's medical utility as a means of identifying it. This problem of identification continued through Camerarius' second botanical publication *Hortus medicus*. Unlike *Kreutterbuch*, *Hortus Medicus* was written exclusively in Latin (dotted with smatterings of Greek aphorisms). The relation of the two texts to their respective written languages is interesting. While Camerarius published general botany in the relative accessible German; the *medical* and the specific he kept Latin. Continuing to add to its specialist orientation, *Hortus Medicus* was not heavily illustrated, it contained forty-seven illustrations for its ca.1014 entries. Illustrations among botanical treatises were less important when the plants listed were more important as ingredients than they were as sources of 'natural' knowledge. The repetition of plants between *Kreutterbuch* and *Hortus Medicus* illustrates the appropriation by municipal physicians of botany for straightforward medical purposes.

There were obviously differences between the Latin edition of Camerarius's text, and the Latin edition of Matthioli's text on which the original German translation was based. There were also significant differences between the Latin and German editions of Camerarius' interpretation of Matthioli's text. Camerarius' Latin volume is greatly reduced. The length of the entry is modulated - each plant has a page - so that the overall appearance is more like a dictionary than an encyclopedia. The standardization of the length to entry removes the element of relative value; all plants are equal, there is no determination being made about a plant's relative worth. Nor is the structure of the text explained, as it is in *Kreutterbuch*; the book is not divided into books or chapters. Each

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<sup>65</sup> Camerarius *Matthioli Kreutterbuch*, 332 Das Wasser mit sonderm fleiss in glasern Instrumenten destillirt/ ist zu vielen Kranckheiten gut/ sonderlich in Sterbsleufften/ fuernemlich/ wann es mehr als ein mal uber das Kraut gebrannt wirdt.

<sup>66</sup> Camerarius, *Matthioli Kreutterbuch*, 313.

entry begins with a list of different names. After that, the text is similar to the German edition, covering Name/Species (*Genera*), Form (*Forma*), Place of Origin (*Locus*), Qualities (*Qualitates*) and Strength (*Vires*). Perhaps the most significant difference between the two - Camerarius' German and his Latin text - is that in the Latin text, Camerarius removes the person completely. He omits mention of who discovered the plant, or where it was found. If Camerarius' German text focused on cultivation, his Latin text focused on identification. Camerarius uses the same illustrations in both his German and Latin text. If the Latin collection is the end-game, the German edition is the director's script, with the work-in-progress report, presenting the text as a collaborative project, making clear the methodology behind the compilation of the previous. In terms of the problem of identification, the Latin text makes explicit the philological problem of glossing names - dictionary work etc, while the German text makes explicit the botanical problem of associating the name with the actual plant.

Like the 'hidden' process of disease that took place in concealed parts of the bodies, Camerarius extracted from the hidden process of change a kind of plant narrative. This could be natural, as in the change wrought by weather. But it could also be exacerbated or evoked by human interaction. For Camerarius, the process and procedure of changing the plant, the use to which it could be put, became a key means of identification. This was an identification of words and actions, rather than one represented either by philological specificity or the verisimilitude of images. Among the many botanical publications, what appears to have existed in common, were the increasingly detailed and accurate images.<sup>67</sup> But illustrations in Camerarius do not depict, they demonstrate. That is, they are a single component of a multifaceted means of depiction that includes written, verbal components or parts. Although the appearance of the plant was important, for Camerarius, it was also variable. Appearance could be altered by time and geography. Depending on the season, or the soil, or whether the plant was wild or cultivated, it looked different. It could be bigger, or smaller. It could change colour. Relying on other sensory information was not an effective corrective, as the plant's form as a whole was altered in these instances. In addition to looking different, plants could both smell and taste different. From altering and testing the plant, Camerarius integrated the concept of identify even further into methods of botany. He turned his attention to cultivation - a focus not just on appropriating the picked plant for medical purposes, but appropriating the plant entire for the purpose of the garden.

Cultivation, pharmacy and botany are all brought together in *Hortus medicus*, a text that has interesting parallels to Matthioli in terms of structure and contents. *Hortus Medicus* presented a list of 1012 plants, more than six hundred fewer than the *Kreutterbuch*, and only an appendix of some fifty illustrations to the *Kreutterbuch's* 657, interspersed throughout the text. Published under imperial privilege in Frankfurt, in

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<sup>67</sup> See Robert Herrlinger, *History of Medical Illustration from Antiquity to AD 1600*, (London: Pitman Medical, 1965); Wilfrid Blunt, *The Art of Botanical Illustration*, (London: Antique Collectors Club, 1950); Fritz Koreny, *Albrecht Dürer and the Animal and Plant Studies of the Renaissance*, Trans. Pamela Marwood and Yehuda Shapiro, (London: Little Brown, 1988); Claus Nissen, *Die Botanische Buchillustration, Ihre Geschichte u. Bibliographie*, (Stuttgart: Anton Hiesemann, 1966); Peter Murray Jones, 'Image, Word and Medicine in the Middle Ages' in Jean A. Givens, Karen M. Reeds, Alain Touwaide (eds.), *Visualizing Medieval Medicine and Natural History, 1200-1550*, (Aldershot: Ashgate, 2006), 1-24.



1588, this volume was Camerarius' original contribution to the corpus of early modern botanical literature. In the foreword to this text, Camerarius explicitly frames his book as a medical text. He narrows this further, from medicine to pharmacy.

It may seem counterintuitive to see *Hortus Medicus* as a culmination - after all the text is stripped down of much of what makes *Kreutterbuch* so interesting. At its basic level it is little more than a list. In terms of his own intellectual biography however, Camerarius is very clear about the place of the text.<sup>68</sup> In *Hortus Medicus* Camerarius uses the landscape of the garden to integrate scholastic natural philosophy, humanist philology and medical compilation into one text. This is evident in the foreword, where Camerarius addresses the historical development of the garden as neither uniform nor systematic. He describes antiquity as the golden age of the pleasure gardens, he summons to mind the hanging gardens of Babylon, the ancient gardens in Greece, Turkey and Rome. Against these he contrasts the good and useful gardens, cultivated for culinary or medicinal purposes. Using the latter he folds into the medical uses, contemplation of the garden as a source of God's power and natural knowledge. As medical plants are a greater demonstration of God's power and natural power, so the medical garden is a greater focus for traditional contemplation than the pleasure-garden.

An interesting feature of Camerarius' botanical work is his emphasis on cultivation, and the relationship between a plant's place of origin and the ability of the botanist to grow it in a garden. This is evident both in his work on the distinction between plants, and in his entirely separate focus on their cultivation and place of origin. As we have seen, he was interested in the distinction between wild and cultivated plants; he generally included illustrations of both and tended to include wild variants of plants that Matthioli did not. The importance of the place where the plant could be found served as a means of distinction. As we have seen, the place of origin and cultivation could produce changes in the plant. One response to this, was to enumerate these differences. Another, more unusual response was to try and include 'place' as a characteristic of the plant, like colour, shape or size. This was, for fairly obvious reasons difficult. The inclusion of climate, or location in Camerarius' text happened most markedly in two kinds of ways. The first was his abortive attempt to conceptualize and depict climate, which he did in the case of Algae.<sup>69</sup> Algae, was an important medicinal ingredient, known as Corallinam, which Camerarius and other medical writers used in a variety of remedies.<sup>70</sup> It was also,

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<sup>68</sup> Camerarius, *Hortus Medicus*, B2. 'Cum equidem ego a pueritia (greek) (ut dici solet) ad inuestigationem (greek) miro studio afficerer, ac postea ad artem Medicam animum applicans, indies plenior adhuc quasi possessionem illius mihi comparare assidue studerem, tandem certum domicilium nactus per multos annos pro mearum rerum facultatibus, suburbanum ipsemet hortum excolere, eumq, quanta fieri potuit diligentia, inquilinis & exoticis plantis rarioribus auctiorem reddere conatus sum, non ex commentarijs & delineationibus aliorum tantum, sed ipsa (greek) & oculata side nascentium, augescentium & rursus decrescientiu stirpium naturam, proprietatem & effcacitatem plenius addiscere & uberiorem ipsorum scientiam adipisci annitens. Quam rem etiam ad lucubraciones meas Botanologicas (de quibus nonnihl deinceps dicemus) apprime mihi utilem & necessariam fore existimaui.'

<sup>69</sup> Camerarius, *Matthioli Kreutterbuch*, Bk. 4, Cap. XCV, 399. See Camerarius Mattioli De Plantis, 871.

<sup>70</sup> Camerarius, *Mattholi Kreutterbuch*, Bk 4. Cap XCV, 400 Dieses wirt auch mehr als eine Art funden/ als wir hie siben haben furgbildet. 1 ist die vom Autore beschrieben. 2 ist ein ander klein Zeiglin/ Schwebelfarb/ von vielen als gelencken zusammen gesetzt. 3. wechst auff weissen Toffteine/ von Farben auch Schwefelgelb. 4 wecht auff roetlichten Steinen 5 wecht auff Muscheln/ dessgleichen findet auch

of all the plants that Camerarius included in his book, probably the most dependent upon its place of growth. Even today 'seaweed', as a fungus or bacteria, is symbiotically bound to what it grows on. Camerarius' struggle with this means of identity, took visual form. Algae was the only plant in his book, that included the place of growth with the plant's various parts.



Fig. Algae (Androsaces), Camerarius, *Kreuterbuch*, p. 871.

Compare and contrast this to the illustration of the same plant in Handsch.<sup>71</sup> So strange was the place that algae grew, and so odd its various parts, that Camerarius included the sea and the stone in the image of the plant. The proportion of locale to plant is greater. In contrast to this, Handsch's illustration showed a confusing tale of threads and fibrous limbs.

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andere arten/ welche alle zu erzehlen zu laug wurde. Doch wachsen sie alle dicker in einander/ dann sie allhier des Mahlers unfleiss angedeutet hat.

<sup>71</sup> Handsch, *Krauterbuch*, Bk. 4, Cap. XCV. 495.



In the case, of algae Camerarius added not only new illustrations, but also a significant volume of new information on the plant. He also added to it, other kinds of algae: '*Muscus mariner alter*' etc.

'Place' did not have to be exotic: a plant's locale could also be local. The second contribution made by Camerarius to the conceptualization of place, was his inclusion in *Hortus medicus* of a second text - Johannes Thal's *Sylva Hercynia*.<sup>72</sup> With *Sylva Hercynia*, a brief treatment of the wild plants of the Harz mountain region, Camerarius became the first German author to sponsor the publication of a local botanical treatise.<sup>73</sup> The text appeared as an appendix to the *Hortus Medicus*, in itself a treatment of plants contextualized in the garden. In the *Sylva Hercynia*, Thal - as he said himself - listed the results of five years in the Harz area, observing wildflowers. If one takes a florilegium to

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<sup>72</sup> Thal was born in 1542 in Erfurt, the first son of an evangelical pastor. After he attended school in his father city, he was a pupil 1558 - 1561 in the Klosterschule in Ilfeld am Harz with the famous humanist and pedagogue, Michael Neander - who quickly perceived the talent of his pupil. In 1561 Thal matriculated in Jena as a medical student. There he took lectures in botany with L. Hiel. After his studies he made his way to Nordhausen and Stendal where he was employed as a doctor. From Autumn 1572 until early 1581 he was Court doctor and municipal physician in Stolberg am Harz, and here he authored *Sylva Hercynia*. Then he undertook the position of municipal physician in Nordhausen. At only 41 he died on 18 July 1583 in Peseckendorf near Oscherleben, as the result of a serious accident/ misfortune - which happend on 30 June 1583, on the way to visit a patient.

<sup>73</sup> Gesner's text, often attributed as the first, was not in fact published until many years later.

be a catalogued, comprehensive list of wild plants in a small or large area, then the *Sylva Hercenia* is the oldest German Florilegia - perhaps even the oldest Flora.<sup>74</sup>

As an addition to the humanist desire for encyclopedic knowledge of plants, Camerarius thus made very explicit the importance of the limited, practical knowledge of one's surrounding areas. This was an aim quite apart from any programme for the restoration of Dioscorides', or even any Renaissance encyclopedic plan to categorize or list the universal plant lore. Knowledge of a plant and the approach to universal plant knowledge, depended not only upon compilation of the specific, but also upon investigation and knowledge of the local. There was thus, an explicit connection between the *medical* garden and the local garden. This conceptualized an implicit connection between the medical garden and the local garden, and set it in the context of a project on more encyclopedic knowledge.<sup>75</sup> The place of exotic plants in the German medical marketplace could be controversial, and the role of 'national' plants emerged with jingoistic connotations; as Paracelsus claimed, 'There are in Germany so many more and better medicines.'

Place or locale, as a means of distinguishing between plants led to an interest in cultivation, as the act of growing them. There is a distinction in Camerarius' work between the subject of botany - the plant - and the landscape of botany - the garden. A plant can be found, but a garden must be cultivated. The relationship between plants found in the exotic, the wild and the local was artificial - it presented the challenge and the task which the botanist could overcome by cultivation. If the locale identified the plant, then changing its place of origin made of the plants something other.

Like the body, then, the garden is a landscape wherein the configuration of plants acquires purpose. *Hortus Medicus* defines the distinction more neatly than does his edition of Matthioli, because it addresses the garden as its subject rather than the plant. It also makes clear the ultimate purpose of the garden, or the collection of plants. Neither owning, nor acquiring/keeping was key when dealing with botany - in that, botanical collecting was far greater than the sum of its parts. Instead, what was crucial for medical botanists was both the reproduction of plants (that is, the ability of the botanist to make them grow and then to replenish one's supply) and the subsequent *use* to which they were put. In Camerarius, in fact, the medical usage of the plant was so wound into the text that the original plan for identifying it melded into the ultimate plan to use it. The uses of the plant *became* part of its signifiers.

Camerarius was interested in the means by which a plant could be cultivated and regrown. Botany relied on collaboration and communication, but it also had essentially private features. In one's own garden, botany was private, before it entered the greater realm of comparison and exchange. At heart, for Camerarius, botany entailed a degree of appropriation - could one *grow* and keep the plant. This was already evident in his

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<sup>74</sup> Sephan Rauchert, (ed) Johannes Thal, *Sylva Hercynia*, Frankfurt am Main, 1588, Naumburger Verlagsanstalt, 2004.

<sup>75</sup> On the relationship between herbals and local medical knowledge, J. Burnby, 'The Herb Woman of the London Markets,' *Pharmaceutical Historian* 13 (1983), Martha Baldwin, 'Expanding the Therapeutic Canon: Learned Medicine listens to Folk Medicine,' in James Van Horn Melton (ed.), *Cultures of Communication from the Reformation to Enlightenment: Constructing Publics in the Early Modern German Lands*, (Aldershot: Ashgate, 2002).

earliest work, which dated from 1577 and was published by the Gerlachs.<sup>76</sup> Revealing his authorial focus on compilation -- tying in with the library practices of Palma -- the text included an extensive bibliography for what Camerarius deemed an important subject. *Of Rural Matters* concerned itself primarily with what Camerarius called 'agriculture' namely, the cultivation of the land. He grounded his subject biblically, and defined it in terms of classical writings. 'Agriculture' he quoted from Varro, 'is the science taught, in which a person observes the land (or observes others) & cultivates it, so that the land constantly produces the greatest issue.'<sup>77</sup> The text is patched together from a number of different sources. Camerarius uses aphorisms both to explain his meaning of agriculture and to illustrate its uses. These are many, ranging from the general benefit to morals and wisdom (Agriculture is, without question, close and kin to wisdom<sup>78</sup>) to nostalgic notions about pastoral life (Farewell to your troublesome cities. God blessed life spent in the countryside<sup>79</sup>). The structure of the book means that its actual subject is approached fairly obliquely, via a series of half-passes. The inclusion, for example, of a section on Hieroglyphics might throw one off the scent. And on page 15, a section on gardens nestles in amongst the various aphorisms. It draws the eye but it is brief and unrevealing. Instead, the chief subject is not the garden itself but the means of cultivation. The largest part of the text concentrates on agriculture, and agriculture is taken to mean not domestic farming but the ancient praxis of growing and cultivating plants, and making soil hospitable to them.

The practice of agriculture was old, but as with sixteenth century botany in general, the implications were new. Camerarius' interests in plants, growth, locale and cultivation all treated botany as a proprietary practice. For Camerarius, botany was not a study of nature, but a way of appropriating it. Other botanists in the sixteenth century, like Carolus Clusius for example, a friend and correspondent of Camerarius, were interested in the rare and exotic. Collectors and readers alike had interests in the encyclopedic study of nature. For Camerarius, however, the pursuit of botany was to make plants available as pharmaceutical ingredients, and his was a medical and fundamentally municipal interpolation into the subject.

### **Botany and anatomy as medical practices**

Botany as described by Camerarius and anatomy as practiced and justified by Volcher Coiter had in common fundamental questions of the mutability of natural bodies, preoccupation with artificial processes like dissection or distillation, and, most importantly, a concern with disease. For Camerarius and Coiter, whose tenure as municipal physicians and commitment to practice shaped their botanical and anatomical ideas, plants and bodies were tools in their pursuit of ever more efficacious medical

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<sup>76</sup> Camerarius *De Re Rustica Opuscula non nulla lectu cum iucunda, tum utila, iam primum partim composita, partim edita a D. Ioachimo*, Nuremberg, 1577.

<sup>77</sup> Camerarius, *De Re Rustica*, 1. Agricultura est scientia docens, quae sunt in unoquoque agro serunda (alias seruanda) & faciunda, quae terra maximos perpetuo prouentus ferat.

<sup>78</sup> Camerarius, *De Re Rustica Opuscula*, 5. Agricultura sine dubitatione proxima est & quasi consanguinea sapientiae.

<sup>79</sup> Camerarius, *De Re Rustica Opuscula* Urbes valet cum molestris vestris. Ruri beatam degmus Deum vitam.

practice. Their botanical and anatomical publications are therefore an appropriate entry point into the way in which sixteenth century municipal physicians considered method and practice. Without abandoning the Dioscoridean or Galenic framework, both physicians reorganized their writing around an idea of knowledge that was manifestly material. For Coiter, knowledge was inherently comparative and relative. For Camerarius, knowledge was local and embodied - contained and revealed by the slow process of cultivation. Both men relied on practical, particular material knowledge to make judgments about knowledge that was never solely practical, particular material.

Camerarius and Coiter's work displayed a new emphasis on treatment, process, material sensibility that was nonetheless anchored by the Galenic categories of diagnosis, prognosis and treatment. When addressing the basic botanical and anatomical concerns of identification, Camerarius and Coiter both emphasized the synthesis of evidence. They gathered multiple pieces of evidence from lateral sources, and then read them in relation to each other. The garden and body acted as matrices for these signs, tactile, evidentiary frameworks that derived not from abstract philosophy, or Galenic semiotics, but from practice, from a practical synthesis of found evidence.

At one level, the work involved in testing remedies, cultivating plants and dissecting bodies simply reflects the preoccupation of Coiter and Camerarius with work and activity in general. However, if there was an explicit link between botany and pharmaceutical treatment, and between anatomy and surgical treatment there was a link, all the more foundational for being implicit, between the intellectual shortcomings of Dioscorides and Galen, and the new emphasis on the practical, particular material knowledge. It was this that allowed them to claim, under the traditional Galenic identity of the physician, greater, novel jurisdiction over practical roles in medical treatment. Like the identification of plants or parts of the body, the identification of disease and its treatment became a compilation of incremental processes, one that relied not on affiliation with a particular framework for identifying disease, but that read particular physical signs incrementally and relatively.

One should resist the temptation to read this as a stronger statement than it really is; neither Camerarius nor Coiter were interested in creating systematic frameworks or epistemologies. Instead, they concentrated on method and process and materials. They made no greater 'truth-claims', saw no need to facilitate philosophical questions or abstract, universal knowledge. As we have seen in Chapter 2, there had always been a concern with practice in Galenic medicine and a disconnect between the way in which medicine was taught and practiced. By itself, concern with practice was nothing new. At the same time, however, Camerarius and Coiter ennobled the process. They went beyond an indulgence of the necessity of the material, to careful consideration of its importance.

This link between medical methods and surgical or botanical methods was made consciously by the physicians themselves. Coiter's surgical background - a background he *claimed* and which he presented as formative of his thought - was crucial to his conception of the relation between internal and external symptoms. He addressed this directly '*Since the art of healing has been divided into two parts, viz. the treatment of the internal parts, which is assigned to the physicians, and that of the external parts, committed to the surgeons, the domain of anatomy is also divided into two, so that the physician shall have a perfect knowledge of the internal parts, while the surgeon shall be*

*thoroughly acquainted with the external parts, viz. the joints and the parts covering the internal organs such as muscles, veins, arteries, nerves and bones.*<sup>80</sup>

Coiter was upfront about stating that the medical purpose of anatomy was pathological. Physicians *'dissect the human body, because they were ignorant of the causes of disease in the internal parts, on which medical treatment for the larger part depends. It was in order to treat affected parts of the body, that anatomy was invented.'*<sup>81</sup>

For Volcher Coiter, the importance of identity was superseded by what one was attempting to identify. That is, because it was not simply the part of the body that Coiter was trying to discern<sup>82</sup>, but the cause of disease via knowledge of the body, identity was even further de-linked from static, timeless image. Or to put it in a more positive light, identity became even further linked to the changing, process of that disease and the application of anatomical method alongside it.

Coiter's contribution to prognosis and treatment stemmed, therefore, from his novel appreciation of the method of anatomy and dissection. Think again of his various dissections. In the several case studies sketched above, one theme is common: the extraction of the true diagnosis through the anatomical dissection of the post-mortem corpse. More evidently in these cases, but also in his anatomical investigations of animal and human skeletons, development took place in the hidden spaces. Revealing these hidden spaces, making visible the elements of change, disease, corruption and corrosion, was the key task of dissection. Before it was possible to pronounce the cause or nature of disease, Coiter had to physically acquire different parts of the body. In the case of the sick woman in Nuremberg, this meant extracting the liver and pancreas, in the case of the needleworker, Coiter dissected the brain. He diagnosed dropsy by examining the right thoracic cavity, he diagnosed renal calculus on the basis of the kidney's disintegration and the ulcerated bladder. All of these diseases were previously attributed to visible signs in the exterior of the body, or to changes in temperament, medical history, complexion and appetite. Like the form and nature of the plants, however, Coiter proved that these signs were variable, and properly visible only in 'revealed' spaces.

Coiter's use of case-studies as research presaged the importance of clinical medicine to medical developments. As we have seen, his records included several instances where he was ultimately unsuccessful in saving the patient's life. In the case of

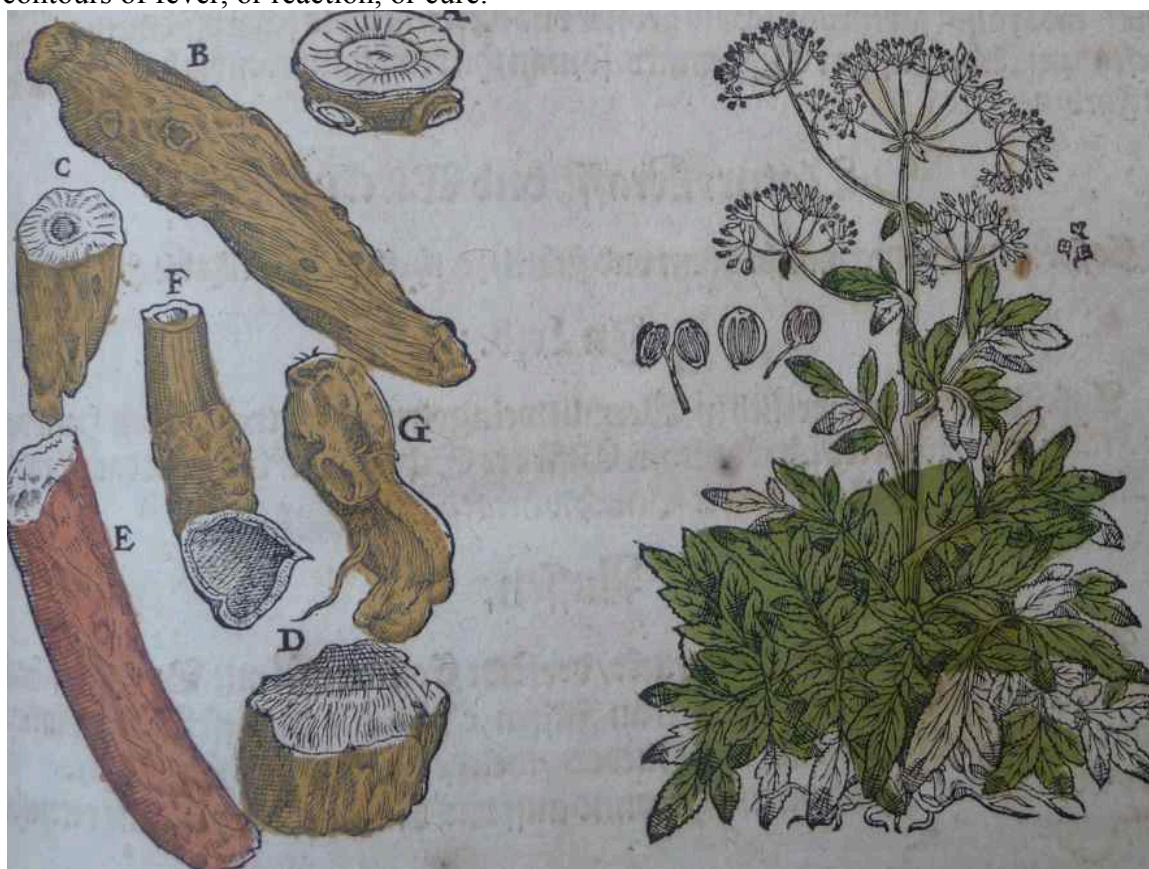
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<sup>80</sup> Coiter, *Externarum et Internarum*, 5v: Postquam ars medica divisa sit in duas partes, nimirum in internarum partium curationem quae physicis et in externarum curam, quae chirurgis assignatur, et anatomiae subjectum bipartitur, ita ut Physicorum sit internas partes quam exactissime cognoscere, chirurgorum externas, nimirum artus et illa, quae interna investigant, utpote musculos, venas arterias, nervos et ossa.

<sup>81</sup> Coiter, *Externarum et Internarum*, 4v: Caput secundam. illi postquam ignorarint membrorum internorum passionum causus, unde maxima curationis pars dependet, inducti sunt, ut humana dissecuerint corpora. Unde curatio affectarum partium in cause fuit apud Medicos, anatomiae inventionis.

<sup>82</sup> Much of what he says agrees with the majority of his peers. He pays lip service to the familiar Galenic definition: the investigation of the parts of the animal and the connections between them. Of these parts, he writes, every single one is a subject in itself. He even interrogates this definition, to produce a distinction between philosophers, who need to study the range animals (the Animal) as a whole, and the medici, who must look at the entirety of Man. Among his colleagues, he dismisses the focus on questions behind anatomy and end results - the human body may be the focus for doctors and the Animal body for philosophers. Anatomy is tied to neither profession - anatomy is a practice rather than a discipline and ought to be thought of as such.

Nicolaus Graffereuter, he boasted of his success in treating the wounds, despite the fact that Graffereuter died three months after he became Coiter's patient. Graffereuter was not the only patient who died, In Bologna he treated a servant who died after a kick by a horse.<sup>83</sup> In fact, many of the autopsies Coiter performed were on patients he was unable to cure. Autopsies are one way of gleaning benefit from the death, but in all of these cases, Coiter reports with great attention on the incremental phases of the patient's illness or injury. Writing about the eventual decline of cure in Bologna, Gianna Pomata posited that detaching treatment from cure made possible further divisions within the concept of treatment in the eighteenth century. For the sixteenth century physicians treatment was already a compilation of incremental processes. The time in which treatment took place had its own rhythms, passages and series of expectations wherein it was possible to vanquish the problems of one, only to lose the patient in a subsequent increment. More than this, the value of the case study, or the treatment in these incremental steps was inherent. For Coiter, treatment on this case by case basis acquires a clear, experimental purpose in his writing. It increases the sum total of knowledge, it makes clearer the contours of fever, or reaction, or cure.



Like Coiter, Camerarius emphasized the value of particulars within an incremental, experimental form of truth-gathering, and, like Coiter, the link between his botanical knowledge and its medical purpose was overt and public. The relationship of the garden to the plants of which it was comprised, mirrored the relationship between the

<sup>83</sup> Coiter, *Externarum et Internarum*, 111-113.



body and its parts. The illustrations in both *Kreutterbuch* and *Hortus Medicus* parsed the plant, much Coiter's the anatomical illustrations parsed the body. The images preserved contrasts between detailed attention to the local habitat and a visual emphasis on the plant removed - roots and branch. The text broke the plant down further, beyond the physical and visual to parse the plant by form and appearance, by place of origin, by discoverer and cultivator, by species (wild, domesticated, variety), even by means of use.

Like other municipal physicians, Camerarius was increasingly interested in medical care after diagnosis, specifically in the provision of pharmaceutical remedies. Distillation and remedy could be a means of identifying a plant, as we have seen. But this was not just an innovation in the botanical means of identification, the complicated methods that Camerarius used were also a departure for mainstream medical pharmacy. In the early sixteenth century herbals, such as those by Otto Brunfels and Hieronymus Bock, plants were closely associated with distinct remedies. In fact, many medical authorities, Otto Brunfels included, felt that the plant ought to *be* the remedy, i.e. that 'simple' remedies, medicines made with just one, or a few herbal ingredients were the only legitimate preparations.<sup>84</sup> When prescribing these remedies, the physician took into account the patient and his ailment, and each medicine could conceivably be used for multiple purposes. In the mid-sixteenth century, the rapidly increasing number of plants put pressure on traditional forms of cataloguing, and writers like Leonhard Fuchs, Rembert Dodoens or even Pietro della Matthioli began to describe plants less as potential medical ingredients or points of entry in Dioscorides and more as individual objects of interest. This has been heralded as the beginning of the end for medical botany: the point at which writers escaped the stifling confines of medicine and welcomed the plant for its own sake, as part of a natural history. Actually, the removal of the one-to-one ratio of plants from remedies was a necessary step in a renewed medical interest in the plant as *ingredient*, rather than remedy.

In simple remedies, the plant in question was a necessary fact, used for a definite purpose. Like the plant's material characteristics - form, shape, colour, texture, smell etc - the plant's purpose was singular. Camerarius' emphasis on the plant's possible substitutions illustrates a shift in the way that he perceived the process of creating medicinal remedies. From it, the ingredient emerged as a single element in a more complex remedy, to be used, changed, supplemented, distilled, altered, measured and more. Now the plant was more properly one changing element in a greater process of distillation. Breaking things down also had the opposite effect. Increasingly the physicians in Nuremberg became interested in the process that linked separate parts to a different whole, i.e. that facilitated the manipulation of ingredients into remedy. This language in part facilitated a process of viewing disease as something outside and alien to the body, which could be purged, removed, or 'cured' by the application of external measures - *materia medicamenta*. Interest in pharmacy itself was not new: Paracelsus wrote much about distillatory techniques. There were controversies about the use of minerals. But the shift within the municipal physicians' conception of pharmacy and botany played out in interesting ways, pharmaceutical method, specific rare ingredients rather than mundane common ones, a shift in the emphasis of regulators to finished compositions, rather than individual elements.

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<sup>84</sup> Brunfels, *Reformation der Apotheken*.

As we have seen, the sixteenth century and its medical writers were deeply concerned with the limits of observation, and the straightforward relationship between sign and identity. Both anatomy and botany dealt in revelation, in uncovering and extracting what was otherwise hidden. Traditional Galenic semiology assumes a degree of clarity around the existence of sign and signifier, i.e. connecting symptom to diagnosis depends upon the correct identification of each and a correct definition of their relationship (which in turn depends upon context). The body itself may be opaque, but it is attenuated - natural, unnatural and contra-natural are textures, easily felt and distinguished. In their identification of plants and remedies, and bodies and disease, both Camerarius and Coiter privileged a synthetic system that relied on methods, like cultivation or anatomy, as the systematic link between the signs and the signified. They moved away from an abstract idea of semiotics toward a practical, experimental account. Neither anatomy nor botany aimed to provide separate or different philosophical, semiotic explanations or systems for the relation of sign and signifier, or interior and exterior. There was no thought-out epistemological change in the turn to practice, though I think it signified a changing epistemology. Instead, Camerarius and Coiter exemplify a retreat, from the inadequacy of system. Although they both strove to *appear* to conform to basic humanist credos, they were far less concerned with adhering to classical formula than they were in producing effective, contemporary results.

It was to correct or improve on the inadequacy of existing treatments that physicians undertook the majority of their labours. It was to better cure in the future that physicians autopsied (Coiter), discovered new plants (Camerarius), trawled through Paracelsus (as Palma does in Chapter Four), recruited multiple opinions (Camerarius again, Chapter Five). As treatment became more and more important, diagnosis became more a claim for jurisdiction and less the be all and end all of medical practice. The process by which medical regulation unfolded will show that the increased focus on pharmacy, treatment and diagnosis tentatively present in these writings played an exigent role in the social reality of medical reformation.

Professional identity rested on diagnosis and claimed jurisdiction over treatment. The lasting implications of Coiter and Camerarius' achievements then were not that they actually created or implemented a new form of medical semiology. The stakes of this conception were social - involving the actual practice of diagnosis and treatment. Camerarius and Coiter's combined impact stemmed from the fact that they created a social definition around a changed medical system of values - one that privileged efficacy in treatment and focused on methods that produced it. At the same time, there was buried within this a real statement about the value of knowledge. Camerarius and Coiter's scheme of medical knowledge extended the participation by and authority of the physician far further than the medieval emphasis on inner medicine did. As Roger French points out, when semiotic schemes failed, as at some point they must, what was left was the physician.<sup>85</sup> For Camerarius and Coiter, the physician's practice was not just a final recourse, but a basic guarantee of knowledge, efficacy and authority in medicine.

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<sup>85</sup> French, Sign conceptions, 1361.

## Chapter Four: Libraries and Medical Knowledge

### Introduction: Georg Palma (1543 -1591)

In 1591, Georg Palma, *stadtarzt*, municipal physician, in Nuremberg died at the age of forty-two. His death was mourned by his contemporaries; he was eulogized by the Altdorf physician and philosopher Nicolaus Taurellus (1547 -1606), and one of the few surviving letters by Camerarius, addressed to the chancellor in Bamberg, professed his grief at the loss of his younger colleague.<sup>1</sup> Palma left behind no children, no public legacy of written works, except his library. This he bequeathed to the recently established municipal library in Nuremberg, which had been founded in 1538 and enriched by the requisitioning of books from the city's many religious orders. Palma's library was absorbed into this municipal collection, and although it was the subject of a German dissertation in 1961 its contents have yet to be catalogued.<sup>2</sup> Palma owned 668 separate medical titles, bound into around 350 volumes. By any standard this was a significant collection. Certain sixteenth century individuals possessed books in greater number, Joachim von Watt (1484-1551), the Swiss physician and humanist also known as Vadianus, owned 1259 books, of which over half were religious reformation texts and the other half fell between nine different disciplines.<sup>3</sup> Watt's collection, however, was truly exceptional. In the middle of the century, Conrad Gesner (1516 - 1563), physician and natural historian in Zurich, had about three hundred books, a private library which was considered large both by his contemporaries and by historians.<sup>4</sup> Nicolò Leonicensi, who, at the time of his death in 1524, had the largest collection of Greek natural philosophy and medical books yet catalogued, owned 117 Greek texts, of which at least seventy-five were manuscripts.<sup>5</sup> For the most part, I would estimate that medical libraries, belonging to university educated physicians, averaged at less than one hundred volumes.<sup>6</sup>

Palma's library was comprised of books. The significance of Palma's library, however, rests not simply with its catalogue of books, impressive and revealing though it may be. It lies in the notebooks that Palma kept, in which he chronicled the library's relationship to the broader work of medicine, in which he as physician, citizen, family member and intellectual was enmeshed. Many doctors collected books, but few recorded how they were used. Like the body and the garden, the library was a landscape for the practice of medicine, a means of engaging with the same questions and challenges that provoked Coiter and Camerarius. More than that, Palma used his library to bind together

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<sup>1</sup> *Katalog der Leichenpredigten und sonstiger Trauerschriften kleinerer Bestände in Rudolstadt*, Stuttgart 2011 (= Marburger Personalschriften-Forschungen 52). Ma I, Nr. 66a.

<sup>2</sup> Klaus G. König. *Der Nuernberger Stadtarzt Dr. Georg Palma (1543-1591)*, Stuttgart, Gustav Fischer Verlag, 1961.

<sup>3</sup> On Watt see V. Schenker-Frei (ed), *Bibliotheca Vadiani. Die Bibliothek des Humanisten Joachim von Watt nach dem Katalog des Josua Kessler von 1553* (St Gallen: Fer'esche Buchhandlung, 1973).

<sup>4</sup> Urs B. Leu, Raffael Keller & Sandra Weidman, *Conrad Gesner's Private Library*, (Leiden: Brill, 2008).

<sup>5</sup> Nutton, The rise of medical humanism, 6-7.

<sup>6</sup> Bernd Lorenz, *Allgemeinbildung und Fachwissen. Deutsche Ärzte und ihre Privatbibliotheken*. (Herzogenrath: Verlag Murken Altrogge, 1992). Lorenz lists a number of doctors in the sixteenth century who possessed libraries, but for the most part the number of books they owned remain unknown. I have based this estimate on an average between the doctors for whom he does know the figures, and a sort of 'inflation' based guess about previous libraries and the number of books published in general (which grew).

the broadest sweep of medical thinking and the specific problems of municipal medical practice. He used his library to provide context for the whole movement of reform, not just in providing intellectual stimulus, but in terms of shaping and guiding the narrative framework for the events that unfolded in Nuremberg. There are other similarities. Like the dissection of bodies, Palma's library was born of private endeavour, and never fully resolved the tension between private use and public ramification. Like Camerarius' correspondence, the subject of Chapter Five, Palma's library acted as a network of information. It was not static but fluid. The knowledge it contained was dynamic and in constant flux, shifting and reevaluating the core components of Palma's medical practice, even as he read. This chapter looks at the relationship between this collection and the conception and practice of medicine he authored, created and, through his notebooks, transformed. In reading, assimilating and compiling, we see the definitive link between medical humanism as a programme of research and medical reform as a programme born from practice.

This chapter examines the collection of medical texts as a subset of the practice of municipal medicine. It looks at the kinds of books Palma collected and the practices of reading in which he engaged. Palma's reading connected medical theory and medical practice, and theoretical conceptions of orality and literature. His marginalia and notebooks integrated local medical knowledge into his library, alongside the published growth of standardized medical consensus. In this regard, Palma's library was a field of practice, like a body on a dissection table; it formed a network of information, like a letter. The library, authored and created, was first and foremost the personal collection of Georg Palma, and before examining its contents and roles we should turn to a brief consideration of its author.

Georg Palma was born in 1543, the eldest son of a Nuremberg municipal physician, also Georg Palma, and his wife, Margarethe. Georg Palma the elder was of French origin, and the circumstances of his move to Nuremberg are unknown. He served as municipal physician from 1537, until his death, in 1551.<sup>7</sup> Margarethe and Georg Palma had five children: four boys, of whom Georg was the eldest and the only one to survive infancy, and a daughter, Georg's sister Susanna Uffingerin. After the elder Palma's death his widow remarried, to the apothecary Lienhard Stoeberlein. At the age of eight, then, Palma moved with his mother and sister to the apothecary of the Golden Star. Stoeberlein came to the marriage with several children. Palma's step-brother, Lienhard Stoeberlein the younger, grew up to become apothecary in his father's place. Lienhard Stoeberlein the elder died in 1556, and left the business to his widow, Palma's mother, who, after a brief back-and-forth with the city council, was allowed to retain it as her home, providing she marry another apothecary. This she did, providing Palma with his second step-father, Matthaeus Berchner (d. 1575), who survived Margarethe by some seven years. Palma was thus brought up in an apothecary, and he had not one but two apothecaries as stepfathers, as well as an apothecary for a step-brother. In the mid-sixteenth century, this meant that Palma belonged to an indistinct group of Nuremberg families that existed along the boundary between patriciate and burgher-class. Along with the other children of patricians and burghers, and other municipal physicians like Heinrich Wolff, Palma attended Nuremberg's *Melanchthongrammatik*, now in its third generation of students,

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<sup>7</sup> Stadt A N, B 19/ 120.

where he was taught by the renowned humanist and Lutheran theologian, Casper Melisander. Like other graduates of the *Melanchthonschule*, he went on to be educated in Wittenberg (1559-1564), Tübingen (1564-1565) and Padua (1565-1567).

As it did for others among the Nuremberg physicians, attendance at Tübingen proved a turning point for Palma's medical career. In 1564 and 1565, both Leonhard Fuchs and Jakob Schegk were teaching in Tübingen. Palma attended at least two of Schegk's lectures on Galen; notes survive for lectures on *Ars parva* and *De morborum differentis*. As König points out, this was the first time that Palma encountered a Paracelsian interpretation of medicine. Although it failed to leave as permanent an effect on Palma as it did on Heinrich Wolff, who had also attended lectures by Schegk, Palma retained a basic familiarity with the most mainstream of the Paracelsian writers throughout his book collecting years. He consolidated his prior knowledge of Hippocrates and Galen. By this time he already owned a quite extensive collection of Hippocrates and Galen, and in Tübingen, under Fuch's conservative tutelage, he consolidated his thinking in the same way he consolidated his collection: binding together the disparate strands into a volume.<sup>8</sup> Alongside the enduring intellectual influence of Tübingen, Palma also formed influential personal relationships while resident there. More influential still was the relationship that developed between Palma and Fuchs, whose interests in classical medicine and botany would continue to guide Palma throughout his career.<sup>9</sup> In later life, Palma owned several works by Fuchs, who took an interest in his medical library and contributing to his collection of botanical works. In Tübingen Palma also became friendly with a fellow student, Wilhelm Upilo, who was later doctor in the *Juliuspital* and Professor of Medicine in Würzburg.<sup>10</sup>

Moving from Tübingen, on 16 October, 1565, Palma matriculated in Padua, where he continued his botanical studies.<sup>11</sup> The university garden in Padua dated from 1545, and the proximity of Venice meant that books were in plentiful supply. Melchior Guilandinus from Königsberg was the demonstrator in the garden between 1564-1590. Perhaps Palma, who was later very interested in baths, also met Paolo Crasso, the Paduan balneologist. Padua was spared the tensions that plagued Bologna's counter-reformation politics; Venice guarded it as best it could. In the years after 1561 the university attracted rising numbers of Protestant students. Giovanni Battista Da Montes (1498-1551) had begun to teach clinical studies in the hospital, but he had died fifteen years before Palma arrived. Palma nonetheless owned Da Montes' collection of Hippocratic aphorisms. On his first visit to Venice, 8 October 1565, he bought the *Opus Pandectarum des Sylvaticus*, a detailed pharmacopeia. He also bought in Venice a much reduced anatomical compendium by Mondino da Luzzi, and more writings by Falloppio.<sup>12</sup>

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<sup>8</sup> König, 11: St Med 2 bis 11.12° - bound in pigs skin and stamped 1564.

<sup>9</sup> Fuchs taught the vast majority of the Nuremberg physicians at one time or another.

<sup>10</sup> König, 11

<sup>11</sup> König, 13.

<sup>12</sup> König, 19n: Matthaëus Sylvaticus, *Opus Pandectarum Medicinæ*, Lyon, 1541; Gabrielis Falloppii, *Tractatus de medicatis aquis atque de fossilibus. De medicamentis prugantibus simplicibus*. Venice, 1564. Sum Georgii Palmae Noribergensis, Emi venetiis 19 Novemb 1565; also *Opuscula, Accedit Guilielmi Rondeletii tractatus de fucis. Item Arcanorum liber primus*, Padua, 1566; Mondino da Luzzi, *Anatomia Mundini per Capum castigata, et postmodum cum apostilis ornata, ac noviter impressa*. Venedig. Palma bought the latter on Dec 19, 1566 in Padua.

Palma left Padua before being promoted, one of the casualties of the high cost of medical degrees.<sup>13</sup> Instead, he travelled back to Germany and received his degree from Ingolstadt in 1568, after only a few weeks attendance. It is difficult to say whether a German, rather than an Italian degree undermined a doctor's reputation or not.<sup>14</sup> In 1568 he returned to Nuremberg to set up his medical practice. He had his first patient on 25 May 1568, and soon after he received permission from the city to practice medicine. Among the circle of urban physicians in Nuremberg, he was the only one who did not receive an annual stipend from the city's council. He had sworn an oath, he was referred to in the records as *stadtarzt* but was not appointed to a post.<sup>15</sup>

The social and professional position of Palma was thus anomalous among his peers, and the question of his finances remains extremely puzzling. During his numerous years of travel he amassed a considerable collection of books, which he must have transported with him, or shipped home. Throughout his years practicing in Nuremberg, he was always counted in the records of the city as a *stadtarzt*, and was referred to as such on the scarce occasions when he was mentioned in the council's decisions. He cannot have lacked for funds, but there is little to suggest where he got them. More interestingly, his lack of a stipend was not a barrier to his entry into the ranks of the municipal physicians, and if it was intended as such it was singularly unsuccessful. Indeed, if we take marriage as the prime indication of social status, Palma may well have been the most successful of all the municipal physicians. Only a year after his return to Nuremberg, on 7 November 1569, at the age of twenty-seven, young for a doctor to wed, he married Helena Paumgartner,<sup>16</sup> which was a stunning achievement for the step-son of two apothecaries. Helena was the daughter of Hieronymus Paumgartner (1498-1565), the renowned humanist, and the sister of Hieronymus Paumgartner the Younger, an influential diplomat.

It is likely that Palma's return was just bad timing. His arrival at Nuremberg coincided with a swollen supply of doctors; in 1568 there were already nine appointed municipal physicians serving the city's sick. Whereas other doctors had completed short stints in other cities, Palma had not. The attractions of the position of municipal physician held true also for the private practitioner, especially if, like Palma, the physician in question was held in esteem by his municipal colleagues. By virtue of his birth and education, Palma was already acquainted with some of the older doctors, and he very likely had contacts in the wider community. The fact that he was treating patients before he was admitted to the city's practice says much for the ease with which he built a business. His finances were good enough to run his own household, near the foot of the palace, the same area where Durer had lived.<sup>17</sup> (Palma's residence was one of the few houses that survived WWII and can be seen today.) Although the contract of purchase is

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<sup>13</sup> König, 22. See G Polnitz & G. Wolff, *Die Matrikel der Ludwig-Maximilians Universität Ingolstadt - Landshut - Muenchen*, Teil 1, Bd 1 Munich, 1931, 910. Also König cf. 22

<sup>14</sup> On alternative degrees etc see Cunningham & Grell (eds.) *Medical Centres of Excellence*.

<sup>15</sup> StA N, Rep. 60a, 1290, 8 June, 1568. Den supplicierenden D. Gregorium Palm Medicum sol man hie practicirn lassen Doch ohne Diesntgelt.

<sup>16</sup> Landeskirchl Arch, Nbg, Sebald, 7.11. 1569: Dr Georg Palm mit Helena Paumgartnerin, cited in König, *cf.*, 24.

<sup>17</sup> F.T Schultz, *Nuernbergs Buergerhaeuser und ihre Ausstattung* I. Bd, Das Milchmarktviertel, I Haelfte Leipzig u Wien, 1933, 213

no longer extant, Palma did not inherit his house, and so must have bought it himself.<sup>18</sup> Another indication of Palma's high social standing in the city was his membership in the city's first *Musikkreis* (music circle), a relatively small sodality attended primarily by patricians. Palma, along with fellow doctors Johannes Richthausen and Volcher Coiter, and the renowned jurist Marquard Freher was one of the founding members. The *Musikkreis* met in the house of Joachim Nutz, a leading magistrate and sometimes inspector of medicine, who, as we shall see in later chapters, had his own part to play in the medical reformation.

In the city of Nuremberg, then, Palma was personally associated by marriage and common interest with members of the patriciate, and with fellow doctors Richthausen and Coiter. His most significant relationship in Nuremberg, however, was his friendship with Joachim Camerarius. It was Camerarius who recorded the circumstances of Palma's death in a letter sent April 20, 1591 to the Bamberg chancellor, Christoph Girschner. He wrote: 'His dangerous illness brought him to death... it has left me spiritually and physically disabled.'<sup>19</sup> The specific cause of Palma's death is unknown, though a rapid deterioration in his handwriting over the two years prior to his death suggests something chronic and debilitating. Palma died in 1591 at the young age of forty three. He was buried in the graveyard at St Johannis, where his marker stands today.

Professionally and personally, Palma's biography was unremarkable. Although he managed a successful medical career in Nuremberg, he never published, and he achieved neither fame nor professional renown outside the local circumstances of his practicing career. He was a relatively staid figure, remarkable only in how well he conformed to the standard social norms: an excellent marriage, a good education and a better domicile than the one he had grown up in. The sheer ordinariness of this makes it interesting; in Palma's fairly complete biography is a more normal picture of standard medicine, far removed from Coiter's picaresque career, or Camerarius' exemplary intellectual study. The careers and records of dozens of other Nuremberg doctors survive only in the dates of their employment and the years of their termination. As a representative of these physicians, Palma, in comparison to his more published colleagues, stands up well. His peregrinations were more modest than Coiter's or Camerarius' or Wolff's, but he did undertake them. He was professionally successful. He made a good marriage and socialized with the city's elite. He lived comfortably enough to indulge in staggering amounts of book-buying. He testifies to a good profession, firmly placed next to, if not exactly in, high society.

Palma bequeathed to the recently established municipal library in Nuremberg his collection of books, some 800+ books in total, 668 of which were medical titles. What is of note about Palma's biography is the manner in which it has been reconstructed: the legacy of his life exists in the bindings and margins of the books he collected. Like his biography, his medical practice and the career toward which it contributed were intertwined with the books that he collected, read and reconstructed.

We cannot resolve the complexities of Palma's civic practice, the collection itself testifies to its limits. Palma's library demonstrates the symbiotic relationship between his biography and his bibliophilia; it is the source as well as the context for many details of

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<sup>18</sup> König, 25-6.

<sup>19</sup> StB N. Cent V App 34 KKK, folio 47

Palma's biography. The activity that contributed to Palma's legacy was a quiet, personal one: the act of collecting. It was an intimate endeavour. Palma spent his time reading. At the same time, it had public ramifications. Palma's notebooks drew the exterior world in, capturing it between vellum covers, transforming its narratives into works constitutive of the library itself, of the necessary knowledge for medical practice. It also reached out, through the person of Palma himself, whose reading formed the basis of his medical innovation, experimentation and practice.

## Collecting

By the middle of the sixteenth century, private libraries were common. Museums, libraries and collections were accumulated, brokered, stolen and purchased by members of every social order, and of both genders.<sup>20</sup> They could be found in the homes of apothecaries, doctors, civic humanists, courtiers and counselors, academics, merchants, princes, Lutheran pastors, Catholic Cardinals, Jesuit missionaries. Even women owned museums. A relatively extensive literature has grown up around the Renaissance urge to collect, and in the letters and memories of hundreds more who visited, remembered and wrote about them, museums, libraries and collections acquired a cultural significance and a pedagogical importance that have come to characterize the age.<sup>21</sup> Palma's collection reflects, then, a general trend across humanists in the sixteenth century, a growing tendency to collect books and, at the same time, a specific trait of municipal physicians, a desire to collect *medical* books. Book collecting had been lauded by Galen himself, a vital form of medical learning, in as much as Galen thought that whatever he did ought to be emulated as a vital form of medical learning.<sup>22</sup> Medical bibliophilia was common in the ancient world, and it is no surprise that a key part of reviving the 'project of the ancients' was reconstituting their world of knowledge.

The majority of the Nuremberg doctors, according to Bernd Lorenz, owned libraries. Lorenz names Johannes Magenbuch, Volcher Coiter, Georg Marius and Heinrich Wolff in his list of library owning doctors.<sup>23</sup> The most famous of Nuremberg's physicians, Hartmann Schedel, author of the *Weltchronik*, consolidated a lifetime of eclectic collecting with the books he inherited from his uncle, Hermann Schedel, *Stadtarzt* before him. Purchased by a duke of Bavaria in 1571, the Schedel family's legacy would go on to become, together with the personal library of the Fugger family, the foundation of the current *Bayerisches Staatsbibliothek*. Records remain for at least some of Camerarius's

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<sup>20</sup> Michael Hackenberg, 'Books in Artisan Homes of Sixteenth Century Germany', *The Journal of Library History*, Vol.21 No.1 (Winter, 1986), 72-91; Bernd Lorenz, *Deutsche Ärzte und ihre Privatbibliotheken*.

<sup>21</sup> Paula Findlen, *Possessing Nature: Museums, Collecting and Scientific Culture in Early Modern Italy* (Berkeley: University of California Press, 1994); Marjorie Swann, *Curiosities and Texts. The Culture of Collecting in Early Modern England.*, (Philadelphia; University of Philadelphia Press, 2001); Jennifer Summit, *Memory's Library. Medieval Books in Early Modern England.* (Chicago: Chicago University Press, 2008).

<sup>22</sup> On Galen's own library see Vivian Nutton 'Galen's Library' in Christopher Gill, Tim Whitmarsh & John Wilkins (eds), *Galen and the World of Knowledge*, (Cambridge: Cambridge University Press, 2009), 19-34. On ancient libraries, Jason König and Tim Whitmarsh (eds.), *Ordering Knowledge in the Ancient Roman Empire*, (Cambridge: Cambridge University Press, 2007).

<sup>23</sup> Bernd Lorenz, *Deutsche Ärzte und Ihre Privatbibliotheken*, 21-23.



private library, he purchased Gesner's private papers,<sup>24</sup> and for Georg Forster whose library Palma purchased. Moreover, the humanist tradition of libraries was generally strongest in imperial cities *without* universities but *with* gymnasiums.<sup>25</sup>

Opportunities for collecting had changed. Hartmann Schedel, who collected during the last decades of the 15th century, concentrated primarily on manuscripts. A large part of his library, therefore, comprised his own transcriptions. The printed texts he acquired were products of the first generation of medical publishing, which, for the most part, concentrated on providing printed editions of the medical canon rather than 'new' works. As an aspiring polyhistorian, Schedel added to his medical interests, legal writing, classical texts by Horace, Cicero, Pliny and others, and a score of contemporary works of literature by Petrarch, Boccaccio, and their, mostly Italian, counterparts. Although both Schedel and Palma collected the unpublished opinions of their colleagues, in contrast to Schedel's library, the bulk of Palma's collection was printed, and while classical medical authorities featured prominently, the emphasis of authorship was placed decisively on the contemporary editor, commentator or translator. The vast majority of Palma's books were written by sixteenth century authors, mostly physicians. Furthermore, even in those works treating canonical texts by Galen, Hippocrates, Dioscorides, Celsus and others, the emphasis on title-pages and in dedications was on the modern commentator rather than the ancient authority. Between Schedel and Palma new genres of medical texts had appeared. Palma owned a wide range of 'Paracelsian' texts, many works published by his friends and immediate colleagues. Palma's collecting demonstrates, then, the diversification of medical interests, which had mutated and multiplied, but it also displays a much narrower, professional focus than Schedel's eclectic interests did. This focus separated him from medical predecessors and from contemporary 'natural historians' as well.

In her seminal study, *Possessing Nature*, Findlen writes: 'Most naturalists aspired to be 'natural philosophers', an appellation that allowed them to traverse the boundaries between medicine, natural history and natural philosophy, in short to be qualified to comment on all domains of scientific knowledge.'<sup>26</sup> Georg Palma did not. Palma knew that he was a doctor, and before he ever began seriously expanding his book collection, he qualified professionally as a practicing physician. In fact, most naturalists did not, I think, aspire to *be* natural philosophers, especially if the term was one that 'qualified', since there was no such profession or related 'qualification'. Instead, natural philosophy was foundational. If one takes the library as constitutive of public personality, as argued by Findlen, Swann, Greenblatt, Summit and others, this is borne out by Palma's collection. Palma's was a professional collection, a *medical* collection. In comparison to other collections, like those by 'naturalists', Ulysses Aldrovandi or Athanasius Kirchner, his library was tightly focused series of acquisitions. It was not intended for public display. It had no catalogue.<sup>27</sup>

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<sup>24</sup> Ogilvie, *Science of Describing*, 175.

<sup>25</sup> Lorenz, *Deutsche Ärzte und Ihre Privatbibliotheken*, 17.

<sup>26</sup> Findlen, *Possessing Nature*, 9.

<sup>27</sup> The catalogue was an early modern innovation, and it was important to collectors in that it allowed a kind of access to the collection, as well as form of promotion. Catalogues advertised the status of a good collection, and were in themselves a form of organization, in which the erudite scholar could display mastery over his own form of taxonomy, and its development from scholarly list to literary genre was

Palma's professional identity was directly tied to the exclusivity of his library and its contents. This was reflected by the way in which he acquired his books.<sup>28</sup> Palma was presented with books by their authors, and given gifts of books by physicians. In both categories, Camerarius was the principal donor, giving, among others, Matthiolus' *De Plantis* and his own *Hortus Medicus et Philosophicus*.<sup>29</sup> In similar fashion, Coiter presented his erstwhile collaborator<sup>30</sup> with a copy of *Externarum et Internarum*, which he inscribed: '*Clarissimo ac ornatissimo viro Domino Georgio Palm Philos: ac Medic: doctori excellentissimo Noribergensium Physico Domino et collegae suo colendo autor D.D.*' Heinrich Wolf gifted Palma with a copy of Bernhard Marck's *Von der hermetischen Philosophia*,<sup>31</sup> The inscription reads: '*Amplissimo et doctissimo viro D. Doctori Georgio Palm donabat Henricus Wolfius.*' Palma also bought books from the libraries of other doctors, most notably the collection of Georg Forster,, some forty four individual texts bound together in several volumes. Forster was municipal physician in Nuremberg before Palma, and he died in 1568.<sup>32</sup>

Most importantly and most obviously, Palma's professional interests were represented by his library's content. Palma's library lacked the encyclopedic quality, or at least aspirations to an encyclopedic nature, which characterized collections of natural history. In fact, Palma's collection of medical texts was predicated on an assumption that neither comprehensiveness nor completeness were, in fact, possible. This assumption was not a rejection of Galenic medical theory. Instead, Palma's collection strategized eclecticism. His library testifies to the vitality of the Galenic tradition, narrowly defined, in the sixteenth century. It also testifies to problems in defining medical genres, and the differences between the way in which early modern contemporaries considered these genres and the way in which historical commentaries have constructed their categories.

A complete catalogue of Palma's library did not survive the collection's incorporation into the municipal library, and although König wrote about Palma's books, he did not provide a comprehensive list of the titles the collection included. Nor did Palma's library, inexplicably, make it into Renate Juergensen's otherwise exhaustive

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indicative of the development of the collection itself. Both Findlen and Marjorie Swann emphasize the importance of catalogues to early modern collectors.

<sup>28</sup> There were dedications from books of Wittenberger fellow students and friends in the following of Palma's books: St Med 117.8°; St Med 161.8° - [Rondelet's *De ponderibus*, Lyon, 1563] and Charles de l'Ecluse's *Antidotarium*, Antwerp, 1561.

<sup>29</sup> On which see Chapter 2.

<sup>30</sup> During their collaboration, Palma drew one of the skeletons: *Beschreibung verschiedener Tierskelette*.

<sup>31</sup> See inscription on Bernhard Graf von der Marck, *Von der hermetischen Philosophia/ das ist von dem Gebenedeiten Stain der Weisen. Der hochehrfahnen und fuertreflichen Philosophen/ Herren Bernhardi/ Grauen von der Marck.*, Strassburg, 1574: Chr Mueller. Med. 170.8° ein Buch ... ex Libris Doctoris Henrici Vouffij.

<sup>32</sup> Stadt A N, B 19/ 120. Two different dates are given for his death in this list: 1568 and 1579. It is improbable that he died in 1579, as he disappeared from the lists of registered municipal physicians in 1568. Forster's collection sits a little uneasily in the greater whole of Palma's library. For one, it was primarily vernacular. For another, it was mostly made up of pamphlets - short, illustrated octavos of a few leaves, rather than the significant volumes of medical texts on which Palma seemed to have spent his time and money. From the material collected, Forster's interests appear to have been primarily astrological. His pamphlets were in the main almanacs and prognostications, with a smattering of medical astrology and occult cures. It is perhaps significant that other than Forster's texts, Palma did not own astrological works - popular or theoretical - in any quantity.

rendering of the private libraries of the 'patriciate and learned' in Nuremberg.<sup>33</sup> The catalogue in the appendices to my dissertation is thus the first comprehensive record of the books owned by Georg Palma. By itself the list of books is valuable. As a basis for describing the shape and contours of the collection in a more general sense, there are however some problems.

Palma, alas, used no obvious organizational system of his own. No catalogue survives from the sixteenth century, and it seems unlikely, based on the private nature of his collection and its constant growth, that he commissioned anyone to produce a proper catalogue. In the vast majority of cases, individual titles are bound with others published at or around the same time. Most likely, then, Palma had books bound as he acquired them, rather than by author or with books of a similar subject. We have no record of how he grouped his books on shelves or in categories, and we don't know if he thought of his books in one sort, other sorts or many sorts.<sup>34</sup>

Some genres are obvious: Palma, who had attended the grammar school in Nuremberg, owned the primary texts recommended by Melanchthon, as well as other classical works in philology and philosophy: Ovid, Homer, Virgil, Cicero, Boethius and Melanchthon. In college he read Casper Peucer, Melissus, Pliny the younger, Gabriele Falloppio. Palma also owned a decent sized collection of theological works, a catalogue of which has been published by the Nuremberg Stadtbibliothek.<sup>35</sup>

Between medical and non-medical books it is relatively easy to distinguish by subject. Within the far greater range of Palma's medical books, the divisions are less clear cut. One can break these medical texts down in a variety of different ways, looking at them chronologically traces the growth of Palma's medical knowledge and demonstrates a trajectory, which has been assumed but not discussed before, of the way in which medical knowledge expanded in the post-university years. Dividing the text by genre seems obvious. We should however bear in mind that genre is a product of historiographical, as well as historical, interpretation. When Klaus König wrote generally about Palma's collection in 1961, he divided the titles into the following genres: Collections of consilia (*Konsilienliteratur*), Plague Literature, Paracelsian texts, *Arzneibuecher* (vernacular collections of remedies) and Botanical writings.<sup>36</sup>

Some of these categories work better than others. Palma's interest in botany, for example, was unsurprising; he was a student of Leonhard Fuchs in Tübingen, and a close friend of Camerarius. His collection in that area included many of the most important plant compendiums of the sixteenth century. He owned Matthioli in the original Latin, as well as Camerarius' German edition. Carolus Clusius was a substantial presence in Palma's library, as was Conrad Gesner. 'Paracelsian texts' is another neat label. Even

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<sup>33</sup> Renate Juergensen, *Bibliotheca Norica. Patrizier und Gelehrtenbibliotheken in Nuernberg zwischen Mittelalter und Aufklaerung*. 2 Volumes, (Wiesbaden: Harrassowitz Verlag, 2002).

<sup>34</sup> On library catalogues and orders of knowledge see Peter Burke, *A Social History of Knowledge: From Gutenberg to Diderot*, (Cambridge: Polity, 2000), 92-3. On the importance of catalogues to the status of the library, see Marjorie Swan, *Curiosities and Texts. The Culture of Collecting in Early Modern England*. Philadelphia: Philadelphia University Press, 2001.

<sup>35</sup> Die Bibliothek des Nuernberger Arztes und Humanisten Georg Palma (1543-1591), *Ausstellungskatalog der Stadtbibliothek Nuernberg*, 85/1975.

<sup>36</sup> See Klaus G. König, *Der Nuernberger Stadtarzt Dr. Georg Palma*.

strictly defined, it is possible to pick out forty two Paracelsian texts from Palma's collection.

By dividing texts into genres with reference to a narrowly defined subject matter, however, König, the chief biographer of this library, omitted the fundamentally Galenic orientation of Palma's collecting. Palma owned a substantial collection of texts in the philosophy of medicine. By this I mean that he, like other humanist physicians in the sixteenth century, bought and studied various interpretations of Galen and Hippocrates. He read Hippocratic medicine on all the major themes: *morbis*, *partibus*, *prognosticatio*, *aphorisms*, *anatomia*. He collected multiple translations by different authors, and the major academic controversies of the sixteenth century all found a home in Palma's library. He owned Galen by Johann Winter von Andernach, Thomas Linacre, Benedict Victorius, Johannes Crato, Symphorien Champier, Niccolo Lavaachi and Christoph Heyl, among others. These were not simple duplicates. A translation was not regarded as a fixed truth; discerning medics like Palma recognised the impact of authorship, the kind of constructed truths that informed interpretations, and accordingly collected, and read, multiple versions of the same text. That said, medicine was unique in the consensus it afforded a certain core group of truths; the Galenic framework was held, with certain, very rare exceptions, as fixed. Thus conflict when it took place did so at a different level, a level of conscious interpretation. This speaks both to the viability of the Galenic tradition in the sixteenth century and the mutability of learned debate.

Pushing the category of Galenism further, the way in which Palma collected his texts makes clear that the Galenic umbrella was a wide one, covering an array of topics which at the same time formed traditions of their own, such as alchemy, anatomy or botany. Botany was Galenic, as were the occasional texts that appeared a-philosophical, such as *consilia* or *prognosticatio*. These included anatomical writings, pharmaceutical writings, nosological (diagnostic) texts, *consilia*, tracts on midwifery and surgery, a single book on veterinary medicine, and a sparse handful of anatomical treatises. These texts were all primarily Galenic and were driven by the impetus to comment on Galen's ancient writings, rather than by questions arising from the interior subject of the text, be that diagnosis, midwifery, surgery or something else. This is not to say that this is how Palma read such texts but apart from the overriding focus that the Galenic framework could provide to texts with ostensibly discrete subjects, there is also the problem of what to do with texts that lie outside the relatively clean categories described by König. Leaving aside the vexed question of Galenic philosophic texts, individual works dot Palma's library, sitting determinedly outside the normal boundaries of the various medical tropes. These include gynecological texts, one veterinary text and a small number of alchemical treatises.

Unlike the difficult categories of Galenic medicine, the label *Pestschriften* or *Seuchenschriften* (plague pamphlets) well describes the very substantial number of writings on plague, pox and pestilence collected by Palma. By far the greatest part of Palma's medical collection, some sixty-eight volumes, was devoted to this kind of literature. His interest in plague extended far back; before his years of medical practice, he was already collecting works on it in Padua.<sup>37</sup> But even here there are problems. Plague pamphlets varied quite significantly from tract to tract. Etymologically, 'plague', though a

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<sup>37</sup> König, 20.

common trope, covered a variety of pestilential diseases, of which only one was plague in the sense of recurring episodes of the 'Black Death'. Far more frequently in the sixteenth century, the word 'plague' indicated an epidemic. It was also affixed to the apparently sudden spread of syphilis, the carrier mechanism of which was not understood. Palma's collection comprised a veritable European Union of diseases: the French pox, the Hungarian disease, the English sweating sickness. Plague pamphlets were regarded as a subject by König, but they bore none of the hallmarks of an intellectual subject. That is to say, they were not contested. Their authors only infrequently mentioned each other, and when they did they merely offered illustrations of, or slight modifications to, other cures. Authors of plague pamphlets retained a focus on the local. They seldom described diagnosis, although they sometimes listed symptoms, and they placed their recommendations in no greater philosophical framework. They repeated other pamphlets, cures and authors, without necessarily acknowledging each other.

König discusses separately the categories of Consiliar literature and *Arzneibücher*. There is reason for this, and some of the distinctions between the two subjects of books must be retained. For one, *Arzneibücher*, collections of remedies, or medical 'how-to' books were predominantly written in the vernacular. They were relatively crude. They rarely included instruction on the methods or manner of preparation, and they favoured simple over complex remedies. Like plague pamphlets, they eschewed discourses on diagnosis or greater overviews of medical philosophy. Consiliar literature on the other hand designated the published dialogue among experts and professionals, literally collections of *consilia*. The discourse post dated the *arzneibücher* by almost a century. The emerging genre of medical opinions began to be published in the mid-sixteenth century, peaking with the massive ten-volume edition by Schenk which followed Palma's library by about a decade.

What *Arzneibücher*, consiliar literature and plague pamphlets all had in common, aside from the Galenic framework we have already noted, was their strong emphasis on medical treatment. *Arzneibücher* were vernacular remedy books, consiliar literature were collections, often epistolary, of observations on medical cases. Both were fundamentally oriented around the medical case as a unit for examination and treatment. While plague literature, especially Italian plague literature, of which Palma owned plenty, often included long discourses on the cause and spread of disease, it too included lists of remedies and variations on them.<sup>38</sup>

Palma collected early examples of consiliar literature. He also owned the classic *arzneibücher*, by Walter Hermann Ryff, in multiple copies, Otto Brunfels and Hieronymus Braunschweiger. He owned Christoph Wirsung, Georg Bartisch, anonymous pamphlets on specific remedies, for teeth, for women etc. To this extensive collection of books on remedies should be added two other kinds of text : first, texts on distillation, and second, *pharmacopeias*. By the middle of the sixteenth century, pharmacopeias were becoming more widely available.<sup>39</sup> Naturally, Palma owned Cordus. He also possessed several

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<sup>38</sup> See Samuel Cohn, *Cultures of Plague*. Cohn traces the progression of the plague text as a piece incorporating treatment with medical authority over public health. As he notes, this was a feature specifically of Italian literature. German authored plague texts were more focused on remedies. The impact that *reading* Italian plague texts had on physicians like Palma is another question.

<sup>39</sup> See Chapter Seven for a discussion of Valerius Cordus' Nuremberg Pharmacopeia, and the place of these texts in the reformation of the apothecaries.

versions of Adolph Occo's Augsburg pharmacopeia. A good proportion of Palma's books thus tended to matters of pharmacy. The importance of the remedy provided was far greater than the question of 'genre' into which they works might otherwise be placed.

Categorizing books is, of course, a problematic activity. Books could belong in one category or in multiple categories, and the genres comprising sixteenth century medicine are as much a fiction of history as they remain loose and amorphous today. Moreover, how these books were used and read changed over time, and how Palma read and used them as we shall see below could differ vastly from the subject or stated purpose determined by the book's ostensible subject. On the one hand, Palma's library allows us to follow the divergence between medical tropes in the sixteenth century, and to trace the relative popularity of particular discourses. On the other, the way in which Palma *used* his library serves as a corrective to simple pictures of popularity, as suggested by quantitative sources such as catalogues or publishing records. Taken together, both the tangible catalogue of books and the use to which Palma put them, suggest that many of the genres habitually considered as constitutive of early modern medicine are, in fact, more problematic.

Beyond a collection of mutable subjects, the library was also an individual incursion into the business of medical publishing, the space where the interaction between author, authority, publisher and reader was replicated and digested. In its entirety the medical collection is illustrative of the state of medical publishing in the sixteenth century; it stands as a single interpretation of what was a national mood in writing, publishing and collecting *medical* texts. Before addressing the question of its interpretation or organization then, we should look briefly at some of the information provided by a survey of the medical collection as a whole, which illustrate divisions and patterns that exist outside the beleaguered question of genre.

Particular authors stand out. The most frequently appearing authors include: Symphorien Champier, Johannes Crato, Pieter van Foreest, Carolus Clusius, Jacobus Silvius, or Jacques Dubois, as he was also known. Even more prominent than patterns of authors were patterns within the publications of texts, determined either by time or place of publication. As an indicator, the year 1565 appears in Palma's catalogue with greater frequency than either author or publisher. Texts published in 1565 in Basel make the reference more specific. If one were to put a face on these patterns it would belong to publishers, not authors. Publishers were overall a stronger presence on Palma's medical bookshelves than authors, especially publishers like Rovillius, specializing in a particular classical author and publishing conflicting interpretations, Christian Egenolph, who dominated the Frankfurt medical marketplace, or Johannes Oporinus in Basel.

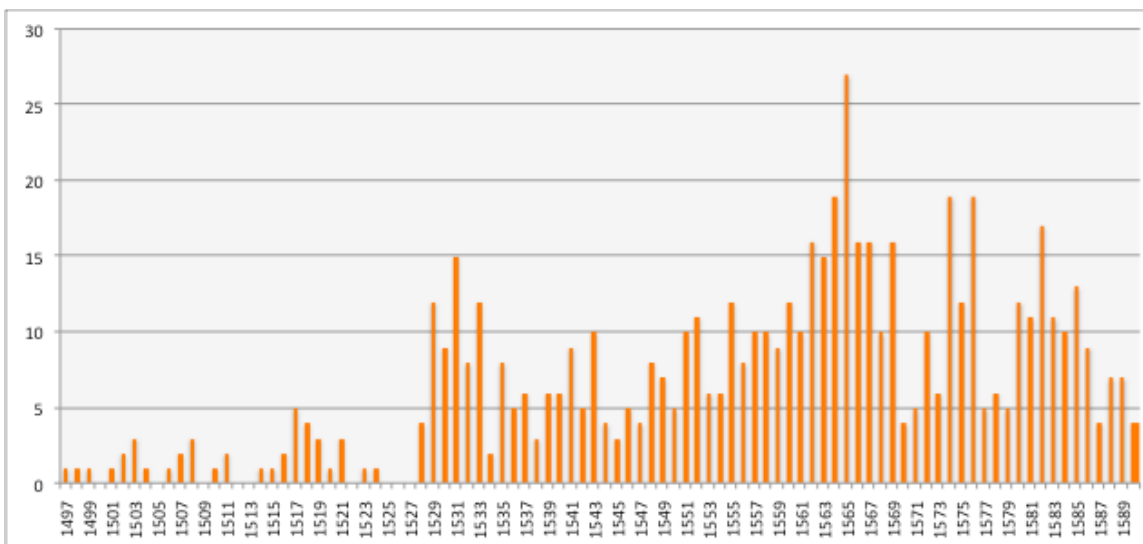


Fig: Texts by year of publication.

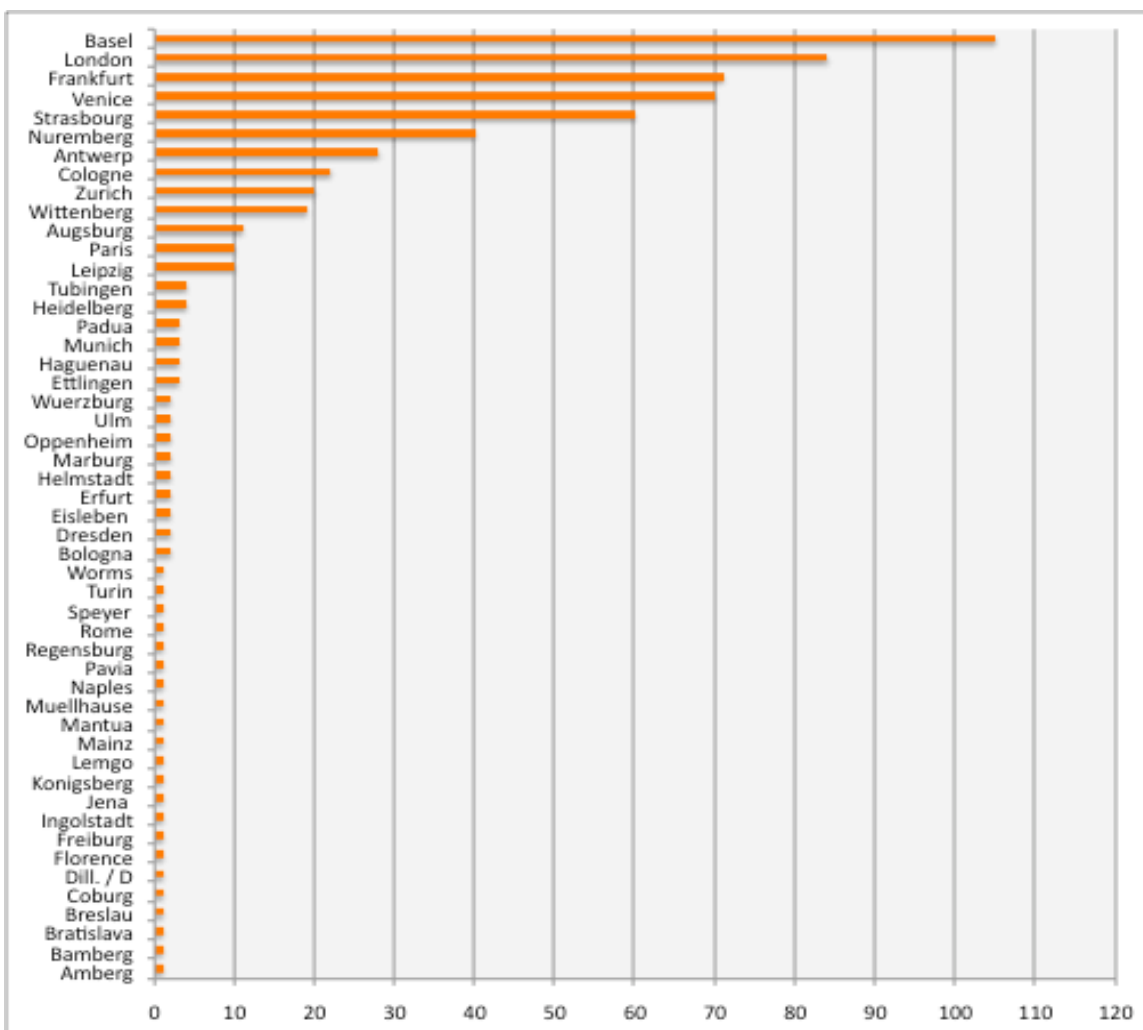


Fig: Texts by place of publication.

More reflective of patterns in medical writing, perhaps, were questions of language and notions of authorship. The vast majority of books owned by Palma was in Latin, although he also owned a not insubstantial number of books in the vernacular. The persistence of Latin is worth commenting on, if only because the history of science generally takes writing in Latin to indicate something that is not modern, or pre-modern. That is, the point at which a subject shifts to the vernacular is held to be indicative of its point of entry into modernity. Hence the accusation presents: that sixteenth century medicine somehow lagged behind other discourses, mostly theological, that were beginning tentatively to shift into the vernacular. Vernacular medical writing is somehow held to be more progressive than its antiquated companion, or held to be in competition with it.<sup>40</sup> Using the vernacular as a point of change in other discourses may, indeed, have merit. Or, at the very least, certainly may indicate a point of change. But medicine has a difficult relationship to the vernacular, even today. Contemporary medical language might be chiefly English, as the project on scientific thought in the university of Helsinki argues, but it is not vernacular.<sup>41</sup> It remains a highly specialized, expert discourse, with a language that is inaccessible to the non-professional. The esoteric quality within Palma's collection was neither modern nor medieval, but was, rather, an essential element of the professional medical discourse. Medical knowledge was withheld, purposefully limited to circles of experts; but this was not a trait specific to the sixteenth century. In the sixteenth century, in the aftermath of massively popular vernacular publications and in the midst of an as yet unregulated medical marketplace, the idea that spreading medical knowledge among a population not educated to receive it critically was found to be dangerous currency. However, the same problem remains a talking point today.

Peculiar to the later sixteenth century was the relatively novel focus on contemporary authors. This refers not to the fact that so many texts were published in the latter half of the sixteenth century, but to the fact that increasing numbers of texts claimed as their authors contemporary writers. This trait transcended genre. It was true for the select number of authors who became relatively famous, or gained small notoriety. But it was also true even in cases when the purpose of the text was to provide commentary or new translation on ancient authorities. Whereas the early sixteenth century tended to subordinate the modern translator to the figure from antiquity they were translating, by the middle of the century, the contemporary writer featured at least as prominently on the frontispiece.

The impact of contemporary texts is difficult to define precisely. Medicine had always been pursued as a subject whose effectiveness depended upon a relatively direct and uncomplicated relationship with antiquity; and the professional capability of a doctor was measured by the degrees of similarity to Hippocrates. As interpretations multiplied, opponents increased until the source for debate was no longer Hippocrates or Galen, but

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<sup>40</sup> This is a feature of most treatments of 'popular culture' in the early modern period, starting with Peter Burke and continuing. See Peter Burke, *Popular Culture in Early Modern Europe*, Third Edition, (London: Ashgate, 2009). The third edition takes in various criticisms and revisions. For the development of the vernacular as a sign of progress in print see Michael Giesecke, *Der Buchdruck*, and for the development of the vernacular in science, see the collected essays in Irma Taavitsainen & Paivi Pahta (eds.) *Medical Writing in Early Modern English*, (Cambridge: Cambridge University Press, 2011).

<sup>41</sup> <http://www.helsinki.fi/varieng/domains/scientific%20thought.html> (Accessed June 20th, 2011), cited in Taavitsainen & Pahta, *Medical writing in Early Modern English*, p. 2.



their contemporary translators. The measure of effectiveness was thus not so clear from the presence of a name on a page, or the systematic nature of a book's philosophy. This is one reason why Palma collected the way he did. As it was for botanists and anatomists, the need for specificity in medical treatment was both great and problematic, and Palma's collection reflected this. Against the closed system of Hippocratic medical thought, the demands of practical medicine, as we have seen in Chapter 2, raised infinite, variable questions. Where the aim of collections of natural history was comprehensiveness, the aim of Palma's collection was clarity of medical explanation, a clarity that depended on focusing explanation around a series of particulars.

The specificity of Palma's collection therefore had epistemological significance. Following Francis Bacon, Findlen and Swann imbue the practice of collecting with epistemological significance, collecting was an addition to the practice of philosophizing, organizing ideas around objects, privileging observation and experience. For Galenists, this epistemological significance was neither novel nor revolutionary. Instead, it reflects the kind of approach to knowledge that is constitutive of medical epistemology. The greatest authority for sixteenth century collectors in Findlen's interpretation is Aristotle, whose models of deductive reasoning provided a paradigm of approaching and organizing the collection. For doctors Galen both filtered and refocused Aristotle. Medicine relies on a systematic approach to knowledge, which renders unsuitable certain competing modes of explanation. At the same time, it is capable of integrating eclectic observation, experience and objects, remedies, symptoms, ontological notions of disease, into its flexible framework. Palma's collection was not encyclopedic; it was rooted in *sociological* knowledge, knowledge with context and application as opposed to universal knowledge, or Aristotelian axioms. Medicine did not have the same totalizing aim as natural philosophy. If collecting formed the basis of all knowledge for natural philosophy, collecting, was, for medicine, a way in which to best appreciate and aggregate the sum total of available knowledge. Nor did medical thinkers who thought about the profession of medicine intend or anticipate that its stores of knowledge and literature would become available to everyone. Whereas reformers of natural philosophy, like Bacon, anticipated their reforms manifesting among virtuosos, and posited the superiority of curiosity as an intellectual currency, German reformers of medicine were bound not by curiosity, indeed they discouraged the curiosity of non-medical practitioners into medical matters, but by a professional ethos and a spirit of cautious enquiry that privileged consensus. I would suggest that this was far more common than even the explosion of cabinets of curiosities or personal museums.

Medical activity in the history of 16th century medicine has usually fallen between the two historiographical poles of 'learned' medicine and 'practical' or empirical medicine. Bibliophilia, correspondence and other acts of accumulation have generally been thought of, under the rubric of the circulation of knowledge, as complementary forms of passing on information, extraneous to the official channels but acting in tandem with them. Actually these unofficial networks of communicants were more often the norm. The activities undertaken by the city physicians were not limited to the treatment of patients, or the production of intellectual and vernacular texts. Collecting was neither simply an intellectual past-time, nor a professional self-promotion. It was literally a manifestation of the medical practice of reading, a way of transforming the huge quantity of diverse medical opinions into an available consensus.

This power, this kind of expertise based on knowledge of the particular was also personal, individual and specific. The particular and the specific were contextualised in Palma's library; so was the particular world of the individual physician. The corpus of texts in Palma's library is not representative of medical publishing writ large, in that it fails to include some of the most popular published genres.<sup>42</sup> Rather, it is discerning. It mirrors the demands of one man's medical practice and one man's reading interests. Palma used his library for reading, for innovation and as a form of authorship. The library itself was intended to form a narrative, a testament to professional primacy, a primacy based on and founded in an interpretation of the knowledge contained within the books. This greater testament was the result of years of study, meticulously recorded alongside the subject of contemplation. The library was personal *and* corporate, it was itself a narrative in which local and locale contextualized its learned writings.

## Reading

Early modern medicine was a literate subject. It was in fact a textual subject in the sense that it was, for many centuries, thought to comprise a bound canon of orthodox texts, whose true meaning and applicability could be interpreted. As we have seen, the university was the most common venue for disputing these texts, and the university was the primary educator within this literate medical tradition. University and a university education did not go hand in hand with books and book collecting. In the business of print and reading, as in the business of writing about these subjects, there is a further distinction between books and text, and books and literacy, between a textual tradition and a bibliophilic one. Medicine had always been a textual subject, tied to text, taught through texts and mediated by them. In the sixteenth century it became a bibliophilic subject. Books replaced text: books plural, book ownership, books without the boundaries of the university canon, books as a sign of status, books as a template for learning, a starting off point. As they were for humanists, books, and the explosion of new printed material more generally, were a point of departure from the university and its limited canon. In 1506, the medical collection at the University of Montpellier numbered only forty seven books.<sup>43</sup> Books, libraries and medical publications were, thus, all elements of the medical world outside of and apart from the academic context. This did not mean that they were inherently subversive, but that they were mechanisms by which the orthodox academic education was transformed into practical workable knowledge. And if they were the mechanism, the technology, the *means* or technique was reading.<sup>44</sup> If the library or the collection as an object was made possible by this change, reading was the action that changed the substance of the medical subject the library collected.

There are two sources for Palma's reading: first, the books themselves, and second, Palma's notebooks. Palma was an attentive and conscientious reader, and a dutiful

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<sup>42</sup> On representativeness and medical corpuses, see: Irma Taavitsainen et al, 'Medical Texts in 1500-1700 and the Corpus of Early Modern English Medical Texts', in Pahta and Taavitsainen (eds). *Medical Writing in Early Modern English*, 9-25.

<sup>43</sup> Lorenz, 11

<sup>44</sup> On this distinction and the importance of technique, see Patricia Bray, 'Science, technique and technology: passages between matter and knowledge in imperial Chinese agriculture', *BJHS*, 41(3), (September, 2008), 319-344.

note-taker. Primarily, he annotated his books. Palma peppered his entire collection of books with excerpts, annotations, quotes, epitaphs and epigrams. A well-read book had in the front cover any number of assorted quotes from ancient and contemporary sources. In the margins of the text, Palma would jot his comments. These included modifications to particular remedies, opinions on the veracity of the author's claims and, most importantly, citations of *other* works that dealt with the same subject. In some cases he had blank pages bound with his volumes, on which he scrawled page after page of commentary.<sup>45</sup> Non-verbal markings were also common, mostly in the form of identifications of parts or sections of text. To this end he underlined, bracketed and separated by small ticks or dashes.

In addition to the many printed volumes it contained, the library Palma bequeathed to Nuremberg included his notebooks, manuscript records of his medical learning. Numbering some ten volumes in total, Palma kept many different kinds of records, carefully and meticulously. These included notes on lectures, dating from his student days, lists of recipes and remedies and notes about their preparation and distillation, carefully maintained indexes of diseases and appropriate remedies for them. A single volume of daily notes on his own medical practice survives in the library of the German National Museum. The remainder of Palma's journals can be found in the university library of Erlangen, and the Bamberg State Library. The vast majority of these written records contain notes on Palma's reading. This second kind of source acts as a kind of 'reader's digest' for Palma's library. It shows not just what he read, but how he used his reading. Comprising part of the library, these packed notebooks literally integrate the practice of reading into the art of collection. In the remainder of this chapter, I look at Palma's library as a two-way process of communication. I examine Palma's marginalia, cross-referencing and note-taking as an illustration of what Palma extracted from his reading. I then turn to look at what he integrated into it. Palma's notes are filled with references to conversations, local remedies and anecdotal information. I examine this integration of local knowledge as a key component of early modern medical practice.

In the sense proposed by Anthony Grafton and Lisa Jardine, Palma's reading was certainly 'active'; that is to say, it was goal-oriented.<sup>46</sup> This was a reading syncopated with references, notes, marginalia, personal observation, anecdote, local lore, corrections, refutations, endorsements, alternate names, alternate remedies. Like collecting, practices of early modern reading have been the object of some study, though no study has examined with particular care differences in either the objects or practices of reading across disciplines.<sup>47</sup> While the history of reading practices has focused in the main on

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<sup>45</sup> For example, Walter Bruel, *Praxis Medicinae. Theorica et empirica Familiarissima Gualtehri Bruele, In qua pulcherrima dilucidissimaq, ratione morborum internorum cognitio erundemq, cruatio traditur.* Antwerp, Christoph Plantin, 1579. This was a gift of Joachim Camerarius and was easily one of the most heavily annotated of Palma's books.

<sup>46</sup> Lisa Jardine and Anthony Grafton: 'Studied for Action: How Gabriel Harvey Read his Livy', *Past & Present*, 129, (1990), 30 -78.

<sup>47</sup> Roger Chartier, *The Order of Books: Readers, Authors and Libraries between the Fourteenth and the Eighteenth Centuries*, trans. Lydia Cochrane, (California: Stanford University Press, 1992); Roger Chartier, *Forms and Meanings: Texts, Performances and Audiences from Codex to Computer*, (Pennsylvania: University of Pennsylvania Press, 1995); Marina Frasca-Spada and Nicholas Jardine (eds.), *Books and the Sciences in History*, (Cambridge: Cambridge University Press, 2000); Kevin M. Sharpe, *Reading revolutions: The Politics of Reading in Early Modern England*, (New Haven: Yale University Press, 2000);

marginalia,<sup>48</sup> medical marginalia has not been studied.<sup>49</sup> I make no claim in what follows to general practices of medical learning, the evidence provided by marginalia is fragmentary, as most historians who have worked on it assert. Moreover, marginalia always has context, even if that context in the case of the text it accompanies is, as Palma's reading will show, potentially misleading. Palma's personal writings, what he inserted into his library and what he extracted from it, allow us an insight into the way in which one learned physician encountered and consumed both in practice and in print.

It might seem natural to assume that the books that were most marked were the books that 'influenced' Palma the most. Easily the most marked book in Palma's library, for example, was a text by Walter Bruel: *The Physician's Practice (Praxis medicinae)*.<sup>50</sup> A folio volume of good size, Palma had this bound with blank pages which he filled - crammed really - with notes. This is not surprising, as Bruel's text was a glorified pharmacopeia. Although it paid lip service to Hippocratic medicine in its short preface - 'Lastly there are medicines for inward diseases, of what age, sex or complexion soever the Patient be', and purported to list just 'inner' diseases<sup>51</sup> - it plunged headfirst into headaches, and then rambled on through almost a hundred other ailments, including Palma's particular interests: hemorrhoids, epilepsy, and kidney stones. Many of these, notably kidney stones, had often been parceled off to surgeons in the past, being viewed as 'exterior' conditions. It also dealt with numerous conditions that weren't, strictly speaking, 'diseases', and thus were not included in the short index, including worms, inflammation and lethargy. The structure of the text nominally listed medical complaints from top to bottom i.e. headache to plague (the system of top to bottom broke down when it came to encompassing diseases like pox or diabetes), but within each chapter on said disease, it cycled through the process of diagnosis and prognosis, and treatment. Bruel's text thus fit perfectly with the intellectual problems facing the municipal physicians, and describes the chaotic mass of diseases and ailments perfectly. Fittingly, the book was a gift by Camerarius.

Quantity or frequency of markings was not, in itself, a sign of favour. Palma read deeply across his entire collection and far from agreement, his level of engagement could mean disagreement or rejection. Reading, even laborious, attentive, careful reading, did not connote a passive, or even a dynamic reception of the work's content. Palma spent a lot of time trawling through texts. Far from underlining a text's message, his reading process fundamentally altered, and translated, the content of his books. The substance of

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Jennifer Anderson and Elizabeth Suaer (eds.), *Books and Readers in early modern England: Material Studies*, (Pennsylvania; University of Pennsylvania Press, 2011); Adrian Johns, *The Nature of the Book: Print and Knowledge in the Making*, (Chicago: Chicago University Press, 1998).

<sup>48</sup> On marginalia more specifically: H. J. Jackson, *Marginalia: Readers Writing in Books*, (New Haven: Yale University Press, 2001); William H. Sherman, *Used Books: Marking Readers in Renaissance England*, (Pennsylvania; University of Pennsylvania Press, 2008); Far better than most Renaissance readers, Palma fits the mould cast by Heather Jackson: witty, personal and directly responsive to the text.

<sup>49</sup> An exception is Helen King, *Midwifery, Obstetrics and the Rise of Gyneacology*, based on deep readings of specific texts, which take account of marginalia to analyze reader responses.

<sup>50</sup> Walter Bruel, *Praxis Medicinae. Theorica et empirica Familiarissima Gualtehri Bruele, In qua pulcherrima dilucidissimaq, ratione morborum interiorum cognitio erundemq, cruatio traditur*. Antwerp, Christoph Plantin, 1579.

<sup>51</sup> Walter Bruell, *Praxis Medicinae or The Physitians Practise: Wherein are contained all inward Diseases from the Head to the Foot*. London, William Sheares, 1648, preface.

his markings illustrate this. In some cases, for example, he disagreed, inserting corrective remarks, or alterations. In others he simply excerpted, lifting small nuggets of valuable information from surrounding dross. Even more important was his cross-referencing. All of this is illustrated in a case-study with very particular contours, that is, Palma's Paracelsian readings.

The Paracelsian volumes make an interesting test case for Palma's reading habits, precisely because they lay outside the general scope of 'normal' medicine. As noted above, Palma owned a small but comprehensive quantity of Paracelsus' writings. Palma's public participation in the reform movement, the general thrust of his purchasing and collecting, and the private practice he built and maintained all suggest a general conservatism on matters medical. In fact, we know from Palma's stance on medical reformation, that he was implacably hostile to Paracelsus. But it is quite clear that Palma *read* these books. Unlike other more esoteric 'subjects' in Palma's libraries, alchemy or astrology for example, these are heavily annotated. Marginalia, citations or some evidence of note-taking and underlining appear in all but one or two of the volumes, in some densely packed and sprawling, in others loose and sporadic. Other volumes are clean but cited by Palma elsewhere. Indeed, as a singular body of texts, Palma's Paracelsian writings outweigh the markings across other, more orthodox, Galenic subjects. Palma's reading Paracelsus thus demonstrates best the tension between a book's purpose or subject and the use to which Palma put it.

Palma had an active interest in acquiring Paracelsian texts. A few of Palma's Paracelsian books were given to him as gifts and a couple were inherited. Most, however, were purchased. Palma owned forty-two texts either written by Paracelsus, or purporting to be by Paracelsus, but edited by Adam von Bodenstein, Michael Toxites, Gerhard Dorn and others. Palma was first introduced to Paracelsus by Jacob Schegk, who delivered a series of critiques of Paracelsus to his students in Tuebingen. Palma's earliest Paracelsian text was the 1552 Nuremberg publication, *'Drey Bücher Paracelsi'*, which was a collection of cures for the pox.<sup>52</sup> His final purchases were part of the Basel printer Johannes Huser's collected works of Paracelsus, which appeared in ten volumes between 1589 and 1591.<sup>53</sup> In a library of 800 plus volumes, this formed a relatively small but important cluster of books. Not only were the texts themselves controversial, but the controversies in them trickled out into other discussions and medical discourses. Thus, to the core 'Paracelsian' texts, we must add the anti-Paracelsian critiques, the books written either to support or reject specific aspects of his medicine. Palma, for example, owned five volumes by Thomas Erastus, Crato's protege and Paracelsus' most prolific critic in the second half of the sixteenth century.<sup>54</sup> He owned books by Johann Albertus<sup>55</sup> and Jacques

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<sup>52</sup> Theophrastus von Hohenheim, *Durch den Hochgelerten Herrn Teoprhastum vonn Hohenheim beyder der artzney Doctorem, von der Frantzosischem kranckheit drey Bücher Paracelsi*, Nuremberg, Jeronimus Formschneyder, 1552

<sup>53</sup> Opera Theophrasti Paracelsi.

<sup>54</sup> Thomas Erastus, *Disputatio de putredine*, Basel, 1580; Thomas Erastus, *Disputationum De Nova Philippi Paracelsi Medicina*, Basel, 1572; Thomas Erastus, *Disputationes de Medicina Nova Philippi Paracelsi*, IV, Basel, 1573; Thomas Erastus, *Comitis Montani Vicentini noui medicorum censoris quinque librorum de morbis nuper editorum viva anatome*, Basel 1581; Thomas Erastus, *Disputatio de auro potabili, in qua accurate admodum disquiritur, num ex metallis, opera Chemiæ*, Basel, 1578; On Erastus see Jole Shackelford, 'Early Reception of Paracelsian Theory: Severinus and Erastus', *SCJ*, Vol. 26, No.1 (Spring,

Aubert<sup>56</sup>. Palma owned Toxites' *Archidoxa*, but he also owned the version published by Johannes Albertus Wimpenaus in Munich in 1590.<sup>57</sup> He also possessed numerous writings by precursors and successors to the 'Paracelsian movement', broadly defined by Sudhoff, Pagel and more lately Charles Webster.<sup>58</sup> Of the many influences gathered together by these authors to form strains of the Paracelsian movement, neo-platonism, mystical theology, alchemical texts and works of astrology and prophecy, Palma, like Heinrich Wolff, dabbled in the alchemical. His interest was early and slight, and dated from his student days in Padua, when he collected three works on the subject in the Italian vernacular.<sup>59</sup> Altogether his collection of alchemical texts was limited and retained none of the focus of his collections in other areas, such as plague literature, botany, *concilia* or Paracelsianism. Indeed, his alchemical books were cursory acquisitions. He did own several works based on Arnald of Villa Nova, on whom Wolff based his most important publication, but they bear none of the marks of heavy reading displayed by his medical texts.

Palma's purchasing reflected the pattern of Paracelsian publications, especially insofar as the geographical production of the texts were concerned. Basel, Strasburg and Cologne reflected the predominance of Bodenstein, Toxites and Byrckmann respectively. Texts from the 1560s towards the 1570s came mostly from Cologne and Strasburg. Early publications by Bodenstein through the prestigious Egenolph press in Frankfurt skew this picture slightly, but the importance of Basel, as a center for Paracelsian publication, only truly asserted itself in the later 1570s and the 1580s. The numbers of Basel texts from these years outnumber Strasburg by far, and Cologne's publications dropped off in these latter years almost completely. In total, ten volumes from Strasburg slightly outweigh Cologne' nine volumes. Bodenstein's early publications from Frankfurt should be added to the sum of ten Basel publications, edging out both Strasburg and Cologne. It is significant though that the final two of these Basel volumes, *Treizehn Buecher Paragaphorum* of 1586 and *Erster Theil der Buecher und Schriften, des Edlen, Hochgelehrten und Bewehrten Philosophi und Medici, Philippi Theophrasti Bombast von Hohenheim*, produced by Johannes Huser, 1589-90, clock in at a total of almost 3000 pages. In an aggregate number of pages published, Basel reigns supreme.

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1995), 123-135, Stable URL: <http://www.jstor.org/stable/2541529>; Charles Gunnoe, 'Paracelsus' Biography among his Detractors', in Williams & Gunnoe (eds), *Paracelsian Moments*, 3 -18.

<sup>55</sup> Johannes Albertus, *De concordia Hippocraticorum et Paracelsistarum libri magni excursiones defensivae*, Munich, 1569.

<sup>56</sup> Jacques Aubert, *Duae apologeticae responsiones ad Josephum Quercetatum*, London, 1576

<sup>57</sup> Johannes Albertus, *De concordia Hippocraticorum et Paracelsistarum libri magni excursiones defensivae*, Munich, 1569.

<sup>58</sup> Karl Sudhoff, *Versuch einer Kritik der Echtheit der Paracelsischen Schriften*, 2 vols, (Berlin: Reimer, 1894 & 1898) Modern research on Paracelsus began with Karl Sudhoff, who sifted through the myriad early modern texts to provide an authoritative, corrected edition of Paracelsus' writings. See also: Walter Pagel, *Paracelsus: An Introduction to Philosophical Medicine in the Era of the Renaissance*, (Basel: Karger, 1982); Charles Webster, 'Alchemical and Paracelsian Medicine' in Webster (ed), *Health, Medicine and Mortality in the Sixteenth Century*, (Cambridge; UP, 1979), 301-334.

<sup>59</sup> Leonardo Fiorovanti: *De Capricci Medcinali*, Venedig, 1565, Fiorovanti, *Del Compendio dei Secreti Rationali*, Venice, 1566; Timotheus Rosello, *Della Summa de Secreti Universali in ogni Materia*. Venice, Giocanni Bariletto, 1565. All three bought August 1567 in Venice, so not too long before he left.

Outside of the many different, competing, editions of Paracelsus' work, reflecting different programmes of study, Palma owned authors on both sides of controversies *about* Paracelsus. For example, he followed the back and forth between Joseph Du Chesne (Quarcetanum), the most influential of the French Paracelsians, and Jacques Aubert, his most virulent critic.<sup>60</sup> Du Chesne's Paracelsianism was a modified version, discarding for the most part the greater system proposed by Paracelsus, but arguing for the Paracelsian preparation of minerals and the use of antimony internally as well as externally. Against this Aubert, whose own work presented an Aristotelian critique of alchemy in broad strokes, replied that minerals were subject to the stars, which were not in turn subject to the alchemist. Thus the means of the cure retained agency, and could not be manipulated as Paracelsus suggested. The debate bled out into wider discussions of metallurgy in general. Jean Antoine de Fenot wrote about both contributors.<sup>61</sup> Older texts by authors like Jean de Garlande and Levius Lemnius were republished in the context of this new debate. Palma owned them all.

The multiplicity of competing interpretations of Paracelsus was also characteristic of the degree to which Paracelsus' canon was, in 1565-1585, already viewed as a fluid corpus of available truths, whose functionality and value differed according to its interpreter. To be circulated and to be conceded, however, are two very different things. Palma's library illustrates a relatively extensive familiarity with the main tropes of Paracelsian debate, as well as the main currents of interpretation. What remains to be seen is the degree of nuance and perspective which Palma brought to the table when reading these texts, the differences he recognized between the various schools of Paracelsian medicine, and the highly conservative focus with which he imbued his own theory on appropriate medical knowledge.

It is clear that Palma was conscious of and paid attention to the various nuances of the Paracelsian movement. He read his Paracelsian books critically. On the first page of the first volume of Huser's *Collected Works of Paracelsus*, Palma took pen to paper and inscribed an excerpt from Thomas Erastus', *Disputationum de medicina nova*. This was an immediately hostile gesture, the most vehement and prolific of Paracelsus' opponents prefaced a collection intended to act as the definitive edition of his works. As a disclaimer to the text it was weighty; as a statement of Palma's personal opinion on Paracelsus it was telling. He writes: 'Although in this text we come across very little evidence that is truly credible, I pursue diligently its achievements and resolutions in the preparation of medicine, which is by no means reprehensible but instead strongly commended. Plainly we see that he [Paracelsus] did not invent the art of distillation... but [he] gives many remedies whose use would not otherwise come about.'<sup>62</sup>

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<sup>60</sup> Joseph Du Chesne, *Ad Jacobi Auberti Vindonis De ortu et causis metallorum contra chymicos explicationem Josephi Quercetani ... brevis responsio. Ejusdem De exquisita mineralium, animalium, & vegetabilium medicamentorum spagyrica praeparatione & usu, perspicua tractatio*, London, 1575.

Jacques Aubert, *Duae apologeticae responsiones ad Josephum Quercetatum: in priore de Paracelsicorum ladano et calcinatis cancrorum oculis disseritur, in posteriore chemiam esse vanam ostenditur*, London, 1576.

<sup>61</sup> Jean Antoine Fenot, *Alexipharmacum, siue Antidotus apologetica: ad virulentias Iosephi cuiusdam Quercetani Armeniaci, euomitas in libellum Iacobi Auberti, De ortu et causis metallorum contra chymistas*. Basel, 1575.

<sup>62</sup> *Opera Theophrasti Paracelsi*, inside front over. Cit: Thomas Erastus in Ia parte disputationum paracelsicarum in praefatione ad lectorem.

Palma's notes on what he deems to be Paracelsian follies are consistently hostile, witty, acerbic and sharp. 'Stockfischery' was his favourite one word put-down. It appeared on the margins of Heinrich Wolff's *Herliche Tracta*,<sup>63</sup> Jacobus Fincelius' Paracelsus inspired plague pamphlet<sup>64</sup>, and on Toxites' *De secretis creationis*.<sup>65</sup> He occasionally provided counter arguments. These could be substantive, as, for example, when he disagreed with Paracelsus about the qualities of water. Paracelsus deemed water to be, 'nass, empfindlich, greifflich aber nicht Corporalisch noch Materialisch.' 'Ist greifflich aber nicht materialisch,' corrected Palma.<sup>66</sup> They could also be dismissively simple. He was, for example, particularly scathing of Paracelsus' *De Vita Longa*, writing next to the section on the 'uncertainty of medicine', 'Und du, der allein die khunst gehabt, hast dein leben, welches du wie du oben meldest, in deiner Hand und gewalt hast, nicht ueber 47 jahren bringen khoennen.'<sup>67</sup> On page fourteen of Huser's definitive translation, he added to this his own observation. 'We see the whole of his doctrine to be a terrifying way of thinking, which nowhere makes clear its apparent contradictions.'<sup>68</sup> On page fifty-three, he commented 'I believe nothing.'<sup>69</sup> Huser began to publish in 1589. His books are the last part of Palma's book buying forays into Paracelsian territory. This specific notation was written towards the end of Palma's life, and necessarily towards the end of his readings into Paracelsus. And although Palma may have prefaced the text before he even began to read it, it is unlikely that the opinions he had formed by this time, presumably on the basis of his reading preceding texts by Bodenstein, Toxites, Byrckmann, Erastus and others, were overturned. We have then, a definitive rejection of the overall mythos of Paracelsus. Even when not prefaced by a declaration of intent, Palma was not subtle about this rejection. He was not, it would seem, a fan.

Palma's readings of Paracelsus demonstrate first a degree of dexterity in the use of physicians' sources, particularly with regard to the interpretation of controversial medical figures. He distinguished effortlessly between Paracelsian information on cures, pharmacy and medical treatment, and Paracelsianism, the inchoate philosophy on which few people agreed, but on which most public advocates of Paracelsus based their supportive stance. He read carefully about Paracelsus' medicine, annotating, collating, citing and correcting the various treatments and illnesses described therein. This was the reason Palma bought and read the Paracelsian texts, despite the near constant state of irritation they seemed to induce. He makes minor adjustments to their quantities, jots down alternative names to plants and in some cases alternative ingredients. He notes when they were effective. More

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<sup>63</sup> Heinrich Wolff, *Herliche medische Tractat vor nie in Truck kommen von Cur des Podagrams des hoherfarnen alten Medici Arnadli de Villa Nova: item, von Holz des Lebens, vom Goldoel, Anitmoniol une Wein, von den Tugenden des Perlen, Coralllen und Spiritus vini, von der Pestilenz und andern nuetzlichen Materien*, Bernhart Jobin, Strasbourg, 1576.

<sup>64</sup> Jacobus Fincelius, *Von der Pestilenz*, Leipzig, 1582.

<sup>65</sup> Paracelsus, *De secretis creationis. Von Heimlichkeiten der Schoepffung aller dingen. Philipp Theophrastus Paracelsus, der Philosophi und beider Artzney Doctor*. Hrsg. Michael Toxites, Strassburg, Christian Mueller, 1575.

<sup>66</sup> *Philosophiae liber I de Elemento Aeris*, VIII, 57.

<sup>67</sup> D. Theophrasti Paracelsi... *Archidoxa*... Von D. Johanne Alberto Wimpinae, Muenchen, Adam Berg, 1570. Book VI (De Vita Longa), 118.

<sup>68</sup> Videbimus in tota ei[us] do[ctr]ina vix paucissimas esse sententias, quas non alicubi manifesta contradictione confutet.

<sup>69</sup> 'Quod minime credo.' Huser, *Opera Theophrasti Paracelsi*, Liber I, 53.



than commenting, he also interjected Paracelsian remedies into other texts. The intertextual introduction of Paracelsus into Galenic and Hippocratic textbooks, mirrored the process by which Palma incorporated Paracelsian pharmacology into a medical practice, informed by and adhering to the Galenic humoral system.

These references, to clarify, were exclusively pharmacological. Palma rejected Paracelsus' mystical tendencies out of hand. But then he also rejected Galenic mystical tendencies. He was not much interested in astrology or cosmological nosology, and his library reflected this. In so far as he did engage in this research, Palma's interests in Paracelsus were evidently known to his medical colleagues. Heinrich Wolf gifted him with a copy of Bernhard Marck's *Von der hermetischen Philosophia*,<sup>70</sup> The inscription reads: 'Amplissimo et doctissimo viro D. Doctori Georgio Palm donabat Henricus Wolfius.' More surprisingly, Camerarius gifted him with his only English copy of Paracelsus, published in London in 1582: '*Centum quindemic curationes experimentaque*.'<sup>71</sup>

Palma's brand of Paracelsianism might have been common knowledge among other physicians but it was carried out in private; and driven by the functionality of the remedies and his own interest in pharmaceutical innovation, rather than by any sympathy with broader currents of 'Paracelsian' thought. Although his purchasing reflects awareness of the multifaceted strains of Paracelsianism, Palma rejected any idea of a systematic philosophy based on Paracelsus' writings. Instead, he used the novel thinker for his innovative pharmaceutical processes, and for the many remedies provided in the texts.

To read Paracelsus was definitely not to become a Paracelsian. In fact, as Palma's cross-referencing demonstrates, reading Paracelsus could aid Galenic inquiry. Cross-referencing could be complementary, critical, collaborative or corrective. Palma corrected Paracelsus with Erastus, enhanced Bruel with Paracelsus and wrote notes from Crato on everything. An emphasis on collaboration and community was not new to the sixteenth century; it was a feature of general medical literature in the late medieval period, both scholastic and humanist. Authors such as Tommaso Del Garbo, (*On the Generation of the Embryo*) and *Medical Summa*<sup>72</sup> emphasized intellectual community and exchange. But the kind of collaboration and community possible was so different as to render the idea entirely anew. The greatest incorporation of Paracelsus by Palma, was the literal insertion of Paracelsus' cures into other books by authors who were either not Paracelsians, or, in some cases, were themselves hostile to Paracelsus. Palma included Paracelsian cures in his private lists of remedies. He cross-referenced Paracelsus with numerous other texts, both in his own writings and in the marginalia. In so doing, he literally put Paracelsus into a new kind of relationship with his contemporaries, a relationship in which Paracelsian and non-Paracelsian texts complemented one another, rather than clashed. Not only was Paracelsus not excluded from the early modern medical canon, but through a careful process of editing, he was rendered compatible with Galenic medicine. This is significant

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<sup>70</sup> See inscription on Bernhard Graf von der Marck, *Von der hermetischen Philosophia*...., Strasbourg: Mueller, 1574. Med. 170.8° ein Buch ... ex Libris Doctoris Henrici Voulfij.

<sup>71</sup> Philippi Aureli Theophrasti Paracelsi *Centum quindecim curationes experimentaque, e Germinico idiomate in Latinum versa. Accesserunt quaedam praeclara atque utilissima a B.G a Portu Aquitano annexa. Item abdita quaedam Isaaci Hollandi de opere vegetabili et animali adiercimis, Adiuncta est denuo Practica operis magni Philippi a Rovillasco Pedemontano*, London, 1582.

<sup>72</sup> see Katherine Park, *Doctors and Medicine*, 202-209.

both for our understanding of the flexibility and viability of the Galenic system and for the place of Paracelsus in contemporary theory.

For Palma, and for other established physicians besides, reading was an exercise that allowed Paracelsianism to function in ways compatible to their Galenic education. Palma's collection, his book buying and his reading paint a picture which supports Charles Webster's broad claim, that by 1585, the key tenets of Paracelsian medicine 'were widely disseminated.'<sup>73</sup> The diffusion of Paracelsian remedies did little to bolster the popularity of Paracelsian medicine per se. Conversely, as the aims of the medical reformation very clearly illustrate, hostility to certain medical practitioners did not necessarily translate into hostility to their craft. We should look at the appropriation of all aspects of medicine by a new focus on professionally restricted qualified medical care. Paracelsian remedies and methods for the preparation of medicine thus managed to penetrate learned Galenic repertoire. But the preparation of such Paracelsian remedies, not to mention their prescription, remained firmly restricted to qualified physicians.

Palma did not assess his books like a humanist, there is no evidence that he read with any view to aligning his knowledge with Galen's, to purifying it, or even to revealing a consistent and hidden truth. Instead, Palma read with a view to effectiveness. Information was credible, depending on how it worked, and how it worked was measured in a practical, incremental sense against real attempts to cure. Palma's reading investments, therefore, were in the empirical knowledge contained in his books, rather than subjective theory. He was both quantitatively and qualitatively less interested in the philosophical framework of medicine. In contrast, he spent a great deal of time engaging with what was purportedly objective or positive knowledge; that is to say with cures and remedies, lists of ingredients and, less often, instructions for their preparation. Not only then was Palma more interested in medical information, as opposed to the theoretical framework in which such information was couched, but the kind of information he collected was primarily concerned with medical *treatment*, rather than, say, diagnosis or ontological notions of disease, or parts of the body. The books Palma collected, the records he kept and the way in which he excerpted and edited his own texts clearly illustrate the trajectory of his interests towards the pharmaceutical.

Records of Palma's general reading confirms this. Although Palma left no publications, he kept substantial writings for private use. Several of these notebooks survive, some with his own collection in the Nuremberg Municipal Library, another two in the University Library at Erlangen<sup>74</sup> and one more in the German National Museum. Palma's record keeping was a habit acquired early. The oldest of his manuscripts, dated 1565, is an imposing folio of notes taken during his university studies. It includes notes on Casper Peucer's lectures, presumably in Wittenberg. From Tübingen it includes records of Jacob Schegk's lectures on Galen's '*Ars parva*' and '*De morborum differentiis*,' lectures on Rhases by Venerandus Gabler. In reference to chapter two, and Coiter's tables, there is an interesting inclusion of tables about fever in this notebook, two copies of tables contained in books by Da Montes and Fernal. These are supplemented by a systematic overview of the symptoms of fever, written in Italian, and presumably taken after a series of lectures by Capivaccios. Besides being an interesting testament to what was learned in

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<sup>73</sup> Charles Webster, 'Alchemical and Paracelsian Medicine', 330

<sup>74</sup> UB Erlangen, MS. 1141; 1142.

university, Palma's meticulous notes demonstrate the role of record keeping in general education, and in medical learning more specifically. They were a personal habit that would endure throughout Palma's medical practice, but they were also fundamental to the way in which he learned. For Palma, repetition and reference were the key components to the digestion of information.

The remainder of his notebooks are small, thick octavos, (about the size of a modern moleskine), with a little over 150 pages in each. Unlike, say, Camerarius' 'Doctor's notebook'<sup>75</sup>, which was pre-parsed along classical Galenic lines, Palma's notebooks were obviously written in chronological or consecutive order, and were intended primarily for personal use. Packed to the margins with his dense handwriting, they open with the collections of aphorisms about medicine, of which all the sixteenth century doctors appear to have been fond. Palma's notations on these are fairly standard. They are more pious than Camerarius', and include several allusions, such as Psalms 30, 43 and 102, and a Greek excerpt from 2 Corinthians 12, that touch on specifically Christian virtues of medicine. Classical figures cited include Horatius, Seneca, Homer, Pliny, Aristotle, Tertullus, Cicero, while the medical canon is represented by Rhases, Celsus, Galen and the ubiquitous Hippocrates. Palma also quotes such contemporary figures as Adolphus Occo and Johannes Alaïor.

The notebooks from Palma's time as a municipal physician fall in two groups. They were either organized according to what he was reading at the time, or they were organized around specific medical problems. Thus there are notebooks that move systematically through a text, recording everything of interest therein, and there are notebooks that take, as the starting point, various diseases and then list different texts that treat of them. Thus: Cent VIII number 9 works through Arnald von Villanova, Winther von Andernach, Leonhardus Jacchinus, Paracelsus, Mercuriale. Cent VIII number 10 excerpts Rembert Dodoens, Helidaed de Padoanis, Jacques Houllier, Johannes Fienus and more Paracelsus. On the other hand, Cent VIII number 8 is thematic, with nominal 'chapters' on Husten, Kraetze, Katarrh and the Hungarian Sickness. Cent VIII number 11 deals exclusively with Melancholia Hypochondriaca. Palma's notebooks display a preoccupation with pestilence, particularly the so-called Hungarian Disease, which visited Nuremberg with increasing frequency and disastrous results in the latter half of the sixteenth century.

The notebooks left in Erlangen illustrate his responses to certain texts; they show very clearly that some texts were more influential than others, and some authors more respected. But beyond reading in an engaged and critical capacity, Palma also reflected systematically on what he had read. He collected recipes for a variety of practices, many of which were technically under the purview of other professions. These books progress as notes on recipes and remedies with titles of the diseases, a brief summary of the ingredients used and often the name of the source from which the cure has been taken. They are not detailed, and include neither weights nor measurements. Again, the format of these notes makes clear that they were intended only for private use. They are sometimes accompanied by marginalia, never by drawings or illustrations. For the most part, such notes are in Latin, and often employ a fairly inscrutable system of abbreviations. On the other hand, works, where cited, are done so clearly and in detail. Palma makes note of the

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<sup>75</sup> UB Erlangen, MS. 935. See Chapter 2 for discussion of this.

author, the title, and where necessary he indicates which volume or book, chapter and page number.

In addition to making notes on texts, Palma also started from the subject itself, filling several worn volumes with notes on maladies and cures. Beginning with the disease, rather than the text, provided quite a different focus for his thoughts. It allowed him, and his modern readers, to reflect upon the texts he thought most valuable, and the theories most frequently held to be true, or most in need of correction. Certain ailments and maladies featured prominently among the collection. Epilepsy, hemorrhoids, menses, asthma, urinary infections and melancholy all received multiple variations. In the second of his two notebooks, epilepsy appears nineteen times, with dysentery close behind, counted twelve times, and hemorrhoids making eleven entries.<sup>76</sup> Also repeated several times were urinary infections, menses, asthma, melancholy, paralysis and fever.

If active reading employs techniques, as Jardine and Grafton have argued, it also reveals them. Palma used his library as an experimental field, no less than Coiter used the body, or Camerarius the uprooted plant. Medical practice was as much a matter of testing, transcribing and recording, as it was of discovery of plants or physical processes. Record keeping was an essential feature of municipal medicine. Reading and collection were themselves techniques of medical practice; they demonstrate the implicit sociability as a medical technique. This was reflected in the acquisition of books, which, whether as purchases or gifts, linked physical presence with intellectual community. Their circulation was manifestly material, limited and circumscribed by geography and marketplace. While they made information more widely available than the laborious art of copying manuscripts would ever have permitted, they were not without borders and boundaries. Palma bought his books where he studied, broadening his sphere of influence away from select teachers, but remaining under the influence of the marketplace those teachers and their academic communities had created. The impact that inheritance or commercial acquisition of whole collections had on the shape of the libraries they joined was thus significant. This was true for the acquisition of books, and it was true for how those books were used. Use of the books, as well as the origins of a collection testify to the material connection between the library and its environment. Palma's reading was always balanced against what he *knew*, and what he knew was local.

### Local Knowledge

We have seen how Palma's reading transformed the material of his texts, but beyond his careful harvesting of medical texts, beyond the alchemy his marginalia wrought on medical discourse, Palma's notebooks also included otherwise unwritten information and context. Palma's reading, a form of knowledge *taking*, then, was lateral, collateral and horizontal. As a form of knowledge *making*, however, his library demonstrated different techniques.

Palma's notes reveal a series of exchanges that occurred in a social framework, embedded in a local geography. As well as records of his reading, his notebooks were

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<sup>76</sup>UB Erlangen, MS. 1142. Epilepsy: 13v, 14v, 16, 17v, 25v, 27, 30, 35v, 37, 37b, 38b, 43, 48, 48v, 51, 62, 86; Dysentery: 8v, 11, 18, 24v, 27v, 28, 28v, 29, 30, 31v, 33, 36; Hemorrhoids: 9v, 24v, 35, 39v, 40v, 41, 45, 88, 107v, 109, 116.

packed with remedies, notations and case-studies that he gathered from conversations, anecdotes and practice. What Palma saw fit to include was by definition important; much like his reading, his writing and note-taking was strategic and to the point. His remedies included oral recommendations and recipes provided by friends and colleagues. They included unacknowledged or unattributed remedies. On rare occasions he mentioned or alluded to patients, or case-studies. If we disentangle the techniques in his collection of information, we can see that this medical knowledge, while on the one hand greater, broader and more diffuse than the university canon, was, on the other hand, deeply rooted in the local. By writing down anecdotal evidence, practical alterations and overheard or conversational remedies, Palma's notebooks physically integrated his practical concerns, his trial and error experiments and his personal canon of medical lore into his library. The library was personal and corporate; it was the bridge between practice in both worlds. It was itself a narrative, in which local and locale contextualized its learned, abstract exterior.

As a stepping stone from the departure point of the university, books and their configuration in a library allowed Palma to pursue new avenues of inquiry, such as pharmacy, and to put into dialogue diverse, even opposed writers, such as Paracelsus, Theodore Zwinger and Walther Bruel. But even in the aspirational stages of his medical career, when he was still a university student, Palma concentrated on accumulating informal recipes, and tried and tested treatments from other associates. Among the collected notes on lectures and regurgitated information in the first notebook, a design for a common bathing cure sprawled across fifteen folio sides.<sup>77</sup> There were other recipes and remedies included in his student notebooks. Palma's next manuscript, also begun in Tuebingen, exclusively collected recipes, among them a treatment by Fuchs (dated 1564) and two recipes from Heinrich Wolff and Hieronymus Herold. The second half of this book gathered remedies from Italy. The presence of Galen and Hippocrates was tied to professional identity, but not necessarily to the actual practical progression of medicine, even among the orthodox circle of Galenic practitioners. Despite the prominence of classical figures in the titles of the books he collected, and in the aphorisms introducing Palma's notebooks, they figure scarcely at all in the actual notes. Palma's work would suggest that in the interior practice of the medical mind, his private experiments etc, the classical figures are more or less left behind. It was a contemporary circle of practitioners that Palma's writings manifested, a circle operating in response to one another.

Far from declining when he left university, the quantity of notes taken by Palma grew when he returned to Nuremberg. Palma's contemporary colleagues feature prominently among his notes. Volcher Coiter appears on page 3: *Haec ex lib. D. Volcheri Coiter*. Justus Muellner contributed a recipe for 'Hydrogen'.<sup>78</sup> The apothecary Leonard Stoeberlein, Palma's stepbrother, appears in both notebooks. Palma mentions him in connection to a treatment for catarrhs<sup>79</sup>, and again in his other notebook, this time 'ad coiter'.<sup>80</sup> Camerarius' presence increases towards the end of the first notebook. On page 66, as part of a discursive entry on pestilential fever, in which Palma also cited

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<sup>77</sup> StB N, Cent V.42, 115v - 130r

<sup>78</sup> UB Erlangen, Ms. 1141, fol. 100/102v.

<sup>79</sup> UB Erlangen, MS. 1141, fol. 23r/20r: *Tragna ad exiccandos catarrhos P. Leonhards Stoeberlein*.

<sup>80</sup> UB Erlangen. MS. 1142, fol. 25v: *Ad Coitem*.

Hippocrates, he pulled a note on fever 'from the book of D. Joachim Camerari',<sup>81</sup> although Camerarius never published a book with information on fever. Camerarius either reported what he planned to write, or let Palma see an unpublished copy, or a manuscript he owned. Later, Palma jotted down a brief note on 'Ad Coitem'<sup>82</sup>, with no mention of a referenced text.<sup>83</sup> Subsequent entries addressed explicitly the informality of the channel of communication. Against vomiting, Camerarius recommended a cure specifically to Palma.<sup>84</sup> Palma notes later still a brief entry on hemorrhoids, after conversation with Camerarius.<sup>85</sup>

In Nuremberg Palma often made direct allusion to knowledge he gathered in social conversation, but even when he didn't, the source of his information was often local. Undoubtedly the most prominently featured of all was Johannes Crato von Kraffheim, who appeared frequently throughout all of Palma's notes. Palma even made note of his death, in 1585, with a brief eulogy.<sup>86</sup> Crato, of course, had taught at Wittenberg, where Palma studied for four years. He was also a close correspondent of Joachim Camerarius, another link perhaps in consolidating a friendship between Camerarius and his younger colleague Palma. Crato, although famous across Germany, was not a prolific publisher. We can assume that his interjections into Palma's medical practice were the result either of the old lectures that Palma may or may not have attended, direct correspondence or indirect correspondence, reported correspondence, or direct verbal communication in other instances that escaped record. In any scenario, the information gathered was at least informal and 'local', in several it was also oral.

On the one hand, what we are attempting to describe here is knowledge of a certain type. The unit of information in which Palma was invested, was, fundamentally, the recipe, the ingredients, process and effectiveness of pharmaceutical knowledge. On the other hand, we are also dealing with knowledge within a circumscribed sphere, that is to say, knowledge within a geography, and this involves fundamentally and foundationally the communication of that knowledge, i.e. the cultural system around the knowledge.<sup>87</sup> If we focus on the content, both in reading *and* note taking, as we have already seen, Palma was invested in the remedy, the application of parochial fact devoid of broad principle, which has been an object of some study since the mid-1980s.<sup>88</sup>

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<sup>81</sup> UB Erlangen, MS. 1141, fol. 66 (68).

<sup>82</sup> UB Erlangen, Ms. 1141, fol. 99 (101), *Ad coitem D Camerari ordinavit*.

<sup>83</sup> UB Erlangen, Ms. 1141, fol. 29(32). *Usu atq experientia probatu Remedia tuta atq paratu facilia descriptu ex libello die D. Camerrarj, Alen se Fabr. 75.*

<sup>84</sup> UB Erlangen, MS. 1141, fol. 98 (100)b, *Contra vomitum commendus mihi D. Joachim Camerari*.

<sup>85</sup> UB Erlangen, MS. 1141, fol. 100 (102) b. *Pro hemorrhoidib sipandis t stautiss asserit D.D. Joachim Camerari sagus. Ro insalum gallinaeru in quo aliquotus extingnas aurum cantaus, postra in eodem d. coq rad Tormantillo Petro salim ex Rosa ex sarps ex libratur.*

<sup>86</sup> UB Erlangen, MS. 1142, fol. 59v. *In memoriae vita D. Cratoni*.

<sup>87</sup> Geertz term: see Clifford Geertz, *Local Knowledge: Further Essays in Interpretive Anthropology*, 3rd Edition. (New York: Basic Books, 2000); Alix Cooper, *Inventing the Indigenous, Local Knowledge and Natural History in Early Modern Europe*, (Cambridge: Cambridge University Press, 2007); Allan Bicker, Paul Stilltoe, and Johan Pottier (eds.), *Investigating Local Knowledge: New Directions, New Approaches*. (Aldershot: Ashgate, 2004).

<sup>88</sup> Two of William Eamon's articles appeared in 1985: 'Science and Popular Culture in Sixteenth Century Italy: The 'Professors of Secrets' and their Books', *SCJ*, Vol. 16, No. 4 (Winter, 1985), 471 - 485 & 'Books of Secrets in Medieval and Early Modern Science', *Sudhoff's Archiv*, Bd. 69, Haeft 1, (1985), 26 - 49.

As a kind of technical writing, this closely replicates the content of 'secret' knowledge,<sup>89</sup> in the words of Pamela Smith 'an articulation of the experiential knowledge of craftspeople and practitioners that was 'hidden' in the things of nature or in the material objects they made, or hidden from the understanding of those not experienced in the craft.'<sup>90</sup> The kind of knowledge that interested Palma was the opposite of secret, both in the sense that it stripped away esoteric knowledge or hidden secrets of the arcane, and that it was knowledge arising from and complimenting *shared, communicated* information. At the same time it shared an experimental character with arcane secret knowledge, and a list of ingredients with domestic or feminine secret knowledge, there was nothing subversive or hidden about it, nor, setting Palma apart from compilers of published texts, was there anything proprietary about his lists.<sup>91</sup> What was specific about Palma's notes then was not the form of the remedy or recipe itself. Recipes, as Jack Goody noted, are one of the most enduring, most constant of literary forms, and whether in physicians' private notes, as expressions of the arcane, as elements of domestic expertise and continuity, and even as technical formulae, the shape and form of a recipe was familiar.<sup>92</sup> Palma's notes are stripped bare even of the kind of details that characterize recipes. His shorthand system of note taking actually describes not just points of medical knowledge, i.e. what certain knowledge *is*, but also how it is *understood*, how it was processed, replicated and implemented. Palma's elision of method presupposes a vast field of acquired technical knowledge on the part of his own reading. His notes describe a system of knowledge that was derived from forms of sociability; the authority that lay behind his recipes attested to the communal dependability and fact-checking of shared recipes, and his slow, careful notes, on recipes already written down,

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<sup>89</sup>William Eamon, *Science and the Secrets of Nature: Books of Secrets in Medieval and Early Modern Culture* (Princeton, NJ: Princeton University Press, 1994); For a critique of this description, Silvia De Renzi, 'Secrecy, Power and Knowledge in Early Modern Italy', *Studies in the History and Philosophy of Science*, 27/3 (1996), 397 - 407. And for a more recent restatement: William Eamon, 'How to Read a Book of Secrets', in Leong & Rankin (eds). Elaine Leong & Alisha Rankin (eds.) *Secrets and Knowledge in Medicine and Science, 1500 - 1800*, (London: Ashgate, 2011), 23-46. See also: Pamela O. Long, *Openness, Secrecy, Authorship: Technical Arts and the Culture of Knowledge from Antiquity to the Renaissance*, (Baltimore MD: Johns Hopkins University Press, 2001).

<sup>90</sup> Pamela Smith, 'What is a Secret? Secrets and Craft Knowledge in Early Modern Europe' in Leong & Rankin (eds), *Secrets and Knowledge*, 50

<sup>91</sup> Although literature on 'secret' knowledge has always, to some degree, relied on the communication of the secret, in more recent years it has turned from a revelation of the hidden to a sharing of the domestic. See: Jennifer Stine 'Opening Closets: The Discovery of Household Medicine in Early Modern England' (Ph D Diss; Stanford, 1996); Lynette Hunter 'Women and Domestic Medicine: Lady Experimenters, 1570 - 1620 in Lynette Hunter and Sarah Hutton (eds.), *Women, Science and Medicine 1500-1700: Mothers and Sisters of the Royal Society*, (Stroud: Sutton, 1997); Elaine Leong and Sara Pennel, 'Recipe Collections and the Currency of Medical Knowledge in the Early Modern 'Medical Marketplace' in Mark. S. Jenner and Patrick Wallis (eds), *Medicine and the Market in England and its Colonies. c. 1450 - c. 1850* (Basingstoke: Pagan Macmillan, 2007), 133- 152; Elaine Leong, 'Making Medicines in the Early Modern Household' *Bulletin of the History of Medicine*, 82/1, (2008), 145 - 168; Alisha Rankin, 'Duchess, Heal Thyself: Elisabeth of Rochlitz and the Patient's Perspective in Early Modern Germany,' *Bulletin of the History of Medicine*, 82/1 (2008), 109 - 144; Jo Wheeler, *Renaissance Secrets, Recipes and Formulas* (London: V& A Publishing, 2009); Katherine Park, *Secrets of Women: Gender, Generation and the Origins of Human Dissection*, (New York: Zone Books, 2006).

<sup>92</sup> Jack Goody, 'The Recipe, the Prescription and the Experiment', in *The Domestication of the Savage Mind*, (Cambridge: Cambridge University Press, 1977), 129-145.

demonstrate a long process of incremental treatment that harmonizes with Coiter's and Camerarius' medical practices.<sup>93</sup>

Palma's recipes and remedies depended upon communication, a communication which displayed continuity with manuscript sources and with oral knowledge. Understanding the difference between oral and written knowledge occurred prior to the early modern period. But there is a vital distinction between written culture and print culture. Written culture is distinctly local and temporal in a way that print culture is not. Palma's library was compiled in a moment of great change; it is in one sense a composite of the transition between written and print culture. The point is not to compare oral and written cultures to each other, or to contrast written and print culture, but to look at their interaction, the way in which what is oral about culture bleeds into what is novel about written or print culture, not just as a mode of communication, but as ways of knowing and understanding. Where the knowledge came from was one important dimension to it. The act of writing it down and formalizing it is another. Note taking as an *activity*, for example, was a written replication of the process of oral learning, emphasizing repetition, repetition, repetition.

It is the very indirectness of its influence that makes local knowledge so important. Restricted from the broader currents of thought the historian is attempting to trace, local knowledge has usually been dismissed as irrelevant to the intellectuals who created or proposed normative patterns of thought, or engaged with general or abstract theoretical problems. Educated physicians engaging in 'approved' intellectual and medical activity did not do so in a vacuum. The influence local knowledge wrought on intellectuals otherwise engaged in learned discourse was undeniable, however uncertain, unquantified or unacknowledged that influence might have been. Such knowledge has been overlooked because it was not, in its own time, conceptualised in print by its possessors. While theory and praxis were epistemes, this kind of knowledge fit neatly into neither category and was, moreover, private. The art of medicine was more dynamic than Aristotelian epistemes might convey, folding into itself other kinds of knowledge, theology and law, as well as folklore and folk practice, in the endless task of converting theory into practice. Palma's book collection was, on the one hand, the most literate of literate activities, libraries are literate institutions. The presumption, indeed the outright argument, has always been that systematic study and abstract thought require writing. And this may be true. But the residual channels of oral communication, which influenced the kind of writing and the information stored, were important precursors to many of the aspects of thought and science characteristic of the modern era. The very personal act of collecting formed a bridge between the individual's categorically particular experience and the profession's official body of abstract and general theory.

Palma saw his library as providing a kind of identity for the physicians of Nuremberg, built not just out of information and knowledge, but out of local standing, organization and politics. Whether it was an aid to memory, or a memorized list, as a statement of professional medicine, the value of the knowledge Palma possessed was private and public. The relationship of the medical reformation to the library and the library to the reformation was therefore foundational. The kind of local knowledge his library revealed is akin to the approach taken by historians of religion, following William

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<sup>93</sup> See Chapter 3.



A. Christian.<sup>94</sup> Christian, whose anthropological focus on community religion revealed a patchwork tableau of local deviations from the centralized Catholic church, has much to offer the historian of medicine. Like local religion, local medicine was fundamentally constituted by circumstance, not just by *social* context, that is by the urban politics of government and economy, but by the material and natural environment, by the local flora, by 'folk wisdom' and oral history, by the diseases that ran in families or took root in small contagions. It was Palma who assembled the narrative of reform, and Palma's library channeled this local history into his conception of medicine, consciously and unconsciously.

Palma created a narrative from the collection, in which the organization of medical activity, the manner of its organization and the sphere of its concerns played a constitutional role. For evidence of this we turn to Cent V, a folio sized volume from Palma's manuscript collection. Its place in the collection is a matter of interpretation. On the one hand, it is an aberration. It bears no relation to Palma's other notebooks. It shows no evidence of reading. It makes no references to books, to diseases or to patients. On the other hand, there is every appearance that it was put together systematically and with care. Unlike his other notebooks, it was at least partially planned. There are blank pages between documents, suggesting that Palma intended to include other writing. The handwriting changes over time, suggesting that Palma kept it over the span of his career. The documents span a number of years. It was included with his bequest to the council, where other of his 'note taking' books were not. The manuscript is a collection of records about the practice of municipal medicine. It includes background information: the oaths sworn by doctors, apothecaries and master-surgeons and general surgeons, *'Der Geschwornen Leibarzt zu Nuernberg'; Der Apotecker Ayd und Ordnung; Wundarzt Ordnung, Der Geschworne Mayster Ayd; Aller Wundarztte Ayd* as well as modifications to the apothecaries' oath, and regulations passed to prohibit barbers and bathers from proscribing medications to pox victims: *Besserung zu der Apotheke Ordnung; Eines E. Raths Warnung den Barbirren und Bader Beschehen in anhang ainn Straff*. It also includes the opinions submitted by the doctors for the redrawing of provisions governing the traditional bequest made to lepers, of which Coiter's was eventually implemented. All of this is by way of introduction to the main body of the manuscript; there were more than a hundred folio pages dedicated to the back-and-forth between Camerarius, the apothecaries and the city council. Palma faithfully transcribed Camerarius' original submission to the city council, *Kurzes und Ordentliches Bedencken*, which also survives in city archive<sup>95</sup> and added the additional rounds of documentation from the apothecaries. Chapters Six and Seven examine the content of these submissions, and look at evidence for the medical reformation as a negotiated process. Palma acted as chronicler of the medical reformation, and his library was its context. He physically integrated concerns about the organization of medicine into his private investigations on medical practice and pharmacy. His contribution to the reformation as it progressed was in dialogue with this relationship.

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<sup>94</sup> William A Christian, *Local Religion in Sixteenth Century Spain*, (New Jersey: Princeton University Press, 1989)

<sup>95</sup> StadtA N, B/19

## Conclusion

When historians evaluate the contribution of figures like Palma to general medical discourse, the end result often seems negligible. After all Palma, unlike Camerarius or Coiter, left behind no significant medical text. While the historiography of medicine has moved far from any 'whiggish' insistence on the progression towards 'correct' medicine, it is nevertheless caught in the vise of a scientific appreciation for novelty and original thought. The doctors in Nuremberg did contribute to medical discourse much that was original, but no less interesting is their silent, personal appreciation of what they perceived to be correct, and what was accepted by them as common, or proven. In understanding early modern medical practice, the unoriginal is as important as the original, the innovative or the unorthodox. Palmas' library was also a collection of items without novelty. If the aim of Aldrovandi, Kirchner and the men between them was to collect *rarities*, Palma's target was as much the commonplace as the exotic. In fact, making clear what was the commonplace, the norm or the pattern was the aim of medical thought, which relied on aligning the unusual symptoms into a totalizing picture of what *ought* to be present. Not only is this true by virtue of sheer quantity, as in the amount of unoriginal material, copies, transcripts, notes on lectures, notes on patients, notes on recipes handed down from other doctors or family members, marginalia on books, or other kinds of records, was far, far greater than the amount of original material in any doctor's daily life; but the role of the common-place, especially in medicine, was greater too. The nature of medicine demanded that the normal be the benchmark. In Palma's notebooks the commonplace was elevated and made accessible to the historian, where normally it can only be interpreted through the cracks of published prescriptive texts. Palma's note taking thus makes available a different kind of medical discourse, and illustrates a role for the medical subject based not on any novel contribution to an ongoing dialogue, but on participation in and with a medical subject. Neither is it as simple as reception. There was nothing passive in Palma's reading. Nothing he reads appears unaltered by the process.

As a statement of professional authority, Palma's library was a weird subversion of what have been presented as the normal dictates of Renaissance self-fashioning.<sup>96</sup> While the act of collecting books was its own cultural statement, Palma's medical marginalia stripped away the traditional medical declamations of power. Rather than focusing on the philosophical, the arcane or the academic, Palma focused on the practical and the empirical. Rather than organizing his thoughts into hierarchical observations, he allowed them to spill out, laterally, across myriad diverse subjects and tropes. We could perhaps view the library in terms of the fashioning of a profession. The municipal physician was a professional position and the professional doctor was the result of experience, appointment and education, but the professional doctor's identity was expressed through cultural practices such as letter writing, collecting, and cultural products such as written works, letters and collections. Private intellectual interests could be at odds with the business of public professional fashioning, to the extent that the cultural practices which supposedly bound them, instead contain evidence of their

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<sup>96</sup> Stephen Greenblatt, *Renaissance Self-Fashioning from More to Shakespeare*, (Chicago: University of Chicago Press, 1980).

disunity. However, Palma's library described an identity which, in its substance and form, depended on the lived experience of the professional career.

On a book-by-book basis, Palma's library testifies to the way in which physicians used medical texts. Education in the universities and from the library were both reflected in a practice that nonetheless strayed from classic Galenic forms of taught medicine. If notations were an 'aid to memory' as William Sherman has argued,<sup>97</sup> then the quantity of markings and the necessity for memory tell us that medicine was a subject at once deeply referential and wildly capacious. The borders defining different medical subjects fray in the face of medical practice; marginalia, cross-referencing, and note book keeping indicate that Palma privileged practical use over the integrity of the system supporting it. There was a *need* for eclecticism. This was part of the medical conundrum facing municipal physicians: On the one hand, the dreadful shortcomings of medicine, the failures, the inability to meet the need; on the other, the novel confidence of print, the circulation of new and novel remedies, the resurrection of Galen, the authorial presence of many voices in agreement. Profligacy in print was not in itself a solution. In fact profligacy in print, like the exponential rise in the number of plants, could be an exacerbating cause; it could be part of the problem. No one thought the answer lay in number. The goal was the efficacious application of reading. Synthesis was prioritized only in the collection of texts, not in anything substantive. While remedies were discarded, and texts were neglected, there was no need to pit one cure against another in theory. The search was ever outwards, endlessly horizontal.

The habits of collecting works, not simply publications but also the personal records and medical notes of other doctors, speaks to a tradition in which written records pass down in patterns more similar to our speculations about oral traditions than to how we more normally think about written authority. Palma's library and Camerarius' epistolary collection both illustrate a type of education that was not the product of a university, but was certainly deeply learned. They reflect the importance of social networks, and the sometimes awkward relationships between doctors and their environments, the local tradition into which they fit, or against which they chafed, and the lateral networks which spread extra-territorially. The examination of correspondence and collections as activities, suggests a way of looking at medicine outside the 'learned'/'unlearned' dichotomy, in which 'learned' is typically equated with universities, and formal written patterns of knowledge making.

Though medicine came to focus on the specialized, the particular, the experiential and the observed, these standardized qualities of medical knowledge, local, anecdotal, oral histories continued to supplement it. Although closest to them in form, written notes were not replaced by collections of printed consilia. Consilia literature was the practice of medicine elided, omitting the possibility of second opinions or trial and error treatment that was so much a part of every day physical care. Its purpose was not to exalt, philosophize or deduce. Instead it made visible the paradox at the heart of practical medical knowledge: the recognition on the one hand that medical knowledge was both unsystematic and fundamentally incomplete, with the desire on the other to establish consensus and methods systematic enough to allow comparison between patients, diagnoses and treatments. And, of course, it remained a feature of libraries. Even in the

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<sup>97</sup> Sherman, *Used Book*, 4

18th century, substantial collections such as the library of Christoph Trew, a Nuremberg physician, reflect both a deeply local tradition and the open channels of communication provided by widespread correspondence between far-flung doctors. The survival of the interest in hand-written judgments when printed consilia were more easily available testifies also to the importance of the 'mundane' in medical practice. Historians have noted that the printed consilia only offered commentary on the rare or the exceptional (they didn't); but the endlessly repetitive recipe books prove that doctors preserved an interest in the tedious and the common too.

## Chapter Five: Correspondence and Consensus

### Introduction

When he died in 1598, Joachim Camerarius left behind more than 3000 letters sent by 190 physicians from Antwerp to Rome, and as far east as Constantinople.<sup>1</sup> As evidence of a social network, Camerarius' letters describe a densely populated circle of learned, practicing physicians, with strong interests in botany and, more specifically, in the pharmaceutical dimensions of herbal knowledge. Correspondence was a form of exchange. As well as letters, Camerarius received plants, books, drawings and remedies from his many correspondents. It was also a form of collaboration, in that the physicians who sent letters to Camerarius used his network to offer information, consult on cases, and to discuss and share identification of local and rare plants. In early modern medical discourse, correspondence became a scientific technique: a means of slowly testing evidence and, through corroborative reporting, achieving a consensus that legitimised it.

Focusing specifically on letters between Camerarius, the renowned botanist Carolus Clusius (1526-1606), and their Bohemian circle of acquaintances, this chapter looks at the communication of botanical information about plants. Comparing the incremental, communal process of identification in their letters, to the authors' published results, this chapter shows that observation was a dynamic practice. For botany, and I argue for medicine more generally, consensus became the professional prerequisite for both knowledge held and decisions made. This epistemological shift was one element of the growing professionalization of practical medicine. As such, it had two main ramifications for the social organization of medicine. First it laid the groundwork for the development of the 'second opinion' as a form of medical fact-checking. Second, and in turn, it meant that the *Collegium medicum* as a professional body, became a professional means of generating consensus.

Consensus relied on trust and on common ground. By creating and communicating it, letters performed an important role. At a practical level, Camerarius' network places him, and his Nuremberg colleagues, within a community of practicing physicians. Letters and correspondents alike relied on common interests, communicated both by a shared medical language, and a shared understanding of what medicine was, and what it needed. These doctors saw themselves as contributing to a common goal.

Camerarius' letters survive exactly as one of those components of local medical knowledge, which Nuremberg physicians continued to collect long after Georg Palma had died. On Camerarius' death, the letters passed to his nephew, Ludwig Camerarius (1573-1651). They remained in the family until 1750, when the wife of Johann Philipp Camerarius, the nephew of Ludwig Camerarius, sold a portion of the collection to a local

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<sup>1</sup> UB Erlangen, Trew Collection. These letters have been digitized by the Harald Fischer Verlag: [http://www.haraldfischerverlag.de/hfv/trew\\_briefe\\_engl.php](http://www.haraldfischerverlag.de/hfv/trew_briefe_engl.php) A printed catalogue to the collection was published in 1940, but some of the details (particularly the languages recorded) are incorrect. Eleonore Schmidt-Herrling, *Die Briefsammlung des Nürnberger Arztes Christoph Jacob Trew, 1695-1769, in der Universitätsbibliothek Erlangen*, (Katalog der Handschriften der Universitätsbibliothek Erlangen, Bd. 5), Erlangen, 1940.

Nuremberg doctor, Jakob Christoph Trew (1641-1717). Trew was the possessor of a cabinet of curiosities of some renown, and his library encompassed more than 33,000 titles and 19,000 letters. Camerarius was of interest to Trew chiefly as the author of significant botanical publications, and before incorporating them into his collection, Trew read Camerarius' correspondence. He split the letters up, and took only those of medical interest with him.<sup>2</sup>

The repository of letters in the Trew Collection is, therefore, a particularly rich and deep source, not just for the history of sixteenth century medical and botanical practice, but for the way in which early modern physicians thought medical and botanical practices related to each other. Camerarius' letters have all the raw ingredients of sixteenth century medicine, and several of their permutations and combinations: the gradual elevation of pharmacy, long discussions of plants and careful scrutiny of names in Latin, Greek and vernaculars, comparisons of remedies, stories about patients and cases, favours, presents and gifts, praise and criticism of the latest publications, plans for publishing projects, news of current affairs, gossip about colleagues and carefully constructed friendships. Despite this, Camerarius' correspondence has received remarkably little attention from historians. No single work in either German or English has exploited this correspondence, no project or focused exploration of Camerarius' correspondence has taken place, in contrast to the far more limited correspondences of Carolus Clusius and other botanical writers.<sup>3</sup> One reason for this is that only letters *to* Camerarius survived his death.

The greatest tragedy of Camerarius' collection is its lack of his own letters. He did not make copies of them, and for the most part they have been lost to history. This is a blow not only for our understanding of his biography, but also to the potential study of the correspondence as conversation or network. Despite this, it is in the guise of correspondent that Camerarius, known to us as the ringleader of the professional movement for medical reform in Nuremberg, as the author and editor of renowned botanical works and as the son of his more famous father, stands in sharpest relief. In his private correspondence, in the turns and twists his correspondents make to satisfy or to reply to him, Camerarius' botanical and pharmaceutical interests are laid bare of artifice. They appear not just as a programme of research that guided medical ambitions in Nuremberg, but as a programme to which physicians across the Holy Roman Empire also ascribed.

Although Camerarius was an extremely prolific correspondent, he was representative of his contemporaries. A detailed correspondence between Heinrich Wolff, and his brother Hieronymus Wolff survives in manuscript form in Augsburg, and we

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<sup>2</sup> Another eight hundred or so letters in Camerarius' collection remained after Trew's purchase, and in 1769 Maria Regina Sabina von Ehrenstein, daughter of Johann Philipp Camerarius, sold them to the ducal library in Mannheim, from where they subsequently travelled with the Wittelsbachs to Munich, and can now be found in the Staatsbibliothek. See Konrad Wickert, *Das Camerarius-Florilegium*, 14-16; 21. For the catalogue of the Munich collection see Carolus Halm & Gulielmus Meyer, *Catalogus Codicum Lativorum Bibliothecae Regiae Monascens: Collectio Camerariana*, (codd lat. 10351-10428), Munich, 1874, 189-386. It should be noted that this is not a very reliable index.

<sup>3</sup> Clusius project in Leiden. Florike Egmond (ed) *Carolus Clusius. Towards a cultural history of a Renaissance Naturalist*. Antwerp, 2007. For other correspondences see Die Konsiliarkorrespondenz Lorenz Heistes 1653-1758; *Die Amerbachkorrespondenz, 11. Die Briefe aus den Jahren 1514-1524* (Basle: Universitätsbibliothek, 1943).

know that Wolff corresponded with Johann Vischer, the nephew of his former teacher Leonhard Fuchs. Vischer and Wolff met in 1547, while spending a summer studying in Paris, and they remained friends and correspondents for the next several decades, sharing similar interests and professions and, also, the personal concerns of close acquaintances.<sup>4</sup> Coiter was a correspondent not only of Camerarius but of Thomas Erastus (1525-1583). Georg Marius, who was briefly a municipal physician in Nuremberg, wrote to patients like the Bishop of Bamberg. Many Nuremberg physicians conducted elements of their professional life through correspondence; and letters had played a constituent role in the intellectual activities of learned doctors from antiquity on.<sup>5</sup> But in the sixteenth century two developments moulded the emergence of epistolary 'networks', or, as some would come to call it, a *respublica medicorum*<sup>6</sup>. First there was the debt medical writers owed humanist proponents of the epistolary form as a genre of literature, and, second, there was the elevation of a kind of particular information, knowledge of particulars, within medical knowledge.

Resuscitation of the ancient 'letter' was, of course, a humanist endeavour, sponsored by Erasmus among others<sup>7</sup>, and the humanist pastime of letter writing was an important tool for the development of a medical community across Germany.<sup>8</sup> This was true in the creation of networks, the facilitation of personal relationships and the provision of channels of communication. The rise of botany and anatomy was linked to a concept of observation, individual experience and particular knowledge we have already seen in the libraries and publications sponsored by the Nuremberg physicians.

The elevation of the particular was related to the humanist epistolary genre, by the development of publications of *consilia*.<sup>9</sup> From the middle of the sixteenth century

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<sup>4</sup> Wolfgang Brechthold, 'Dr Heinrich Wolff (1520-1581), Diss Med, Wuerzburg, 1959, 18.

<sup>5</sup> Siraisi devotes a chapter to this in *Late Medieval and Early Renaissance Medicine*. For individual examples leading to this general conclusion, see also Laurence Brockliss *La République des Lettres et les médecins en France à la veille de la Révolution: le cas d'Esprit Calvetin, Gesnerus*, Vol 613/4 (2004), 254-281. Stable URL: [http://www.gesnerus.ch/fileadmin/media/pdf/2004\\_3-4/254-281\\_Brockliss.pdf](http://www.gesnerus.ch/fileadmin/media/pdf/2004_3-4/254-281_Brockliss.pdf)

<sup>6</sup> If our doctors participated in a Republic of Letters it was emphatically still a *Respublica literaria*, rather than a *Republique de Lettres*. See Ian Maclean, 'The Medical Republic of Letters Before the Thirty Years War', *Intellectual History Review*, 11 (2008), 15-30; See also the seminal characterization by Dena Goodman, *The Republic of Letters: A Cultural History of the French Enlightenment*, (NY: Cornell University Press, 1994).

<sup>7</sup> Erasmus, who created a behemoth epistolary network, and published a guide to composition, *De conscribendis epistolis*, was described sweetly, if misguidedly, as 'monarch of the whole republic of letters' by his friend Veit Amerbach. For the Amerbach reference, see *Die Amerbachkorrespondenz, 11. Die Briefe aus den Jahren 1514-1524* (Basle: Universitätsbibliothek, 1943), 257, cited in Ian Maclean, 'The Medical Republic of Letters Before the Thirty Years War', *Intellectual History Review*, 11 (2008), 18.

<sup>8</sup> Paula Findlen, 'The formation of a scientific community: Natural history in Sixteenth century Italy,' in Grafton & Siraisi, (eds.) *Natural particulars*, 369 - 400. The letter, as a literary convention, a formula for bequests, pleas, patronage and subtler politicking, has a long and rich historiography. On the classic 'humanist' letter see C. M. Furey, *Erasmus, Contarini and the Religious Republic of Letters* (Cambridge: Cambridge University Press, 2005); Françoise Waquet, 'Qu'est ce que la République des Lettres? Essai de sémantique historique', *Bibliothèque de l'École des Chartes*, 147 (1989), 473-502; H. Bots and F. Waquet, *La République des Lettres* (Paris: Belin, 1997). On networks, see Dena Goodman, *The Republic of Letters*. On the conventions, values and systems within networks, see Anne Goldgar, *Impolite Learning: conduct and community in the Republic of Letters, 1680-1750*, (New Haven: Yale University Press, 1995).

<sup>9</sup> Letters were also published, and it is these published volumes of letters which have, to date, characterized our understanding of the epistolary 'genre', the emergence of early modern correspondence networks, and

physicians began to publish collections of their letters. These were often posthumous. The epistolary collection of Johannes Lange, for example, was published, first with the letters of Giovanni Manardi in 1557, and then in an individual edition in 1605. Ian Maclean credits Manardo as the 'founder of the genre of medical letter', and in a summary of the history of the medical republic of letters, traces a line through Manardo, Johannes Lange, V. Trincavelli, Gesner and Matthioli.<sup>10</sup> The transmission of these printed letters was encouraged by publishers, particularly Konrad Waldkirch who anticipated, fed and responded to a growth in the demand for printed consilia. As *consilia*, medical letters were edited into a specific form, and presented as observations on medical cases. The first benefit, then, of looking at Camerarius' network is that it adds to the published *consilia* an example of functioning, active letter exchanges.

Camerarius' correspondence puts the rising concern with the practical and particular into relation with an emerging form of communication. In his intellectual pursuits, and subsequently in his political reforms, Camerarius turned the point of convergence provided by letters into an epistemological tool. Like the practical pursuits of botany and anatomy, the exchange of letters was a means of arriving at certainty, albeit a certainty that was filtered through and changed by constant communication. Correspondence put in place foundational practices, which would come to define the way in which physicians related to each other, and the very business of what medicine actually was. If Palma made available in his writing the internalization of a vast intersection of local, reported and learned knowledge, Camerarius created a framework for the social legitimization of circulating knowledge.

Correspondence should be seen as an integral institution for the professionalization of medicine. Inasmuch as the profession had a public identity, so did correspondence engage with and profess public knowledge etc. But the core was private, and expressed interior agendas.<sup>11</sup> The relative informality of exchange between sixteenth century physicians reveals mental habits that strengthened over the course of the sixteenth century, giving rise to patterns of collective behaviour, eventually mandated and formalized into something both cultural and institutional. The private dimension of correspondence was critical to the service it provided; in it we see unfettered controversy as well as a desire to keep such controversy private, to declare a public collaboration. The collection of Joachim Camerarius was never published, but that is not its defining quality.<sup>12</sup> In scope, volume and geographical range, his correspondence was remarkable. As will be illustrated, it shares a variety of concerns with the printed literature, but its unedited, unfiltered quality, as well as its relative exhaustiveness, significantly broadens

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the purposes to which letter writing was put. See: Janet Gurkin Altman, 'The Letter Book as a Literary Institution 1539 - 1789: Toward a Cultural History of Correspondences in France,' *Yale French Studies*, No. 71, 1986: Stable URL: <http://www.jstor.org/stable/2930021>.

<sup>10</sup> Ian Maclean, 'The Medical Republic of Letters Before the Thirty Years War', 19.

<sup>11</sup> Judith Rice Henderson, 'Humanist Letter Writing: private conversation or public forum', in Toon Van Houdt et al.(eds), *Self-Presentation and Social Identification: the rhetoric and pragmatics of letter writing in early modern times*, (Leuven: Leuven University Press, 2002), 17–38

<sup>12</sup> Maclean, *Logic, Signs*, Ch 1.5.2 The division between printed correspondence and private correspondence has been perceived as so critical, that in *Logic, Signs and Nature*, Maclean, who referred to medical correspondence as indicative of the presence of medical networks, surmised that all medical letters fell into one of two categories, either they were intended to be published, or they were written for private consumption.



the scope. It throws up different parameters and defining features to medical correspondence, and highlights a variety of concerns that replicate and repeat in other medical activities: collaboration, consensus, individual authority, friendship, disagreement and the like.

### Correspondence as Network

Correspondence was a set of exchanges, and a form of communication with both formal and informal elements, and both private and public iterations. The oddness of its space in terms of discourse is matched by its geographical liminality; letters are and were, by definition, dynamic forms of communication. They have both territorial and social dimensions, a matter of formal space, terrain, political borders, language and a kind of social geography. The letters map relationships across people as well as across land. There is, also, an imagined geography to the correspondence, an illustration of the treatment of space and terrain in its botanical capacity, in its mention of far-flung places, and of local flora. More directly, the letters illustrate the social relationships at play, and the kind of flexible spaces that doctors, even doctors with fixed abodes and appointments, inhabited.

The letters occupy an in-between place in the *kind* of information shared too, in-between public and private knowledge, as we might think of it. Even in long, hard won correspondences, where frequency of letter exchange must have created, if not intimacy than at minimum great familiarity, very little personal information passed between correspondents. Clusius and Camerarius, who exchanged at least one letter a month for over twenty years, rarely mentioned their families. Although Clusius often sent greetings to Camerarius' brother, he mentioned neither of Camerarius's wives nor their deaths. Instead, their relationships were constituted by intellectual intimacy, by shared information and interests. This tallies with study of other medical networks, as described by Steinke and Stauber: 'Close relationships are less rooted in discussion of private joys and sufferings than in a dialogue on science, religion, society and politics, which in its way may lead to an intimate understanding and appreciation of the thoughts and feelings of a friend and correspondent.'<sup>13</sup>

Although the ubiquity of the medical subject in Camerarius' letters is a result of eighteenth century collecting activities, even if we add to Trew's library the letters left in Munich, an unusually high percentage of Camerarius' correspondents were physicians, or writers with medical backgrounds. Unlike Clusius, Camerarius had no female correspondents. As his library did for Palma, Camerarius' correspondence throws light on the influence and ability of physicians who either did not, or chose not, to publish as frequently or as voluminously as others. We might expect that letters cast light on the exchange of information among circles wider than those we could identify by position, or university; but in point of fact, there is a surprising uniformity of employment/profession between Camerarius' correspondents.

A significant percentage of the great volume of remaining letters formed *correspondences*, rather than letters per se. That is, a high number of Camerarius' letters

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<sup>13</sup> Steinke and Stauber, 'Medical Correspondence in Early Modern Europe. An Introduction', *Gesnerus*, 64 (2004), 146.

comprised back-and-forth exchanges with physicians who must be counted as acquaintances, rather than single, or few, letter writers. Long standing correspondents gain a familiarity, which informs their collaboration, but often relegates the topic of intellectual inquiry to second place. The biggest division that is immediately evident on surveying Camerarius' collection, is, therefore, between those letters that were one-off queries, written without the benefit or complication of long standing acquaintance, and the kind of correspondence that developed over time. Of the 2,800 letters in Erlangen, remarkably only thirty nine are 'one-offs'. This means that a sum total of ninety one individuals wrote 2,761 letters to Camerarius. Clearly, he was a man who cultivated correspondence as conversation and collaboration, a process including a degree of familiarity and intimacy. Single letters tend to be focused on a specific question, providing a focus that letters in a correspondence usually lacked. It is difficult, however, to infer much about the relationship between the author and the recipient on the basis of a single exchange.

Geographically, Camerarius' network coincided with the (flexible) borders of the Holy Roman Empire. For the most part his correspondents came from German-speaking lands, or territories associated with Germanic languages or rule. Accordingly, his network stretched as far north as Antwerp and as far south as Rome; and his correspondents included descriptions of travel and plants from Constantinople, Spain, the New World and India. However, when the physical geography of the letter writers is taken into account, there is an important Bohemian dimension to contend with. Historians tend to think of medicine on a transalpine axis but Camerarius' letters reveal an important Hungarian cluster employed in the imperial court. There were many, many letters from Bratislava, Prague and Vienna, including figures like Georg Purkircher and Johannes Sambucus, who were mentioned more in other letters than they figured themselves, though they did figure. This large group of physicians was connected to the Imperial Court and this connection was desirable and influential, e.g. Camerarius dedicated the *Kreutterbuch* to the Emperor. The densest period of his correspondence with Clusius was when the Flemish botanist resided at the Imperial Court.

The central medical figure at the Habsburg Court, and indeed the central figure in Camerarius' correspondence, was Johannes Crato von Krafftheim (1510-1585). By far the greatest number of letters came from Crato. His correspondence with Camerarius, which began in 1557 and lasted until Crato's death, produced a staggering 792 letters.<sup>14</sup> The friendship between Crato and Camerarius was lifelong and played a defining role in shaping Camerarius' thought. Their correspondence was great enough to touch on everything hinted at in other exchanges, particular opinions, general thoughts and feelings, friendship, careers, etc. Camerarius inherited Crato from his father. Joachim Camerarius the elder and Johannes Crato von Krafftheim were near contemporaries and members of the extended "Wittenberg Circle". This was a formative factor in Camerarius'

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<sup>14</sup> For Crato's biography see: Matthaues Dresser, *De curriculum vitae Ioannis Cratoni* (Leipzig, 1587); JFA Gillet, *Crato von Crafftheim und seine Freunde: Ein Beitrag zur Kirchengeschichte*, (2 Vols, Frankfurt, 1860-1); Heinz Steinniger, 'Johannes Krafft: Leibarzt dreier deutscher Kaiser', *Wiener Medizinische Wochenschrift*, (45), 1939, 1064-1066; Charles D. Gunner Jnr & Jole Shackelford 'Johannes Crato von Krafftheim (1519-1585): Imperial Physician, Irenicist and Anti-Paracelsian' in Marjorie Elizabeth Plummer & Robin Barnes (eds.), *Ideas and Cultural Margins in Early Modern Germany. Essays in Honour of H. C. Erik Midelfort*, (Aldershot: Ashgate, 2009), 201 -216.

correspondence with Crato. The first letter on record was from 1557, when Camerarius was still a student.<sup>15</sup> Crato wrote in regards to Janus Cornarius' new edition on Hippocrates. He seems to have advised Camerarius on his education. He recommended Tuebingen on account of Fuchs, but recommended study in Leipzig.<sup>16</sup> All this while, Crato remained in communication with Camerarius' father, Joachim Camerarius the elder. While Camerarius was in university, Crato sent him reading suggestions. The relationship changed and matured over time.

Crato, who was one of the leading stars of German medicine in his lifetime, is better known by posterity for his close friendship with Melanchthon and his leading place in the intellectual circle of the second generation of the Reformation. Despite his influential role in court politics and his 'godfather-like' status among the network of sixteenth century physicians, no full length monograph exists on Crato's medicine. Although seven volumes of his *consilia* and correspondence were published in the seventeenth century, the long running exchange between Camerarius and Crato was only reproduced in tiny part, with the bulk of the scholarly attention focusing on letters to and from Petrus Monavus. Johannes Crato was the author of several medical texts, but none achieved a particular level of import in seventeenth or eighteenth century medicine. He was one of the first to argue that the plague was contagious. He edited Da Monte's *Consultationum*<sup>17</sup> and was also proponent of the Italian humanist's vision of medical reform. As an edition publishing partial amounts of his own correspondence illustrates, Crato was at the heart of a network as vast as Camerarius'. Crato is at one end of the spectrum and provides the only certain point of reference against which other elements of Camerarius' collection can be analyzed.

No other figure features quite as prominently in Camerarius' collection. After Crato, the next greatest number of letters was written by Carolus Clusius (1526-1609), who sent 195 letters to Camerarius between 1573 and 1598. Adolph Occo (1524-1606), city physician in Augsburg contributed 192 letters between 1573 and 1598, and Johannes Posthuis (1537-1597) wrote Camerarius 161 letters between 1566 and 1597 from Würzburg and Heidelberg. With these medical figures should be grouped Joachim Jungermann (ca. 1561- 1591). Jungermann, Camerarius' nephew, sent his uncle around 120 letters between 1580 and 1591, when he died suddenly and prematurely. Despite the family connection, their correspondence revolved around medicine. Jungermann was also a doctor, and contributed to Camerarius' edition of Matthioli, as well as his treatise on emblems. Taken together, these five doctors contributed almost a half of the sum total of medical correspondence and more than a third of Camerarius' entire collection. In addition to these well established correspondences, Camerarius maintained a more incidental connection with prominent medical authorities, including Erastus, Zwinger and Gessner.

There were multiple smaller circles and networks at play within Camerarius' larger correspondence, and although there were areas of overlap, there were clear

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<sup>15</sup> Trew Collection. Johannes Crato, Brief 456.

<sup>16</sup> Trew Collection, Johannes Crato, Brief 459.

<sup>17</sup> Giovanni Battista da Monte, *Consultationum medicinalium Centuria secunda*, ed Johannes Crato, Venice, 1559; Giovanni Battista da Monte, *Consultationum medicarum opus absolutissimum* ed Johannes Crato, Basel, 1565; Da Monte, *Consultationes medicae*, ed Johannes Crato (Basel, 1572, reprinted Basel, 1583).

separations too. With Clusius as the obvious example, one could draw a line around the doctors with gardens. Starting with Fuchs and Gesner, who sent Camerarius letters when he was still only a student, Camerarius' correspondence was comprised in great part of botanically minded physicians. As well as Clusius, Aichholz and his nephew, Joachim Jungermann, Camerarius received letters from Caspar and Johann Bauhin, Joseph Causubon, Christoph Plantin, Johannes Posthuis, Paul Fabricius, Adolph Occo and Laurenz Scholz. Camerarius received letters from all of these doctors, but they also mentioned each other in their letters. There was also what could be termed an anti-Paracelsian group, which included Thomas Erastes, Theodor Zwinger, Georg Rheticus and Johannes Oporinus, who cited each other as well as writing on similar issues. At a micro-level, when Camerarius was away from Nuremberg, Coiter wrote to him and mentioned in his letter Heinrich Wolff and Melchior Ayrer. Crato figured prominently in every circle. These individual circles operated as clusters of colleagues. These networks were comprised of shared interests and shared acquaintances, and, as such, they demonstrated a rising sense of self-awareness, a positive identification of each other as well as of themselves.

The historical development of professions has often been charted as the growth of one body via the shrinking of another. And indeed, as we have seen thus far and will continue to see in Chapter 6, there was power lost and threats perceived in the course of the Nuremberg doctors' sense of self. This makes it all the more important, and all the more interesting to illustrate and illuminate the very positive role that friendship played in the categorization of professional medicine. This was a network that elevated by admission, rather than maneuvering via expulsion. On the other hand, this was a professional circle, and like all professional bodies it depended upon certain barriers to entry. Language was one. From the variety of languages on display in Clusius' correspondence, Florike Egmond speculated that perhaps Latin was less prominent or ubiquitous among educated intellectuals than historians have generally presumed. However even a brief overview of Camerarius' letter collection demonstrates the continued primacy of Latin. Camerarius communicated with his correspondents in a variety of languages, but at most only 112 letters in French, German or Italian survive. These account for nine individuals. Within this group no one correspondence exceeded forty letters, and the average comprised about twelve.<sup>18</sup> If the aim was an enduring exchange, one wrote in Latin. Like Palma, Camerarius continued to write in a learned 'elite' register. This was in keeping with how his subject, both medicine and botany, was learned, and it facilitated his interests in establishing a common identity for plant species.

### **Camerarius and Carolus Clusius**

From 1573 until Camerarius' death in 1598, Joachim Camerarius and Carolus Clusius (1526-1609) wrote regularly to each other. In their twenty plus years' correspondence, Clusius sent the Nuremberg physician on average a little over a letter a month, a rate that was presumably reciprocated by Camerarius. There were certain similarities between the two figures. Clusius, also known as Charles de l'Écluse, was a sixteenth century Flemish botanist responsible for a number of significant publications,

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<sup>18</sup> Joseph Causabon wrote thirty-seven letters in a mixture of Italian and German.

among them collections of rare plants from Spain, Austria and eastern Europe. He also translated Rembert Dodoens (1517-1586) seminal work of natural history, and Garcia de Orta's (1502-1568) work on Spanish and Portuguese botany. Like Coiter, he studied in Montpellier with Guillaume Rondelet, and he served at the court of Maximilian II with Johannes Crato before moving to Leiden in 1593, where he cultivated the university's botanical garden. Like Camerarius, Clusius maintained a healthy correspondence. More than 1,300 letters received by him have been digitized.<sup>19</sup> Compared to Camerarius, Clusius remains the more famous of the two, and he has been the subject of recent scholarship on early modern botany.<sup>20</sup>

Clusius initiated the correspondence at a point in time when his publishing career had begun, and when Camerarius' had not. In 1573, when he first wrote to Camerarius, he was about to publish the third of his translated volumes, this time a commentary on Nicolás Monardes' *Medical study of the products imported from our West Indian possession*.<sup>21</sup> He told Camerarius about his project, 'I am sending Monardes' book in Latin and with annotations and other illustrations to Plantin in Antwerp.'<sup>22</sup> Clusius introduced himself to Camerarius then, both as a fellow author and as a social contact. Clusius 'met' Camerarius through the latter's brother, Ludwig, who was also a doctor. Knowing Ludwig, he wrote, he also 'very much desired' an acquaintance with the 'famous' Camerarius. He sent two plant specimens to sweeten the deal, *Marienschuch* and *Pfaffenschuch*, both discoveries of Dodoens, whose work he had previously translated.

After using Ludwig in this way, Clusius attached greetings to the brother, almost as routine. In the third letter Clusius also included Philip Camerarius (1537-1624), Joachim's other younger brother, in his greetings.<sup>23</sup> Although Philip was not a medical doctor, he travelled more extensively than either Joachim or Ludwig being a diplomat and a lawyer. It is clear that he was a connection in daily life, someone whom Clusius had met, rather than someone with whom he only corresponded or whose work he only read. Other doctors and social characters figured prominently throughout the duration of Camerarius' and Clusius' written exchanges. In his first letter, apart from Ludwig Camerarius, Christoph Plantin and Monard, Clusius mentioned by name Johannes Brancionis (Jean de Brancion ca.1520-1575) and Nicolaus Bane, a merchant in Antwerp. De Brancion was a nobleman and Clusius' patron; and belonged to the Habsburg Court circle. He created a rich garden at his house in Maline, which Clusius used as a base from 1568- 1573.<sup>24</sup>

In the third letter Clusius introduced Johannes Aichholz (ca.1520-1588), physician at the Imperial Court and Royal Botanist. Aichholz was a correspondent of Camerarius only from 1579, five years after he began to appear in the letters between

<sup>19</sup> [bibliotheek.leidenuniv.nl/](http://bibliotheek.leidenuniv.nl/) with a link to the special digital collections.

<sup>20</sup> Florike Egmond, *The World of Carolus Clusius: Natural History in the Making*; Brian Ogilvie, *The Science of Describing*.

<sup>21</sup> Clusius, *De Simplicibus medicamentis ex occidentali India delatis*.. ,Antwerp, Christoph Plantin, 1574.

<sup>22</sup> Trew. Clusius Brief I: Monardi libellum latina feci & iconibus aliquot, annotationibus illustrari Plantin cudendum tradidi.

<sup>23</sup> Trew Collection. Carolus Clusius, Brief 3: Bene vale clarrissime vir et meo nomine plurimam salutem DD Philippi fratre tuas queso.

<sup>24</sup> Egmond, 18-21.

Clusius and Camerarius, but we can presume the two doctors were acquainted long beforehand: Clusius passes on greetings to Aichholz through Camerarius, in March 1575, and even more frequently passed on greetings from Aichholz to Camerarius.<sup>25</sup> As for Aichholz and Clusius, they worked together in Vienna, and much of Clusius' later volume on Austrian botany would be drawn from observation of Aichholz's garden. Between 1576 and 1593, when he returned to Leiden, there are fewer letters without mention of Aichholz than there are including him. No other physician starred quite so prominently in the Clusius' correspondence with Camerarius, but some certainly had featured roles. Georg Purkircher (ca. 1530-1577) is a good example. Purkircher made his first appearance on 14 March, 1575, in a letter sent to Camerarius from Vienna, in which Clusius simply reports that he passed on the cure Camerarius had sent to Purkircher and was waiting for a response.<sup>26</sup> Between March 1575 and 1577 when he died, Purkircher was mentioned by Clusius in seventeen letters.<sup>27</sup> A poet and a botanist, as well as a medical doctor, the Hungarian Purkircher was employed as municipal physician in Bratislava. Although in his lifetime he published only minor poetical works, most notably an ode to the Emperor Maximilian II in 1563, his written works were edited and published in 1988. Purkircher was also a correspondent of Camerarius', with some thirty letters of his own surviving. Purkircher has survived in history mostly as an acquaintance of the humanist, physician and librarian Johannes Sambucus (1531-1584),<sup>28</sup> who in turn featured more sparingly in Clusius' letters from February 1578 through to 1584.<sup>29</sup> He had, in fact, been 'introduced' to Camerarius in 1570 in a letter from Johannes Crato, which mentioned in a footnote that Crato had been sent a letter by Sambucus, who was, in turn, working on Dioscorides.<sup>30</sup>

All in all, no fewer than a hundred physicians are mentioned by name in Clusius' correspondence with Camerarius. Before looking at the content of Clusius' letters and the epistemic changes his communication illustrated, the first and most foundational practice, that Camerarius and Clusius' letters attest to, was the process of networking. That is to say, mentioning names in letters was neither incidental nor simply informational. Name-dropping was a discrete, functional activity that affirmed and delineated the professional relationship between a group of working physicians. The appendices to the dissertation include a complete list of those doctors mentioned in Clusius' letters to Camerarius.

Although none of Camerarius' letters survive, we know from Clusius' missives that the Nuremberg physician did reply to him. Typically, it took about ten days for the letter to travel from Nuremberg to Vienna, and three or four days might pass between the receipt of letter and the physician's reply. In a letter sent 1st May, 1575, Clusius informed

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<sup>25</sup> Carolus Clusius, Brief 12.

<sup>26</sup> Trew Collection. Carolus Clusius, Brief. 12. Tuas ad D Purkircherum curam quid at meas addidi, eumque monui ut si quid responsam vellet, ad me perferendum curat.

<sup>27</sup> Trew Collection. Carolus Clusius: Brief(e): 12, 13, 17, 18, 23, 30, 32, 33, 35, 39, 40, 42, 45, 46, 47, 49, 57.

<sup>28</sup> An unexpected wealth of material on Sambucus: Gabor Almasi, *The Uses of Humanism, Johannes Sambucus (1531-1584), Andreas Dudith (1533-1589), and the republic of letters in East Central Europe*, (Leiden: Brill, 2009); ASQ Visser, *Johannes Sambucus and the learned image: the use of the emblem in late Renaissance humanist*, (Leiden: Brill, 2005); Hans Gerstinger (ed.) *Die Briefe des Johannes Sambucus-Zsamboky-1554-1584*, (Böhlau: 1968).

<sup>29</sup> Trew Collection, Carolus Clusius Brief: 72, 77, 81, 95, 130.

<sup>30</sup> Trew Collection, Johannes Crato von Kraftheim, Breif: 804.

Camerarius, 'The letter you wrote on the 17 April, I received on the 27th.'<sup>31</sup> On 9th November, 1576, Clusius began, 'Today I received the letter you sent on the 30th October.'<sup>32</sup> This was the first line of his letter, and it was fairly typical. Clusius' letters were often abrupt, lacking the typically humanist effusions of affection at beginning and end. They began with acknowledgement of letters sent and other items of business, and they ended with the conveying of greetings to others. The tone was workmanlike and often candid. Crato's letters were the same. Although he often wrote longer letters, and more frequently mentioned personal details, as befit a family friend who had watched Camerarius grow up, Crato too launched straight into business at the beginning of a letter, and often ended just as definitely. Nicolaus Biesius (1516-1573), another Viennese physician, whose brief correspondence with Camerarius had less of a chance to develop outside the formalities that governed writing between strangers, was just as curt.

Friendship has a long, rich tradition among both classical writers and in sixteenth century reincarnations.<sup>33</sup> So central was the concept of *amicitia* to sixteenth century humanists, that 'dexterity with this language, an ability to express formulaic ideas and emotions in a variety of ways and with a variety of tones, identified a man as a humanist.'<sup>34</sup> But because published medical letters lacked the kinds of declarations of *amicitia* that characterized both classical and republican writings and sixteenth century humanist prose, scholars of scientific networks have on occasion emphasized sociability over friendship.<sup>35</sup> While Camerarius' long standing correspondences, in particular his exchanges with Johannes Crato and Adolph Occo, demonstrate friendships expressed within letters, medical letters in general were not illustrations of the classical notion of *amicitia*, or other humanist sociabilities. On the other hand, medical letters expressed a positive dimension of professional medicine, and a positive manner of identifying its practitioners. While the absence of effusive phrases and flowery introductions might suggest that the exchange of information was the only purpose of the exchange of letters, in fact, medical letters contained social rituals quite as complicated as humanist correspondence networks, just more efficiently framed.

Clusius referred to people in different ways. First, there was evidence of the material, 'real' network, and the individuals, like Aichholz, with whom he physically collaborated. The material, social network was the frame through which the network was woven. Like Clusius and Crato at court, these physicians met and conversed. Like Aichholz and Fabricius, they collaborated in gardens, or other, professional spaces. Like Ludwig, Philip and Joachim Camerarius, they could be related. These material

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<sup>31</sup> Carolus Clusius, Brief 14, 1 May, 1575: 'S.P. Literas tuas 17 Aprilis scriptas, 27 eiusdem accepi.'

<sup>32</sup> Trew Collection, Carolus Clusius, Brief 43, 'Hodie sub meridiem tuas accepi 30 Octobris data.'

<sup>33</sup> Classical friendship: Aristotle, Plato, Cicero and others all wrote about friendship. See Lorraine Smith Pangle, *Aristotle and the Philosophy of Friendship*, (Cambridge: Cambridge University Press, 2003); John M. Cooper, 'Aristotle on the Forms of Friendship', *Review of Metaphysics*, 30 (1976-7), 619-48, Stable URL: <http://www.jstor.org/stable/20126987>; On humanist friendship: Peter Burke, 'Humanism and Friendship in Sixteenth Century Europe' in Julian Haseldine (ed) *Friendship in Medieval Europe*. (Gloustershire: Sutton, 1999), 262-74.

<sup>34</sup> Elizabeth May McCahil, 'Finding a Job as a Humanist: The Epistolary Collection of Lapo da Castiglionchio the Younger,' *Renaissance Quarterly*, Vol. 57, No. 4 (Winter, 2004), 1308 - 1345: Stable URL: <http://www.jstor.org/stable/4143697> . Here, 1319.

<sup>35</sup> Stein and Schnalke, *Medical Correspondence*; Vanessa Smith & Richard Yeo, *Friendship in Early Modern Philosophy and Science*.

connections were the bases for doctors' acquaintances, and they served to validate and communicate their professional identity on a foundational level.

After he drew on 'real' acquaintances, whose physical presence was involved in creating the news the letter reported, Clusius, and presumably Camerarius in return, began to add 'virtual' figures. The primary form, on which they built their material network, was the passing on of greetings from other physicians. All letters communicated greetings from and to common friends, but also from new acquaintances and from other distant letter writers. The dispensers or recipients of these greetings in letters, and the contacts who comprised the physicians' social circle, were not necessarily mutually exclusive, as was the case, for example, with Ludwig and Philip Camerarius. However, neither were they persons with whom either correspondent was often in physical contact. For example, on November 27 1574, Clusius exhorted Camerarius to pass on his greetings to Georg Marius, one time municipal physician. He had met Marius years past in Montpellier, before Marius moved to Nuremberg, where he, presumably, made Camerarius' acquaintance. At the time of Clusius' writing Marius had taken up a professorship in Marburg, and was within speaking reach of neither Clusius nor Camerarius.<sup>36</sup> The request on Clusius' part then, presumes within a complicated hierarchy of acquaintance, that Camerarius' connection to Marius would be the stronger, that he was in a position to convey greetings, and that he had retained a social connection to Marius after the physician had left Nuremberg. The letter, sent in November 1574, was only the tenth that Clusius sent to Camerarius, and so, in addition to testifying to Camerarius' relationship with Marius, the request strengthened a relationship between Camerarius and Clusius that was still in its building phase, where Clusius' use of common contacts was a demonstrative gesture and a means of establishing a mutual circle. In their later communication, mention of other persons conferred admission rather than seeking it. Twelve years on, in 1586, a short note from Clusius opened: 'Three days ago, I received a letter from one Johannes Vincentis Pinelli, in which he included a prescription for you, which I am sending along as quickly as possible....'<sup>37</sup> At this point, the hierarchy of intimacy was such that Pinelli would attempt to gain access to Clusius, through a shared acquaintance of Camerarius. Few people disappeared from Clusius' letters, but many more were added as the correspondence progressed. This pattern of acquaintance was replicated again and again and the acquaintances themselves were layered onto each other in a complicated social bricolage.

Apart from those to and from whom greetings were sent, other physicians peopled Clusius' correspondence, Laurent Jouberti, Julius Caudo, Johannes Posthuis, Henricus Stephanus<sup>38</sup>, Jacques Dalechamps,<sup>39</sup> and Hieronymus Donzellini<sup>40</sup> were all named in association with various doings in Vienna. Physicians whose works was the subject of discussion comprised another level within the professional network. Discussions of their books pulled otherwise distant characters, like Rembert Dodonaues, Joseph Causubon,

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<sup>36</sup> Trew Collection, Carolus Clusius Brief 9.

<sup>37</sup> Trew Collection, Carolus Clusius, Brief 142 Ante triduum litteras a dr johannes vincentio pinelli accipi, quibus alia incluse fuerunt ad te prescripta: eas tibi mitto, quoriam me orarie ut quam citissime eas ad te curarens.

<sup>38</sup> Trew Collection, Carolus Clusius Brief 9.

<sup>39</sup> Trew Collection, Carolus Clusius Brief 136.

<sup>40</sup> Trew Collection, Carolus Clusius, Brief 135.



Caspar Bauhin and Ferrante Imperato into contact with the Nuremberg and Austrian physicians, while even dead authorities could linger as live presences. Clusius frequently mentioned the late Georg Ollinger, the Nuremberg apothecary whose garden Camerarius had taken over, in connection with plants he had discovered or described.

Although obvious signs of 'networking' were usually attached to substantive communication about plants, sometimes the sole purpose of writing was to strengthen ties between doctors, to pass on greetings and communications. On 12 November 1577, Clusius writes delightedly: 'Look! A new excuse to write to you.' The excuse: he had to pass on letters from Thomas Jordanus and Dr. Hubertus.<sup>41</sup> On the 12 June 1582, Clusius wrote, 'Although I have nothing of note to say, I wanted to pass on what Jordan and Aichholz have written to you.'<sup>42</sup> In 1592, he passed on another letter from Pinelli to Camerarius.<sup>43</sup> Camerarius also acted as go-between to Clusius. In July 1577, Clusius wrote that he had received 'yours and Dr. Hubertus' letters'.<sup>44</sup> Inasmuch as the correspondence comprised the network, these various epistolary contacts, these discrete 'mentions' comprised the correspondence as a system. In a way, each letter was about other letters. Conversation was stacked and shared.

Admission to the correspondence network was not formal, but it was not necessarily easy either, as the thirty nine letter writers, who never wrote back, suggest. Of course, there is no evidence to prove that Camerarius either did not reply, or was discouraging to these individuals who wrote to him. But certainly he did not encourage everyone. The network itself was also by no means egalitarian. Duration of correspondence, or acquaintance, was one way of measuring respect.

The networks of correspondence articulated the changing values and interests in medicine, they delimited a professional community and an agenda of reform, they demonstrated and depicted shared practices and they became, in turn, by virtue of their publication and collections, an institution through which these practices were formalized and historicized. They also described operative relationships that existed to enhance and facilitate collaboration on shared projects and practices. They were social relationships with a material component. Correspondence occupied both time, there is a definite chronology to the volume of letters, and space, it had a distinctive topography. We can map its individual moments, but by nature correspondence was inherently in motion. Letters were so frequent and so constantly in movement, sent, received, en route, that they add shading to any snapshot of medical practice in early modern Europe. The multiplicity of circles at work within Camerarius' correspondence illustrates that intellectual life in 16th century Germany was at once dense and diverse. That is to say a diffusion of viewpoints was held by a relatively closely connected circle of people.

## Research and collaboration

For Camerarius, who relied on the participation of his broad network in his botanical researches, letters were the tools of his research. The correspondence between

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<sup>41</sup> Trew Collection, Carolus Clusius, Brief 66. Ecce novum occasion ad te scribendi.

<sup>42</sup> Carolus Clusius, Brief 114: 12 June, 1582: 'Tametsi nullum esset argumentum ad te scribendi, hac tamen scheda Aichholz & Jordani literas tibi inscriptas includere volui.'

<sup>43</sup> Trew Collection, Carolus Clusius, Brief 184.

<sup>44</sup> Trew Collection, Carolus Clusius, Brief 57. Acceptissime mihi fueret et tua & Dr. Huberti nostri littera.

Camerarius and Carolus Clusius is a good example of the way in which shared interests could lead to practical collaboration. The first, most enduring use to which they put their written acquaintance was material. Clusius and Camerarius exchanged plants. Early into the correspondence, Clusius accepted 'several' plants, sent by Camerarius in July, 1574, and responded with a discussion about their properties and availability: the 'eastern Narcissus' was strange to Clusius, although he was familiar with the tulips, and other narcissuses. In the letter, he compared it to hyacinths and muscari (grape hyacinths, strictly speaking a member of the lily family). The same letter includes the only rough attempt at illustration in all 195 of Clusius' letter to Camerarius: a circle intersected with four large dots and four smaller pin-pricks. His developing fascination with 'rare' plants was already evident here, but it became more pronounced throughout the correspondence. They exchanged plants, and sent on descriptions of plants received from other botanically minded doctors. In 1575, Clusius sent Camerarius : various species of narcissus, autumnal narcissus, muscari bulbs, tulips, and 'arabic' plants.<sup>45</sup> On 5 May 1576, Clusius thanks Camerarius for plants the Nuremberg physician has sent him.<sup>46</sup> In 1587, shortly after Clusius' garden had undergone troubles, Camerarius sent peonies.<sup>47</sup> In 1578, Clusius sent Camerarius a 'sample' by Paul Fabricius<sup>48</sup> The network drew in gifts and exchanges from physicians in other parts of the continent, and, indeed, the world. Clusius referred to a box with tulips sent from Bologna and Montpellier.<sup>49</sup>

The exchange of plants between botanists, merchants, pharmacists etc, has been studied as a variant on early modern patronage and gift exchanges. Exchanging plants was about more than solidifying friendships, or even about more than improving gardens. A few letters after he sent Camerarius a fairly large shipment of different plants, narcissus and hyacinths among them, Clusius was soliciting Camerarius' opinion on the species.<sup>50</sup> They discussed other books, and discussed their own books. In 1587, Clusius wrote that, after a bad year, his new compendium was finally coming along easily, with help from Johannes Oldenbergens, a doctor from Regensburg, with whom he had previously worked in 1574, and that he was able not only to get many plants from him, but also 'to gather the right words while he was passing [through].'<sup>51</sup> In Clusius' second-to-last letter to Camerarius, he complained that he had not yet received a copy of Bauhin's book, but he had seen the title page, and he speculated that the icons on the front page heralded new insights within.<sup>52</sup> He mentioned books by Hubert Languet,<sup>53</sup> by Auberti and Quarcentanus.<sup>54</sup> Clusius wrote to Camerarius about his own work and made comments on work by Camerarius. They talked about almost every aspect of Clusius' own book, including its type setting. These practical collaborations existed in other dimensions and between other correspondents, they were not restricted to this exchange.

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<sup>45</sup> Trew Collection, Carolus Clusius, Brief 11.

<sup>46</sup> Trew Collection, Carolus Clusius, Brief 27.

<sup>47</sup> Trew Collection, Carolus Clusius, Brief 156.

<sup>48</sup> Trew Collection, Carolus Clusius, Brief 71.

<sup>49</sup> Trew Collection, Carolus Clusius, Brief 59.

<sup>50</sup> See letters 11 and 25.

<sup>51</sup> Carolus Clusius, Brief 146, 3 February, 1587: sermonibus colligere potui dum ista transirem

<sup>52</sup> Trew Collection, Carolus Clusius, Brief 193, icones plantarum aliquot hactenus non sculptaru quibus proxime plures iam descripta at nondum sculpta.

<sup>53</sup> Trew Collection, Carolus Clusius, Brief 69.

<sup>54</sup> Trew Collection, Carolus Clusius, Brief, 26.

Camerarius' nephew, Joachim Jungermann, who was also closely acquainted with Carolus Clusius and involved in the circle of practicing botanists, sent his uncle hundreds of plant specimens, and was also responsible for sending many plants to Clusius.

The endeavour of growing species across different gardens was the common agenda. Clusius referred often to the gardens. In 1579, Clusius catalogued the plants in Aichholz's garden.<sup>55</sup> He tended to personify them, Aichholz *was* his garden and vice versa. Many of the same concerns evident in Camerarius' botanical publications typify his correspondence with Clusius, in particular philological concerns around the nomenclature of various local and exotic plant species. Clusius and Camerarius often discussed names and the identification of various specimens. They identified elements and communicated about difficulties in growing. They talked about their gardens. 'I forgot to write to you about the American Aloe,<sup>56</sup> wrote Clusius in February 1587, before sharing his enthusiasm for the plant. The garden was a subject of correspondence, and, as we have seen in Chapter 3, a field of practice.<sup>57</sup>

In her work on Carolus Clusius' correspondence, Florike Egmond refers to a relative 'anarchy' of topic in his letters.<sup>58</sup> This was *not* the case in the correspondence between Clusius and Camerarius. In fact, given the duration and frequency of their written exchanges, the uniformity of their topic is startling. Clusius *mentioned* doctors and books, weather, deaths, politics and other details of daily life, 'I am always in the garden, since April brings the greatest colour'<sup>59</sup>, was a fairly typical nugget; but he *wrote* about plants, and only plants.

In fact, even within the greater subject of botany, Clusius' correspondence with Camerarius was restricted to a limited variety of plants. In particular, Clusius wrote about hyacinths, narcissus, anemones and muscari, and, unsurprisingly, tulips featured prominently. For the earlier half of his correspondence with Camerarius, Clusius was working on his guide to Austrian flora, and these were all plants that would feature both in Clusius' future publications, and in Camerarius' books as well. They were all flowers, these plants, and although few of them were native to the gardens in which Camerarius and Clusius cultivated, they were all, crucially, plants that both physicians grew.

If Clusius and Camerarius shared a common interest in plants, and created between them a project to discuss botany, swap specimens and validate identifications, did they, in fact, share common interests? In Chapter 2, I wrote about Camerarius' botanical publications and placed them within the genre of medical botany. I argued that Camerarius actively conceptualized the importance of the medical to botany, or, even more specifically, thought about botany as a subset of medicine. In addition to the common endeavour of collecting plants, the collective project of botany thus had pharmaceutical overtones. Clusius' work however has been taken as emblematic of a changing conception of botany, which was gradually liberated from a restrictive, medieval concentration on the medical. According to Ogilvie, in his written works 'Clusius chose to include plants, or at least claimed to do so, following aesthetic criteria,

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<sup>55</sup> Trew Collection, Carolus Clusius, Brief 89.

<sup>56</sup> Trew Collection, Brief 146.

<sup>57</sup> *perpesi summus in herbatione quam Aprilis initio suscepis maximus coleret*

<sup>58</sup> Florike Egmond, 35.

<sup>59</sup> Trew Collection, Carolus Clusius, Brief 28. *perpesi summus in herbatione quam Aprilis initio suscepis maximus coleret.*

such as elegance and curiosity. Practically every chapter in his Austro-Hungarian flora begins by praising the beauty, elegance or rarity, often all three, of the plant in question.<sup>60</sup> In this regard, the published output of Clusius and Camerarius might be viewed as belonging to two quite separate schools of botany. But, regardless of how Clusius presented his books, his letters to Camerarius make very clear that not only did he acknowledge the pharmaceutical project, he actively participated in it. In a letter from April 1576, Clusius wrote, 'Dr Crato delivered the other imperial pharmacoporum today, which I'll send to you, [but] I think you have already seen it.'<sup>61</sup>

As a text, the pharmacopieas linked botany with pharmacy. Pharmacopieas could be sources for further identification or uses of plants. In 1587, Clusius wrote that he had received a copy of the Pfortisheim Pharmacopeia, and that the gift was even greater than expected. A calamity had befallen his garden, which resulted in the loss of many tulips and, to greater lament, his anemones. Thus, it was excessively fortunate that the Pharmacopeia shared details about tulips he never knew.<sup>62</sup> Reading the Pfortisheim Pharmacopeia occupied Clusius' attention for some time. He received the book in April. In September he was still chasing up details. Having requested peonies from Camerarius, he wrote in thanks to the Nuremberg physician on September 23rd: 'But I would like to know if you have any in full bloom as in the Pharmacopeia?'<sup>63</sup> In 1589 he complained about Aichholz's garden. 'He has many different species of Aconitas, and he has plants like Ferulearas, but he knows them. But although he knows them, there is no one there who has the skill and knowledge of plants, but they are negligent of medicine and pharmacy (pharmacopeia).'<sup>64</sup> He was also kept abreast of Camerarius' own pharmaceutical projects. In 1592, upon receipt of the new Nuremberg *Dispensatorium* he sent a wry letter: 'You gave me nothing to do but respond; now that I've received your Pharmacopeia, I'm responding.'

Letters did not just accompany gifts or the exchange of plant specimens. They should be seen as constituent parts of the specimen in question, part of a research programme that solicited and relied on collaboration across a broad network. The information contained within accompanying letters was as important, for Camerarius particularly, as the plant itself. The letters provided the detail and context which made the plant or object interesting or worthwhile, without which Camerarius would have reaped no gain from sending. This was an overt component of his work. As we have seen in Chapter Three, Camerarius integrated knowledge gained from his correspondence into his writing. If we approach correspondence and letter writing as a medical activity it is clear that, like Palma, Camerarius turned this public project into private research. The creation of a network was, in itself, a technique, a method of research and a way of

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<sup>60</sup> Ogilvie, *The Science of Describing*, 186

<sup>61</sup> Trew Collection, Brief 26, D. Cratoni alteram hodie tradam pharmacopeo caesero, cui te mittere existimo, ubi ex superioribus tuis perspexi.

<sup>62</sup> Trew Collection, Brief 151. ex prioribus meis, calamitatem in hortulo acceptam intellexisti: in quo nihil bulbarceum reliqui praeter aliquot Tulepas et Tusai.... Nimium sane prodigens Pfortiseimians Pharmacopeus in communicandis tutulis quae nunquam agnovi.

<sup>63</sup> Trew Collection, Brief 156 velim autem scire an English pleno flore habeat quispiene Pharmacoporum apud vos ut hic circumferter.

<sup>64</sup> Trew Collection, Brief 165.

verifying information. Camerarius used connection to various figures to mine information on plants and on recently published books

That the network *worked*, functioning as an institutional component of medical work or research, was referred to by correspondents as invested in correspondence as Camerarius was. Clusius, for example, referred often in his letters to the work done by other letters or by books. In this way, Camerarius participated in and was aware of other correspondence networks. Clusius read the apothecary Ferrante Imperato's work on theriac with interest.<sup>65</sup> Ferrante Imperato (ca. 1525- ca.1615) in turn wrote with news of Joseph Causabon's book,<sup>66</sup> another work of medical botany. In fact, common use of, if not interest in, pharmaceutical applications, as component parts of a plant's identification, was true generally of other physicians within Camerarius' and Clusius' shared circle of acquaintances. This has often gone unnoticed, Imperato's botanical interests remain under-studied; he is remembered primarily as a natural philosopher with interests in collecting 'curiosities'.<sup>67</sup> Camerarius' correspondence and the network it facilitated thus describe a pharmaceutical bent to botany in Vienna, and to a group of physicians or botanists cultivating gardens in the shadows of courts or towns. Even doctors like Clusius then, whose published work stays firmly within the sphere of botanical taxonomy, conceded the primary importance of pharmacy to the exploitation of the plant as resource. This agrees with Egmond's assessment of Clusius' work, which is that its point of origin for a 'modern' botany was more accidental than determined: 'Few members of Clusius's world, Clusius himself probably included, were explicitly bent on creating natural history as a discipline, although some probably realized that this was a consequence of their activities.'<sup>68</sup>

Interest in pharmacy was not the only subject in Camerarius' larger correspondence, but other letter exchanges were similar in the relative narrowness of their subject matter. The ubiquity of Crato among Camerarius' various correspondents, together with the frequency of their exchanges would suggest that Crato and Camerarius shared a multifaceted interest in medicine and, indeed, they probably did. However, what might have been a relatively encyclopedic set of interests, narrowed to several ongoing conversations about Hippocratic medicine. Like Camerarius, Crato was interested in specific remedies. In 1558 he was writing in very general terms about medical books the young student should read. By 1564, he was swapping specific remedies.<sup>69</sup>

'You want me to believe I am a physician who is a philosopher...' wrote Clusius affectionately to Camerarius, and at first glance it might seem to stretch credulity.<sup>70</sup> Although Clusius studied medicine, he is remembered primarily, if not exclusively, as a botanist. There are no records to suggest he ever practiced medicine, and his botanical writings were more interested in the place of origin of the plant, and its aesthetic

<sup>65</sup> Trew Collection: Clusius, Brief 11. Sent in 1575, it can only have been referring to *Della theriaca et del Mithridato libri due*. Venice, 1572.

<sup>66</sup> Imperatore, Brief 1 Isaac Causabon, or Giuseppe Casabona (c.1535 - 95), gardener to the Medicis in Tuscany.

<sup>67</sup> See Findlen, *Possessing Nature*, p. 225 - 32. For biographical info on Imperato: E. Stendardo, *Ferrante Imperato: Collezionismo e studio della natura a Napoli tra Cinque e Seciento* (Naples, 2001).

<sup>68</sup> Egmond, *The World of Carolus Clusius*, 209.

<sup>69</sup> Trew Collection: Crato von Kraftheimm. Brief 624.

<sup>70</sup> Trew Collection, Carolus Clusius, Brief 28.

appearance, than its medical properties. He might appear, at first glance, the opposite of Camerarius, whose primary interest in medicine and pharmacy guided his botanical writings. This apparent dissonance in character, career and interests, was the case with many figures in Camerarius' larger network. To take three characters at random: Andreas Libavius, the historian and alchemist, Jean Antoine Saracens, a botanist from Geneva and Ulisses Aldrovandi, an anatomically minded professor in Ferrara, do not appear in any way similar. But Camerarius' correspondence drew them together. By dint of sharing information, and discussing findings, correspondents worked collaborated toward a common goal. In cases such as Clusius, one's interests could inform the other's, as could circumstances. Pharmacy was not a uniform interest, but its place in identifying plants determined certain kinds of practices across Camerarius' circle and for Camerarius, as we have seen, practice *was* philosophical, in that it changed, fundamentally, his conception of what medicine actually was. Clusius might have resisted the label of physician, or the implication that he was a philosopher, but as he was forced to conclude in his final letter to Camerarius: 'I am.'

In one of his last letters to Camerarius, dated June 15 1597, Clusius wrote with regard to Caspar Bauhin. Camerarius had sent Clusius Bauhin's book in February, and it is a particularly interesting encounter, because there is a certain passing of the guard on display. By 1597, Clusius had written the majority of his influential books. Camerarius would die a few months later. Bauhin, by contrast, was working up to his landmark text. Bauhin's work, which indisputably built on his predecessors, was nonetheless a major contribution to the development of systematic non-medical botany, in a way that Camerarius could not claim to be, and Clusius, depending on one's point of view, was not. He is frequently cited as pre-empting Linnean forms of botanical organization. Although a few pages had gone missing, Clusius was able to quickly assess the book: 'I see it is a major effort of erudition.' However, he found the organization confusing. 'Now for what purpose has he gathered all these plants names that he repeats?'<sup>71</sup> Unlike his sixteenth century predecessors, Bauhin used an organizational schema that acknowledged but did not privilege a plant's utility. Instead, his plant classification system focused on inventing nomenclature and the creation of categories that preempted future systematic botany like the Linnean system. In his incomprehension of Bauhin's order of priorities, even more so than his wry acknowledgement of his philosophical and medical interests, Clusius set himself in the camp of the medical botanists.

### Consensus and Observation

Carolus Clusius was in Vienna to undertake research on his guide to Austrian and Hungarian plants, and we already know from his letters to Camerarius that he spent a considerable amount of time studying various plants in Aichholz's garden. He too was interested in anemones, and when his edition on the imperial flora appeared in 1583, several chapters and twenty pages were devoted to the species. In great detail, he described and illustrated samples of the anemone *syluestris*, the anemone *latisfolia*, and the anemone *flore polyphyllo tenuifolia*,

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<sup>71</sup> Trew Collection, Carolus Clusius, Brief, 194. nam quid attinebat eadem stirpius alicuius nomenclaturam toties repetere : tum addito neu nomine tum lobelli qui eam a me desumpsit

In 1588, Camerarius published his Latin guide to plants, *Hortus medicus*.<sup>72</sup> In his annotated list of plants, he included several species of anemone, a flower which, despite the name, was not related to the 'sea anemone' in which, as we saw in Chapter Three, he was particularly interested. Camerarius listed six species of anemone: two anemone *latifolia*, three anemone *tenuifolia*, and anemone *sylvestris*.<sup>73</sup> The latter anemone *latifolia*, he wrote 'is a simple violet flower.' He knew this because he had communicated with Dr Aichholz, the court physician in Vienna, and Master Carolus Clusius, 'amici mei' who *observed* it.<sup>74</sup> Clusius had devoted great detail, almost twenty pages of his monograph on the plants of Austria, to the various species of anemone, and he described and illustrated samples of the anemone *sylvestris*, the anemone *latifolia*, and the anemone *tenuifolia*. In Clusius, the anemone *latifolia* was either a Byzantine plant, or a very similar Belgian plant which, though he does not credit him, must have been sent by Joachim Jungermann. It is probably the Byzantine plant that Camerarius was remarking on, because Clusius notes its 'purplish' tint. The discrepancy between the 'simple violet flower' and the 'purplish Byzantine species' may not, to the casual observer appear great, but they are distant enough to discredit the earlier book as a formal source of Clusius' observations.

Clusius' published results began long before they appeared in print, and Clusius' book was not the sole recourse for Camerarius' knowledge of Clusius' thought. In August 1580, well before his text on Austrian plants appeared, Clusius directed a quick question to Camerarius, inserted in the middle of a longer letter about the acquisition of African bulbs and tulips: 'What is that red Anemone, which the Landgrave sent, do you know?' Does it differ from the type I sent you before? I leave it to you to see the difference.'<sup>75</sup> Like many other questions sent by Clusius to Camerarius, this one will never be answered. But in 1582, in a letter which also sent condolences on the death of Ludwig Camerarius, their original point of contact, Clusius sighed: 'I am still unsure about the bulb for that anemone tuberosa. Indeed, I don't remember ever seeing such a root. Besides, the latifolium has flowers that are either purple or red. When the first is advanced in bloom, however, less than a four leaved latifolia is rare. If you'll accept two pieces, besides the one full flower with leaves and red flower, I send another similar bulb and a third bulb which should give purple flowers and which grows wild in the forest, however, I think I have not sent you the white flower.'<sup>76</sup>

Although it would seem natural that Clusius was the first point of contact and the original authority on anemones, that was not necessarily true. Clusius solicited

<sup>72</sup> *Hortus medicus et philosophicus: In Quo plurimarum stirpium breves descriptiones, novae icones.* Frankfurt, 1588.

<sup>73</sup> *Hortus medicus*, 15-16

<sup>74</sup> *Hortus medicus*, 15 Anemone latifolia : flore simplicis Violaceo magno. Commucarunt hanc & sequentes D. Ioan Aicholzium Medicum praeicippum Viennensis & Domin. Carolus Clusius amici mei obseruandi.

<sup>75</sup> Trew Collection: Carolus Clusius, Brief 101: Quae sit ista Anemone flo rubro quam a Landgravia accepit scire on differat ab iis generibus quae ante tibi misi et nunc mitto si foli [there is an ink stain here] videris significo.

<sup>76</sup> Trew Collection: Carolus Clusius, Brief 115. Anemone tuberosa bulbercastim radice quae sit adhuc ignaro : nullam enim eiusmodi radice unquam videre memim , praeter latifoliam flore purpureo siue rubro, cum primum semine nata est, quae tamen vetulate non minus rarosa sit quad latifolia plena, cujas duo fragmenta accipies, anemone praeterea altera flore pleno foliis bulbocastani tertiam similibus foliis flore purpureo siue ad Volaren teudete, atque quarum quae siluarum anemones siue ramuculi fasci folia refert: quam dubito an flore albo autea non miserim.

Camerarius' opinions on the red anemone (which, judging by the second question would indeed appear to have been deemed an anemone), before he ever published his Austrian text. If the legitimacy and authority of observations indeed rested on personal experience, there was no natural order or hierarchy in the appearance of either Camerarius' *Hortus medicus* or Clusius' *Rarorum stirpium*. Both published accounts rested on information which had been passed back and forth over quite a long period of time. *This* information did in fact rest on personal experience, and, indeed, a fair amount of personal investment on both parts. Both physicians cultivated anemones, and both physicians watched carefully over the plants' growth. In November 1585, Clusius, who was lying in bed sick, complained that the very same warm air which encouraged his anemones and tulips to germinate was food for his disease.<sup>77</sup> In July 1592, Clusius, in Frankfurt on his way back to Flanders, where he had been offered a post in the University of Leiden, requested a couple of anemone roots from Camerarius, presumably for his new garden.<sup>78</sup> But despite lengthy and involved participation by each physician in activity that Camerarius deemed germane to establishing a plant's identity, neither physician presented botanical results on the basis of their sole experience.

*Observationes/Observatio* was a phrase without definite meaning, and thus a phrase whose emergence in sixteenth century discourse heralded something new. It came from the fields of practice, rather than scholastic natural philosophy, from astrology, anatomy and so forth, and, because of this, it lacked the philosophical tradition or antecedents that other epistemological tools, like experiment, enjoyed. Although the rise of observation has been linked to the development of experimental science, and the elevation of experience over theory as a form of knowledge making, observation emerged as a practice before it was fully conceptualized as a philosophical tool.<sup>79</sup> Medicine was 'a major field where observational practices, codified by a new disciplinary genre called *observationes*, arose meteorically in the late sixteenth and early seventeenth centuries.'<sup>80</sup> Observation became, in the words of Gianna Pomata, 'an epistemic genre. Genres,' she went on to explain, 'are standardized textual formats - textual tools we may call them, handed down by tradition for the expression and communication of some kind of content.'<sup>81</sup>

Much has therefore been made of the use of the word 'observations' and the accuracy or inaccuracy of its deployment, and, at first glance it might appear that

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<sup>77</sup> Trew Collection: Carolus Clusius, Brief, 139. Hic interdum requiescunt nonnuquam mitius soerviunt temperis calidor alimenta morbo praebet, qua et meam anemonem & plerasque tulipas, alisque stirpes ad germinatorum.

<sup>78</sup> Trew Collection: Carolus Clusius: Brief 181. Velim Anemones unam aut alteram radicem addis licet aridam.

<sup>79</sup> Lorraine Daston & Elizabeth Lunbeck, Introduction in Daston & Lunbeck (eds), *Histories of Scientific Observation*, 3. 'Even though there was never a time before experience, there was a time before the scientific experiment - and the scientific observation: these were forms of 'learned experience' that had to be crystallized out of vernacular practices and conceptualized as evidence and proof.'

<sup>80</sup> Pomata, 'Observation Rising: Birth of an Epistemic Genre' in Daston & Lunbeck (eds), *Histories of Scientific Observation*, 49.

<sup>81</sup> Pomata, *Observation Rising*, 48.



Camerarius' use of the word was rather loose.<sup>82</sup> If Camerarius *was* taking as his source Clusius' book, the term was doubly misleading, as Clusius explicitly stated in *Rare plants* that he did not observe the Byzantine plant. He was merely *reporting* it. What the use of observations in *Hortus medicus* reveals is that observations weren't necessarily visual, and they didn't hinge on an individual or *any* individual's action. But nor was the term casual and unthinking. The observations that both Camerarius and Clusius were referring to, were a fairly long, back and forth series of exchanges in correspondence. But what the correspondence between Clusius and Camerarius, and between Camerarius and his many other correspondents, makes clear is that observation is a collective activity, that is to say, that the procedures for checking and verifying individual observation are just as important and inherent to the end result. The expression and communication of this kind of content is clear in Camerarius' correspondence, and I would posit that even more important than *what* was observed, was the process of observation, validation and consensus that these networks facilitated.

This long process of recognition, or observation, was social and temporal, and it relied on consensus and collaboration. Correspondence as a manner of validation, during which information was exchanged, shared and corroborated sheds light on the way in which medical knowledge developed in the sixteenth century. It is my contention that consensus became a feature of medicine and medical identity in the sixteenth century. I've illustrated its importance in the public identity of the published doctor, that is, in the historiographically established picture of medicine. But it went far beyond this, it was part of the private persona/identity. It went on to manifest in a set of practices that characterized the profession. Demand for consensus was a public requirement of medical knowledge, and the actual formation of consensus was a medical activity. As Camerarius' correspondence illustrates, consensus was both real and imaginary; posited as something desirable, worked towards and actually achieved. The level at which it was achieved never matched the level at which it was sold, but its importance was made all the greater by this illusion

For a workable example of this, we return to Clusius, and the process of 'observation' he reported in print. When Carolus Clusius eventually did publish his text on Austrian plants<sup>83</sup>, he included observations by Camerarius. In the case of the *admirabilis*, he wrote: 'In this wonderful plant it is worth *observing* that when they begin to wilt and fade away, first the leaves, and then the whole body, and now the bare knot is left behind, sometimes a white efflorescence forms on it, which can be condensed and aids slumber, which last Joachim Camerarius told me for the sake of our friendship.'<sup>84</sup> At this point, neither of Camerarius' botanical books had yet been published. We can't be sure when exactly Camerarius reported the effects of the *admirabilis*, since we don't have

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<sup>82</sup> A concise summary of this version of the development of observation may be found in Lorraine Daston: *Eine kurze Geshichte der wissenschaftlichein Aufmerksamkeit: Carl Friedrich von Siemens Stiftung: Themen Bd. 71, Munich, 2000.*

<sup>83</sup> Carolus Cluisus, *C. Clusii rariorum aliquot stirpium, per Pannoniam Austriam*, 1583.

<sup>84</sup> Clusius, *Raroum stirpium*, 399- 400 : Illud autem in his omnibus plantis mirum & obseruatione dignum, quod dum contabescere incipiunt, primum folia, deinde integri articuli simul decidant & circa iam nuda remanentia genicula interdum candida quedam efflorescetia adnascitur, quae temporis sucessu concreta, salis soporem referat: cuius postrema nota CV. Ioachimus Camerarius pro nostra amicitia ne primus admonuuit.

his letters. However, letters passed back and forth before 1583 and dealings with admirabilis were numerous enough. Clusius' famous books on the plants of Spain and Austro-Hungary respectively have often been lauded for their careful reporting of the fruits of personal observation.<sup>85</sup> In his book on Spain, he claimed years' worth of observation, and he spent years in Vienna, adding to his wealth of research. But the process of accumulating certainty was far greater than Clusius' individual activities. He relied on Rembert Dodoens for many of his observations in Spain, and in Vienna his collaborative work with Aichholz and Purkircher was foundational. It was Aichholz's garden he catalogued and observed, and Purkircher who sent him and named Hungarian specimens. He might not have presented this in his books, but Clusius acknowledged these collaborations in his letters to Camerarius. 'Since the beginning of February, I have been cataloging the plants in Aichholz's garden,' he wrote.<sup>86</sup>

When Clusius uses the phrase '*observatio*' he was typically referring to his thoughts or observations, relative not to an unchanging natural form, but to another colleague's views or to commonly held wisdom. Observations, for Clusius, were thus thoughts *relative to*, rather than thoughts *on*. They were also something that happened in a series of perceptions, rather than the result of one, singular act of perception. When Clusius saw something, or noticed something he used the word, '*video*'. Observation, then, was a process of recognition, the result of perception in both its visual and cognitive dimension. Just as the social network generated by correspondence drew in distant observers and acquaintances, this process of communication also took place third hand. For example, in 1576, Clusius reported communicating with Purkircher about '*globi*', presumably a variant on *Jovibarba*, which were native to the regions around Bratislava. He asked Camerarius to check or think about what Purkircher had said. At every step in his individual identification, he cross-checked, solicited corrections and attempted to reach consensus.

Consensus had always been an important part of the medical identity, as it was of every academic subject that had foundations in Greek authority. Consensus with the main wellsprings of medical thought, like Galen, Hippocrates, Avicenna and Averroes, served to differentiate the learned physician from the unlearned. Even more than theology or natural philosophy, which in the middle ages interpreted and reinterpreted the foundations on which they were based, medicine relied on a corpus of writings to provide the axioms for its practice. Only in the late fifteenth century, with the growing influence of the book trade and the spread of universities and a more general interest in humanism, did medical thinkers embark on the humanist project of translating and refining the corpus of Galenic texts. What was novel about medicine in the sixteenth century was the way in which it came to define itself relative to its contemporary practitioners. What changed fundamentally in the sixteenth century was the number and breadth of the participants, even when those participants were limited to the educated and university qualified. Medical writers operated within an increasingly broad circle of participants, and the individual medical identity went through a number of adjustments as it struggled

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<sup>85</sup> Ogilvie, 184. 'Of particular importance are Clusius' two masterworks: his accounts of Spanish and Austro-Hungarian plants. Each of these works was, as we have seen, the fruit of long travel and observation.'

<sup>86</sup> Trew Collection Carolus Clusius, Brief 89.

to define itself relative to its collective identity. A growing emphasis on consensus was the first, and most important of these.

By consensus, I mean, first, the promotion of harmony and agreement between physicians. Rather than defining oneself *against* one's contemporaries, identification became associative, as in defining oneself *with* one's contemporaries. Consensus regulated the position of the individual within the collective, but it also had the potential to privilege the individual and, thereby reposition the collective. Consensus among contemporaries was a new imperative, one that in the sixteenth century came to be demanded both by physicians and by the public. Those claiming to be medical authorities positioned themselves as agreeing with their contemporary peers, and the emerging medical community was subsequently delineated by the scope of consensus.

Witness this development in the most public and official of the channels of medical communication, medical publishing. Consensus as a printed phenomenon came about in several stages. Like medical publishing generally, it began with the academic controversies arising from the programme, humanist or commercial depending on the kind of history one does, to edit, translate and publish the ancient medical authorities. Early medical publications of Galen, Hippocrates, Dioscorides et al., were for the most part produced by academically educated university professors, who engaged in publishing as an extension of academic disputation. The debates produced by and followed through by the first generation of 'humanist physicians', have received detailed treatment, and there is little need here for anything other than a brief recapitulation. Johannes Guinther van Andernach and Jacques Dubois were involved in disputes about the translation of Galen. In Germany, Leonhard Fuchs fought with Hieronymus Bock. Even in the middle of the century, Matthioli and Gesner quarreled about images and botany. The kind of language physicians used was less virulent than theological exchanges, but it was nevertheless often heated, as sixteenth century language tended to be.

The ramifications of these debates, as Nancy Siraisi and others have shown, was a slow appreciation of novelty, greater acceptance of critique and a loosening of the strict Galenic canon. It has also been illustrated that growing debate within the Galenic canon, even while it kept the names Galen and Hippocrates etc fresh, had the practical effect of removing the source of medical discussion from the ancients to the moderns.<sup>87</sup> That is to say, it became apparent not only to the writers but also to readers within and outside the medical profession, that medical writers were arguing not with sources of authority but with each other. But a marked characteristic of these debates that has been less frequently remarked was the disappearance in the middle of the century of marked public discord. Although differences in learned opinion, and different schools of Galenic thought continued, and continued to be published, the public presentation of such debate was repackaged into a discussion in which the participants were primarily in harmony with one another.

Just like the appearance of debate, the disappearance of discord can be illustrated in an overview of medical publishing. It happened in tandem with the growing popularity of alternative genres of medical writing. During the course of the century, 'natural history' became increasingly popular and in the overall marketplace for medical texts, botany,

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<sup>87</sup> Andrew Cunningham, *Renaissance Anatomy*.

zoology and anatomy grew, and the *relative* numbers of philosophical interpretations of Galen, Hippocrates et al. declined. After 1558, none of the bestsellers featured public dispute in the manner of Fuchs and Bock. Instead, controversy was relegated to letters. For example, near the middle of the century Conrad Gesner and Pietro della Matthioli, two precursors to Camerarius and themselves correspondents, embarked on a discussion about the veracity of an image used by Matthioli to illustrate what Dioscorides had labelled the *anconitum primum*. Gesner accused Matthioli of including an image drawn not from observation, but from description. Matthioli's indignation about this accusation resulted in a strident defense and an attack on Gesner. The subsequent fight dragged out through several publications. After 1558, however, the public dispute moved into the private channels of correspondence. Candace Delisle has traced the shift from public controversy to private correspondence, and illustrated how public debate could *continue* through private channels.<sup>88</sup> But if correspondence enabled Matthioli and Gesner to continue their quarrel, it also provided a channel to conclude it. Matthioli and Gesner both solicited a series of opinions from colleagues, among them Joachim Camerarius, to vouch for and validate their professional presentation of their work.

Correspondence could be a mechanism for the resolution of disputes, as Delisle demonstrated, but it also demonstrated an organic desire for consensus. Outside of the practical communication of *workable, implementable* knowledge, sharing and communicating information had value, it legitimised information. To put it another way, while it might seem obvious that sharing practical information was important, without the ability to share information, physicians often didn't know what was practical. Letters shared workable knowledge, letter writing made knowledge workable. Sharing information within letters happened around a core communication that was often conversational, letters refer to conversations and their reports, they act as data points around a complete set of information that is no longer available to us. Consensus was often a compromise: a position that was reached through negotiation, rather than the process of winning or losing a debate, or persuading the public. Correspondence played a crucial role in creating consensus, specifically in the channel it provided for creating and refining the process of second opinions, correcting and supporting medical diagnoses and courses of treatments. The process of observing, fact-checking and reporting were the same in botany, recipe collections and informal correspondence.

As much as observation was an episteme, consensus was epistemological, essential to the establishment of truth. Just as important as the act of observing was the mechanism for communicating and validating the individual's observation among a professional consensus. This was evident in botanical correspondence, where the merits of a plant's identity, the uses to which it could be put and the factors of note in its appearance were all described by virtue of consensus in reporting, rather than real 'hands-

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<sup>88</sup> See Candice Delisle, 'The Letter: Private Text or Public Place? The Mattioli-Gesner controversy about the *aconitum primum*.' *Gesnerus*, 61 (2004), 161-176. On the published debate see: Richard Palmer, 'Medical Botany in Northern Italy in the Renaissance', *Journal of the Royal Society of Medicine*, 78 (February, 1985), 149-157 ; Vivian Nutton, 'Matthioli and the Art of Commentary,' in D. Fausti (ed.) *La complessa scienza dei semplici. Atti delle celebrazioni per il V centenario della nascita di Pietro Andrea Mattioli*, Siena 12 marzo 2001–19 novembre 2001, Atti dell'Accademia delle Scienze di Siena detta de' Fisiocritici, Supplemento al tomo XX, serie XV (Siena: 2004), 133–147.

on' examination. Observation, in the case of correspondence, was a matter of accurate reporting and received truth, rather than individual experience. Identification of plants, in Clusius' and Camerarius' correspondence was tied not to an acceptance of valid truth claims, nor yet to individual experience, but to a lateral participation in forming truth claims. It was not assertive but corroborative.

Although the case study only emerged as a formal, conceptualized unit of medical observation toward the second half of the sixteenth century, the growing emphasis on the procedures for reporting plants, books and medical case studies were the same. In Camerarius' botanical books, he described in detail the methods of extracting and observing plants over time. In his correspondence, he spent years discussing minute details of local plants with various correspondents. But, ultimately, it was in his legacy on the organization of the provision of medicine that this impulse to consensus had its most enduring impact. In the story of the medical reformation, letters and correspondence created a locus for change that is not otherwise available to the modern observer. They occupied a space somewhere between the imagined, private, conceptual/intellectual shifts that took place internally within the medical profession, and the formal, public declarations of those shifts that took place in writing, and the social movements that took place in communities or cities.

However, although the letters provide an insight into these slow, conceptual changes in the way botany and medicine thought about evidence and knowledge, demand for consensus came from multiple directions. It was evident among patients, employers and towns, as we saw from Nuremberg's commission to its physicians to produce a communal *Gutachten* during the Hungarian epidemic. It was also evident in the way physicians marketed themselves. Professional presentation of medicine relied increasingly on consensus. The identity of the physician as an intellectual, and the identity of medicine as a subject were now joined by an idea of the relationship between doctors, rather than the identity accorded to physicians as a collective.

Letters and *consilia* were discrete units of medical currency, but their roles in the development of medical knowledge were compatible. They were put into dialogue with each other by sixteenth century publishers, and thence into configuration by historians, but the relationship they describe between their various contributors has yet to be fully elaborated. Because both letters and *consilia* reproduced and circulated discrete, particular knowledge, the important differences between their function as communicative agents ought not to be forgotten. Letters built consensus and *consilia* displayed it.

This kind of consensus had ramifications outside of botanical correspondence, but it was specific and particular and, most importantly, enduring within medical knowledge *and* within the way medical knowledge was perceived to function by patients and polity alike. Within two generations, Frances Bacon would formalize this idea of the collaborative basis of knowledge in his *Great Instauration and Advancement of Learning*. But its migration into 'scientific' discourse ought not to disguise the foundational importance of consensus to something that was specifically *medical*. Consensus is the key practice within medicine. As sixteenth century writers acknowledged, medical practice required harmony to restore harmony, between practitioners and between physician and patient, and between the patient and his or her body.

## Conclusion

In 1593, Carolus Clusius moved back to the University of Leiden, where he had been appointed to a post teaching botany and been granted control of the university's garden. Over the next five years, his correspondence with Camerarius petered out. We can put this down to changed circumstances, rather than any personal troubles between the pair. It took far longer for post from Nuremberg to reach Flanders than it did Vienna, and Clusius' letters complained that he was waiting three months for a letter.<sup>89</sup> Given the nature of the friends' exchanges, swapping plants, this kind of time lag was not sustainable. For Clusius, a new garden meant a period of slow cultivation, he designed the garden from scratch. For Camerarius the new *Collegium medicum* meant a set of demands in daily living. In the last two years of his life his health suffered, and the flow of letters that date from this time slackened. Even in their absence, however, letters shade and nuance our understanding of Camerarius' life. Although his own letters did not survive, he figured centrally in the letters sent to him, whole constellation of physicians and their various interests, information and stories oscillated around him.

For the historian, these letters testify to a vital network of practicing physicians, and each letter appears like a single point in a far-flung data set, promising more information if harnessed correctly. They were read on top of each other, and each missive bound more than one physician tighter into the collaborative, collective web of doctors. They served a social function, and they also conveyed a social component within a singular research agenda, which was that of Joachim Camerarius himself. When writing about education in medicine historians have often dealt with it as if it were a self-composed entity, imparted as whole, not necessarily limited to institutions but limited by time. Thus, in the standard biography, there was a period of education or training, followed by a period of professional conduct. For example, Catrien Santing characterizes the role of knowledge in the renowned physician's Pieter van Foreest's life thus: 'one might argue that, while in his youth Van Foreest travelled and acquired medical knowledge by passing and sojourning at the centres of medical excellence of his day, during his professional years he concentrated on the collection and exploitation of medical knowledge to be demonstrated in his writings.'<sup>90</sup> Here then, the division is between acquisition and demonstration, mediated by the process of collection versus exploitation. The doctors themselves saw medical practice as the continuation of ongoing investigation. Medicine was a process of inquiry, and, for them, where they took part in such collective inquiry did not supersede the essence of the activity itself. Of course, professionally doctors marked the acquisition of a license and the entrance into membership of the profession as a period distinct from study. But for Joachim Camerarius at any rate, medical practice continued as an open ended quest for knowledge. There is no better testament to this than his letters. Like Palma's library, he created a lateral system of references and read across them in his search for certainty.

Although much of what we find in Camerarius' correspondence confirms or enhances the kind of medical practices evident in print, in collecting and in practice, the

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<sup>89</sup> Trew Collection, Carolus Clusius, Brief 191. In which a letter from Camerarius, written in January 1596, did not arrive till March.

<sup>90</sup> Catrien Santing, 'Pieter van Foreest and the Acquisition and Travelling of Medical Knowledge in the Sixteenth Century', in Cunningham & Grell, *Centres of Medical Excellence*, 149-150.

mode of communication is distinctive. Unlike print, which was driven by printers, artisans and public demand, medical correspondence propelled its own agenda. Unlike Georg Palma's library, the experience was at once open and collective. Within correspondence the interests of physicians become on the one hand more diverse, but on the other, relatively speaking, interestingly similar. The conventions of correspondence were formed by, and formed in turn, habits of observation, reporting and response. Camerarius' correspondence also testifies to a time before regulation. In 1592, the codification of the second opinion would formalize what had hitherto been an unregulated impulse. Although correspondence would continue, and desire for consensus with it, the relationship between physicians in practice and their communications in writing were changed by the medical reformation.

**Part Three**  
**Reform in Nuremberg**



## Chapter Six: Camerarius and the manifesto for reform in Nuremberg

### Introduction

Camerarius submitted his text to the city council in 1571. *Short and ordered considerations for the formation of a well ordered regime, in which doctors and medicines, together with all other necessary things might be ordered and kept*, was a handwritten submission, some forty pages long.<sup>1</sup> The text was divided into three parts, with a preface that dedicated the work to the city council, and a table of contents that looked like this:

*The first part*

*Cap. I. Of the duty of a physician against illness and other people*

*Cap. II. How the sick and the people who care for them should conduct themselves with a physician.*

*Cap. III. How an orderly collection or 'Collegium' of physicians should be formed, and what success would follow*

*Cap. IV. Of the duty of a physician, particularly as regards the apothecary, and overseeing it.*

*Cap. V. Of foreign and unknown people, who offer sundry medicines.*

*The second part*

*Cap. I. Of the duty of an experienced apothecary and his servants and apprentices.*

*Cap. II. How a well-ordered apothecary and all its belongings should be arranged.*

*Cap. III. Of books, in which the doctors write their medicines for apothecaries and [the apothecaries] their recipes.*

*Cap. IV. Of visitations and inspections of the apothecary.*

*Cap V. Of tax and remuneration of the apothecary.*

*Cap VI. On those who, outside the apothecary, prepare and sell purgatives and golden remedies.*

*The third part.*

*Cap. I. Of wundarznei, barbers and bathers.*

*Cap. II. Of bone-breakers, eye-doctors and the like, who may be permitted in the city.*

*Cap. III. Of sworn-wives, midwives and the like.*

*Cap. IV. Of the viewing of the lepers*

*Cap V. Of the visitation and inspection of hospitals, and the almshouses.*

Like the table of contents, the substance of the text appeared relatively straightforward and its message was familiar. The general structure of the text reflects a standard recapitulation of the basic tenets of vernacular Galenism, similar to the popular 'mirrors' of doctors (*Spiegel der artzney*) by Lorenz Fries or Johannes Drysander, the

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<sup>1</sup> StB N, Cent V 42, 90a - 139 b *Kurtzes und ordentliches bedencken, welcher gestalt in einem wohlgeordneten Regiment, es mit den Ärzten und Arzneien sambt allen andern darzu notwendigen stücken möcht geordnet un gehalten werden.* A second copy of the manifesto remains in the records of the *Collegium medicum*: StadtA Nuremberg, B/19, 122.

bestselling medical 'encyclopedias', and the handbooks of medical practice for the general public.<sup>2</sup> The preface outlined its *modus operandi*. The state of medicine in Nuremberg had fallen into disorder; it needed fixing. These problems had arisen in recent times as a result of wickedness, 'spiritual and worldly', and finding their roots in the confusion and disorder it had caused. Such disorder and confusion was a general problem but was particularly germane to doctors, who saw social disorder as undermining the very notion of what health was. Moreover, practically speaking such disorder prevented adequate medical care by doctors. It led to abuse and mistrust and it kept doctors from their callings.<sup>3</sup> Discussions with his friends and medical collaborators about these problems supported Camerarius' own experience in the set of recommendations that followed. The three sections of the booklet hint at the methods he considered at his disposal. In search of a solution, Camerarius took as his raw materials, apothecaries, midwives, surgeons and the entire *dramatis personae* of Nuremberg's medical marketplace.

Camerarius' manifesto described a medicine that had fully absorbed, if not wholly recognized the significance of, the changing interests of its learned practitioners. The crux of this dissertation is the argument that the medical reformation involved the social organization of changes within medical practice, and Camerarius' text is the bridge between these two realities. In looking at the practical claims he made on behalf of the physicians in Nuremberg, material and professional claims, and seeing evidence of the changing medical theory within, we come full circle. Camerarius' manifesto was a text that performed in a circle as well, cycling away and back from points that remained unfixed: medical order, civic well-being, medicine itself.

The medical reformation proposed by Camerarius and the doctors of Nuremberg came about as a result of changes within the medical profession: a growing awareness of the importance of therapy and pharmacy within the context of medical care, an increasing emphasis on collaboration and consensus as the bedrock of legitimacy, and the subsequent tension between increased professional confidence and apprehension about the inadequacy of existing medical knowledge in the face of plague, poverty and pox. But

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<sup>2</sup> Lorenz Fries, *Spiegel der Artzney*, Strasbourg, Johann Grieninger, 1518. Fries' book was the first text on internal medicine in vernacular German. Further editions appeared in 1519 and 1525. In 1529, Otto Brunfels produced a revised edition of Fries' text, unfortunately riddled with errors. A third version, trimmed of illustrations, was published in Strassburg by Balthasar Beck in 1532. In 1545 Johannes Dryander, professor of medicine in the University of Marburg, published *Arzeneispiegel* under the auspices of Christian Egenolph in Frankfurt. Although this 'second' mirror of medicine purported to be an original text, it was largely based on Fries' book. It too proved popular, and further editions appeared in 1557 and 1570. See Johannes Dryander, *Artzenei Spiegel : Gemeyner Jnnhalt derselbigen, Wes beide, einem Leib vnd Wundtartzet, in der Theoric, Practic, vnnnd Chirurgeti zusteht ; Mit anzeyge bewerter Artzneien, zu allen Leiblichen Gebrechen*, Frankfurt, Christian Egenolph, 1547.

<sup>3</sup> 'StB N, Cent V 42, 91b - 92a. Nachdem aber zu unsern letzten zeiten von wegen unserer suendten, und der leut bossheit in geistlichen und weltlichen sachen von tag zu tag allerley confusion und unordnung einresset und sich meret, woellen sich leider was die heilsame artzney belanget, an vielen orten auch nicht geringe mangel und missbrauch erzaigen, welches dann vielen guethertzigen und treuen aerzten (die dadurch nicht allein oftermal verhindert werden, irem ambt, wie sich gebueret und sie gern thun wolten, treulich vorzustehen sondern auch derwegen bey dem gemainen volck unschuldiger weis verkleinert und in grosse verachtung kommen) gantz beschwerlich ist, wie man dann derselbigen nicht unzeitigen klagen teglich vernimmet, also das es dahin kommen ist, das ihr viel solche kunst zu uben nicht ein gering bedencken haben, und oft, wo es mit gueten gewissen geschehen moecht, gar davon ablassen wolten.'

the movement Camerarius participated in had contexts outside the medical profession as well as causes within it. As we saw in Chapter 2, the literary demand for medical reformation became a feature of public discourse in Germany in the middle of the sixteenth century. It arose from the combined impulses of civic and Imperial authorities to introduce better legislation, and a separate, fundamentally humanist, desire to modify and protect medical knowledge. This latter impulse was mirrored within the medical community, and represented by a specifically medical variety of humanism.<sup>4</sup> But as practiced in the urban environments of the Imperial cities, medicine and the professional impulse to reorganize and reform it married the two previously separate demands for medical reformation. Municipal physicians thought about their work within the civic context. They capitalized on developments described in detail in part one of the dissertation: a concentration on the application of medical knowledge to practice, growing databases of remedies and a pharmaceutical knowledge, and an *esprit de corps* that legitimated medical consensus and collaboration. In turn they were motivated by a variety of fears and concerns provoked by their growing interest in new spheres of medical learning.

Depending on the point of origin, what was meant by medical reformation in its emerging discourse was different. As we have seen, it could mean variously, order, civic control over the sale of pharmaceutical remedies, a humanist purification of texts or a pedagogical focus on education (depending on one's point of view, these are the same or different), or a professional reorganization of the medical hierarchy in the city. But it meant other things as well. It meant an organized campaign against Paracelsianism. It meant common standards for the treatment of plague and pox. It meant the guaranteed provision of medical care for citizens of imperial cities and for the subjects of some principalities as well. Of the various texts considered in Chapter 2, Camerarius' text bears the most similarity to Joachim Struppius', the municipal physician from Frankfurt.<sup>5</sup> This is unsurprising, as both Camerarius and Struppius were municipal physicians, writing almost simultaneously in cities with comparable sets of circumstances. Camerarius and Struppius' texts differed from other contributions to debates on medical reformation, largely in the manner in which they addressed their subject. Whereas medical reformation had been a consideration, as we have seen, in texts dating from the fifteenth century, it had generally been treated as a symptom, or an inadvertent effect of a greater problem, and, because of this, it formed part of a variety of different discourses. Camerarius and Struppius brought it to the forefront; both made the reform of medicine the main problem of their texts. They created a subject out of this impulse. And yet Struppius' text, as we have seen, was relegated to the margins of medical history, while Camerarius' text, which we are about to consider, had a profound and controversial impact on the medical politics

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<sup>4</sup> See Chapter 2. On medical humanism see Nancy Siraisi, *Medieval & Early Renaissance Medicine. An Introduction to Knowledge and Practice*, (Chicago: University of Chicago Press, 1990); Vivian Nutton, *The rise of medical humanism: Ferrara 1464 -1555*, Vivian Nutton, *Humanist Surgery in The Medical Renaissance of the Sixteenth Century*, ed. Andrew Wear, Roger K. French & Ian M. Lonie, (Cambridge: Cambridge University Press, 1985), 75 -99.

<sup>5</sup> Joachim Struppius, *Nutzliche Reformation zu guter Gesundheit/ und Christlicher Ordnung/ Sampt hierzu dienlichen erinnerungen/ waser gestalt es an allen dritten/ wie auch allhier zur Seelen und Liebe wolfarch/ ze. loeblichen und nuetzlichen zuhalten*. Frankfurt, 1573.

of Nuremberg. The substance of their reforms was similar. So what drove the two separate trajectories of these medical reformations? One difference between Camerarius and Struppius was the city in which Camerarius practiced; the other was the way in which Camerarius used his city.

Obviously, the response of the city was important. Whereas Brunfels and Struppius attempted to engage uninterested city councils, Nuremberg's senate had taken an active interest in the regulation and provision of medicine since the early years of the sixteenth century. But Camerarius also did more to solicit a response, he engaged in different ways not just with a distant council, but with other members of the medical marketplace. Brunfels and Struppius disregarded as active agents the other members of the *heilberufe*. Even if he had wanted to, Camerarius could not. His apothecarial colleagues were active in city politics, and the city politics of Nuremberg were actively interested in medicine. By 1571 the senate had already proved itself interested in medical reform, specifically in the context of its pharmaceutical remedies. Overall, Camerarius' career was more entrenched in his city than Struppius' was in Frankfurt. He had a definite fixed audience and interest, whereas Struppius was torn between the context of Frankfurt and the possibilities presented by cities in general. Camerarius made use of this interest. Not only did he submit and dedicate his work to the council, thereby invoking their authority, he also framed it in a way that they would understand, he took care to assert both the medical duties the city bequeathed and the medical claims he made in a civic idiom.

The explicit context that Palma gave to Camerarius' document was the excerpt from the *Lex Carolina*, and with this introduction Palma set the medical reformation in the context of imperial legal reforms and legislative impulses. Inscribed on the paper, transcribed directly from the published text, is an excerpt from Charles V's widely circulated *Lex Carolina* of 1532.

Item, so that a doctor, [either] from lack of industry or lack of skill, without premeditation, kills someone with his medicine, it is found by the learned and expert, that he has misused medicine carelessly and riskily. Or, if his medicine is not learned or is invalid, which is unseemly, or is not understood, and he causes death with it, there should, according to the circumstances and shape of things, and according to the advice of the experts, be a punishment, and in these cases, the utmost care should be given to determine which are frivolous [unskilled] people who undertake medicine. However, if a Doctor does these things willingly, then he will be punished as if he had undertaken murder.  
Charles V and the Carolinian Criminal Code.<sup>6</sup>

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<sup>6</sup> StB N, Cent V 42, 93a. Item so ein artzt aus unfleiss oder unkunst, und doch unfuersetzlich jemand mit seiner artzney todet, erfand sich dan durch die gelerten und verstendigen, dass er die artzney leichtgertiglich und verwegentlich missbrauch, oder sich ungegrunder unzuelessiger artzney, die im nitt geziembt hat, understanden, und damit einem zum todt ursach geben, der soll nach gestaldt und gelegenheit der sachen, und nach rat der verstendigen gestrafft werden, und indiesem fall allermeist achtung gehabt werden, auf leichtfertige leut die sich artzney unterstehen, und der mit keinem grundt gelernet haben. Hat aber ein Artzt solche dotung williglich getan, so wer er alz ein fuersetzlicher morder zu strafen. Kaiser Karls des 5 und des Roemishcen Reichts painlich gerichtordnung.

In the years immediately preceding the sixteenth century there was a great demand for political reform across the German territories of the Holy Roman Empire, a project that culminated in a series of imperial diets from Worms in 1495, to the Peace of Augsburg in 1555.<sup>7</sup> It had, among its benchmarks the founding of the *Reichskammergericht* (the Imperial Chamber Court) in 1495. There were two kinds of political development, and thus two kinds of legislation, which contributed to a new focus on medicine. These were, first, a growing emphasis on good governance and the *Polizeyordnungen* it inspired, and, second, a new emphasis on penal government, and the systematization and rationalization of German law. The *Polizeiordnung* was a matter of ensuring 'good governance' and involved 'less a legal evolution than an administrative transformation of the late medieval principality.'<sup>8</sup> Comprehensive Imperial ordinances were published in 1530, 1548 and 1577, each of which included elements of sumptuary law and prescriptions for behaviour and moral conduct that focused on medicine. The second major development to affect government and rule was the attempt to systematize the Holy Roman Empire's law, that is, to create a penal code for the diverse territories in the empire.

The excerpt that Palma copied was taken from the published compendium to the Diet of Regensburg in 1532 *Des Allerdurchleutigste großmechtigsten/ unuberwindlichsten Keyser Karls des Funfften/ unnd des heyligen Romischen Reichs peinlich Gerichts ordnung/ auff den Reichßtagen zu Augsburg unnd Regenspurg/ in jaren dreissig und zwey und dreissig gehalten/ auffgericht und beschlossen. Getruckt zu Franckfurt am Mayn, 1563*, commonly known as the '*Peinliche Gerichtsordnung Kaiser Karls V'* or by its Latin title *Constitutio Criminalis Carolina*. The *Lex Carolina*, was intended to be a comprehensive legal code, a code of criminal law for the punishment of capital offences. Originally printed in 1532, the collection of laws was reprinted numerous times in the sixteenth century and cropped up in almost all major book collections of the time, and it can be presumed that the contents were, at least in rough, widely known.<sup>9</sup>

The *Lex Carolina* tackled medicine and its practitioners as a subset of criminal law. Doctors appear twice in the *Lex Carolina*, once in the context of defining the appropriate punishment for negligence and willful harm. The other context, not

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<sup>7</sup> Thomas A. Brady Jr, *German Histories*; Ralf-Peter Fuchs, The Supreme Court of the Holy Roman Empire: Research & Outlook, *Sixteenth Century Journal*, Vol. 34, No. 1 (Spring, 2003), 9 -27; Harold J Berman, Conscience and Law: The Lutheran Reformation and the Western Legal Tradition, *Journal of Law and Religion*, Vol. 5 No. 1 (1987), 177 -202. Stable URL: <http://www.jstor.org/stable/1051024>.

<sup>8</sup> Brady, *German Histories*, 100.

<sup>9</sup> Friedrich-Christian Schroeder (ed), *Die Carolina. Die Peinliche Gerichtsordnung Kaiser Karls V. von 1532*, Wege der Forschung, Band 626, Darmstadt, 1986. Johann von Schwarzenberg, principal author of the Carolina would have been pleased at Palma's notice: written and published in the vernacular, his lengthy legal treatise included woodcuts and rhyming couplets, in an attempt to boost readership and aid memory. Whether this was successful was another matter. For debate over the reception of the Lex Carolina and the reform of the legal tradition see Ralf-Peter Fuchs, The Supreme Court of the Holy Roman Empire; John Witte, *Law and Protestantism: The Legal Teachings of the Lutheran Reformation* (Cambridge: Cambridge University Press, 2002). H. C. Erik Midelfort's, *Witch Hunting in Southwestern Germany, 1562 - 1684*, (Stanford: Stanford University Press, 1972) includes a useful discussion on the reception of the penal code in practice.

mentioned by Palma, is more positive, identifying doctors as expert witnesses in a variety of judicial contexts. In the body of the *Lex Carolina*, Palma's excerpt appears in the context of a longer discussion of murder (*bose todtung*), which says little except that murder through medical malpractice did not spring fully fledged as a crime unique in any particular way; but arose through a taxonomical discussion about all the ways in which a body could be killed, and all the ways in which its murderer could be punished. Specifically, the text counted murder in the home, by poison, or when a wife killed her child, when someone helped a woman procure an abortion, suicide, when someone had a dangerous animal that killed, murder or homicide 'without an excuse' (*die kein gnugsame entschuldigung haben mogen*). All of these were crimes that demanded the death penalty.<sup>10</sup>

Framing was as much a matter of imagination as of structure. The use of the *Lex Carolina* was strategic and deliberate. While not improbable that the doctors found the threat of medical malpractice suits a terrifying possibility, the *Lex Carolina* was not something that the doctors spent a lot of time protesting. In fact, the participation of German physicians within the legal system of the Holy Roman Empire was not nearly as prominent or frequent as it was in Italian or Spanish regions and cities.<sup>11</sup> As we have seen in Chapter 4, Palma was concerned with creating a narrative of reform. In this light, participation by doctors in constitutional matters of political reform and the impact of constitutional matters of political reform on doctors were less important than the perception, by medical writers and lay administrators alike, that political welfare and medical organization were bound together.

Beyond appealing to civic authority, Camerarius' text extracted and appropriated the language of civic politics to talk about medicine. Throughout the sixteenth century, doctors, from Brunfels, Struppius and Lange to Fernal, Dalechamp, Paracelsus and countless others had made political claims on the basis of medical authority. Camerarius made claims *for* medical authority using the language, classical ideals and uncoded structures that governed and dictated city politics. By the sixteenth century, Nuremberg's ruling elite had developed a strong relationship with the Roman Republican ideal. Camerarius employed language reminiscent of both the classical ideals of order and civic welfare, and the prescriptive concepts of order and policing found in the various *polizeyordnungen* of the fifteenth and sixteenth century. As often as possible throughout the document, Camerarius referenced classical authorities on civic culture. These included figures like Cicero and Plato that were familiar to the majority of the Nuremberg patriciate, but Camerarius also made a point of using a broad array of specifically medical authorities, ancient and modern. Accordingly, Galen, Hippocrates, Dioscorides, Celsus, Mesue and Rhase appear beside Gesner, Fuchs, Pictorius, Benedictus and Sylvius. Many of these names were commonly used in vernacular and Latin medical literature, and it can be assumed that they were familiar as authorities to the Nuremberg

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<sup>10</sup> J. Kohler & Willy Scheel, (eds) *Die Peinliche Gerichtsordnung Kaiser Karls V. Constitutio Criminalis Carolina*, (Halle: Verlag der Buchhandlung des Waisenhauses, 1900). *Hernach volgen etliche bose todtung, vnd von straff derselben tetter*, Articles 155 - 183, 62- 79.

<sup>11</sup> David Gentilcore, 'All that pertains to medicine: *Protomedici and Protomedicati* in early modern Italy', *Medical History*, Vol. 38, No.2 (April, 1994), 121 -142; Gianna Pomata, *Contracting a Cure*; Michele L. Clouse, *Medicine, Government and Public Health in Philip II's Spain: Shared Interests, Competing Authorities*, (Aldershot: Ashgate, 2011).

Senate; but that expertise in and mastery over their writings was reserved to those who had undertaken a medical education. Unlike other medical authors, Camerarius eschewed biblical quotation when addressing senates in the vernacular. Rather than the conventional citation from Ecclesiasticus (used by Brunfels, Seitz, Rhegius, Lange and even Coiter), Camerarius quoted the poet Menander in his preface, casting the conventional religious distinction between body and soul in humanist terms, and correlating it with the contribution to health by wisdom. On Jews, he cited the jurist Franciscus Ripa.<sup>12</sup> On the virtue of mistrusting strangers, he referenced the humanist, Jovianus Pontanus.<sup>13</sup>

Tracing the references in Camerarius' text gives an explicit overview of some of the problems for sixteenth century physicians in turning their attention to questions of medical organization. As his text progressed, Camerarius found himself with fewer and fewer antecedents. When he wrote about medicine, about physicians and about unlearned empirics or improper practitioners, Camerarius could draw on luminaries. His most frequent source throughout the entire text was Hippocrates, whom he cited seven times, and on whom he continually drew. In contrast, Camerarius cited Galen only four times. But the problem was that classical writers had not preempted the landscape of the sixteenth century imperial city, and there were no sources of authority to speak of when considering eye doctors, bone breakers and the like. The further the text progressed into the medical specifics, the less frequently Camerarius cited, or *could* cite, anyone. Camerarius proved with his frequent referencing, that he was *au fait* with contemporary legal and theological thought on the spectrum of political order. However, outside of the codified structures of political thought, his text was grounded, more usefully, and more fruitfully in a deep tradition of political custom, of the ordered commonplace. In the sixteenth century, this was possibly even more important than the ability to cite Cicero.

Take, for example, the foreword to his treatise, in which Camerarius chose two poetic aphorisms, one from Menander: *'Vitae bona duo sanitas, prudentia,'* and the other from a poet that he does not name: *Optandum est, ut sit mens sana in corpore sano.* From these two quotes, we learn that corporal health is guaranteed not merely by medicine, but by wisdom. To protect it, one should not seek out simply cures, but also learned and experienced people, to create a regiment from which good order and laws can be derived.<sup>14</sup> The solution to these problems and the caveats within which medicine operates, is the solution to all similar problems of malpractice or social disorder, i.e. the creation of order. In part repeating himself, Camerarius attempts to explain: *'But because of these ignorant and ungrateful people, who in our times often do the work of doctors, too often not enough care is taken of an endangered life, or, even it is forgotten, or held in disdain it is necessary, with the consultation of an entire college of doctors, to create a certain*

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<sup>12</sup> StB N, Cent V 42, 113r: 'Und schreibt davon ein geleter Jurist Franciscus Ripa also'; Giovanni Francesca Ripa (ca. 1480 -1535) was an Italian jurist with interests in medicine.

<sup>13</sup> StB N, Cent V 42, 106v: 'Der weiss gelert man Jovianus Pontanus schreibt ein geschicht von einem kurtzweiligen menschen Gonello genand'; Giovanni Giovano Pontano (1426 -1503) was an Italian humanist and poet.

<sup>14</sup> St B, N, Cent V 42, 91v: hat man alle zeit zu erhaltung des leibs gesundtheit nit allein allerley middle und artzney gesucht, sondern auch gelerte und erfarnen leut die dieselbigen recht und wohl zu gebrauchen, und dem krancken wohl for zu stehen wuessten, bestellet und in ehren gehalten, und in wolgeordneten regiementen sich bevlissen, von solchem allem guete gesetz und ordnung zu machen.

order. It could be done with scant effort, and ought to be given to a doctor, not least a distinguished doctor, to write.<sup>15</sup> Order then, or an ordinance to procure it, is a desirable claim germane to the city as a whole. Camerarius posits it as the ultimate aim, and asserts that order rests on the presence of a learned or 'distinguished' doctor and the consensus of his colleagues. This is, in essence, his strategy throughout the text. Even in the midst of declaiming limits, dangers and obstacles, Camerarius builds on the caveats, constructing an authority intended to control and contain, as well as to shore up and enable.

Instead, Camerarius appealed to contingency, to order, to non specific civic values. Unlike medical textbooks, he avoided examples. He spoke in metaphors and allusions. 'Order' is a good example of this, as are tradition, status quo, social practice, all elusive quantities. He referenced this commonplace wisdom explicitly on occasions where he cited, 'an old saying'<sup>16</sup> Writing about the organization of Italian medicine in the sixteenth century, Gianna Pomata observes (although in a very different context) that in Bologna there was a non specific sense of 'fairness', which dictated the place of medicine in the city's legal codes.<sup>17</sup> The kind of civic ethics to which Camerarius appealed was more sweeping than this, but the problems and possibilities they presented were similar. Fundamentally, the metaphors for medical reformation were civic before they were medical, and were resolutely secular, even while the physical reach of the movement stretched out to encompass welfare and the previously religious institutions that had governed it.

The problem for historians is that such language was idiomatic, such concepts deeply local in their context and such structures uncodified. There were political concepts at work in Camerarius' text that do not fit nor belong to politics in the modern sense. Some were medieval traditions that escaped codification. Some were specific and internal to communities small enough to exist with individual codes of behaviour, which were impossible to abstract into 'rules'. Early modern communities, politics and courts ruled with a sort of ad hoc capacity not just foreign, but opposed to modern kinds of rules and regulations.<sup>18</sup> Medicine is a particularly apt lens through which to view these principles because, like politics, medicine embraced a theoretical set of rules that never fully applied to the manifest, corporal reality. These concepts were, in the abstract sense, non specific, but Camerarius' *use* of them was incredibly precise. Camerarius was the first to clarify the distinctions between medical authority, medical legitimacy and medical jurisdiction. In the corpus of medical texts, his was the first to really look at a conception of medical authority, both in its political manifestation, and in its meaning within the broader concerns of healthcare. His incisions into the grounds for his manifesto serve to carve out a refined interpretation of the place of medicine in the polity, and the position

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<sup>15</sup> StB N, Cent V 42, 101v: Aber von wegen der unverständigen und undankbaren leute, deren zu unser zeit gar viel sein die des artzt mued und arbeit, ja auc oft die gefahr seines lebens zu gering achten, oder gar vergessen und darzu verachten, ist woll ein nottuerft, das mit rat eines gantzen Collegi der aerzt und bekreftigung einer oeberkeit, ein gewisse ordnung gemacht wuerd, was fur ein belonung billig gefordert kuen weden, einem artzt gegeben sollt werden, und nicht zuletzt war wird, das ein fuernemer doctor schreibet.

<sup>16</sup> StB N, Cent V 42, 117r, 'ein gemain spruechwort,'

<sup>17</sup> Fairness is a key concept in Pomata's work on Bologna. See Gianna Pomata, *Contracting a Cure*, especially 33 -55.

<sup>18</sup> In many cases it is the jettisoning of these ad hoc principles that marks a shift to the modern, the introduction of penal codes for example, written constitutions.



of the physician in medicine. Thus, Camerarius' text sheds light not just on the place of medicine within city politics, but also on the way city politics actually worked.

The second tactic that differentiates Camerarius' manifesto from the remainder of the literature on the reformation of medicine was his skillful presentation of its contents in a manner that concealed the range and scope of many of his demands. Camerarius set out, deliberately and purposefully, to obfuscate his ambitions. He referenced, quoted, cited and shaped his text in ways that summoned to mind familiar strictures, accepted problems and comfortable commonplaces. He played on previously existing political norms, and he couched his medical claims in ways that purposefully downplayed their novelty. The document relied heavily on an existing desire for the reform and improvement of medical practice, the same desire that had led to the hiring of municipal physicians in the first place. All claims and information were presented with citations, disclaiming innovation. Even the proposal for the Collegium medicum was painted as simply adopting foreign success, or modernizing Nuremberg along the lines of foreign customs. Camerarius cited precedent for the establishment of such a medical association; they exist, he wrote, in Naples, Florence, Verona, Milan, Genoa, and other foreign cities.<sup>19</sup> In short, Camerarius did his best to make sure that nothing looked *new*.

In this, of course, appearances were deceptive. The meaning of the text, or its effectiveness, or its value, can be found not just in the moments where it appeared to conform to the early modern commonplace, but in its equally nuanced deviations. Earlier chapters of this dissertation looked at the way in which the intellectual interests of the municipal physicians were shaped by their encounter with the city, specifically in their reflections about the challenges facing medicine. This manifested itself in a fundamental concern with the inadequacy and incompleteness of medical knowledge. The same recognition about medical knowledge provoked and guided other writers, who together formed a loose discourse on how to improve the state of medicine, both in universities and in practice. The call for medical reformation was, on the one hand, an offensive statement against a lack, only recently recognized. On the other hand, as we have also seen in Part One, municipal physicians were paradoxically engaged in a set of activities that bespoke of a new confidence, one born of consensus, collegiality and the civic culture, i.e. engagement with the idea of medical treatment, rather than intellectual diagnosis. This spirit of confidence was twined around the admission of failure, producing the thread of reform. One answered the other.

Camerarius' manifesto folded into itself the changes both in medical thinking and in practice that the position of municipal physician had inspired. Essentially a re-statement of the authority inherent in the position of municipal physician, the text applied to that authority the same intellectual investigation and argument that Camerarius turned on his botanical projects, pushing the conclusions to the furthest limits and imbuing them with real and provocative consequence. Its depiction of the profession of physician incorporated the developments that arose from the municipal physicians' publishing, collecting and correspondence. As a statement of the profession's place in the city, it redefined not only the political boundaries around medicine, but the internal lines and limits between medical protection, medical treatment and medical cure.

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<sup>19</sup> StB N, Cent V 42, 102v.

The remainder of this chapter looks first at the way in which Camerarius' idea of medicine codified the internal changes, traced in part one of the dissertation. It then turns to the organization of the social landscape and the forms of sociability the manifesto structured within the institution of the *Collegium medicum*. Finally, it examines the professional identity that emerged from the possibilities that Camerarius' new ideas about medicine introduced.

## Medicine

*'The doctor is the servant of nature, who, as far as possible, guards the health of people and drives away sickness.'*<sup>20</sup> This, the first line in the first chapter in Camerarius' text, reads familiarly. The formula of the doctor as the servant of nature was similarly stated in the bestselling *Spiegel der Artzney* by Lorenz Fries and Johannes Drysander, in Hans Sachs and Jost Amman's guides to the German professions, in Paracelsus, in various humanist evocations of ancient texts. In fact, the pedigree of the description dates back all the way to Galen, whom Camerarius credits as his source. Camerarius' summary of the nature of this service continued to recapitulate the basic tenets of vernacular Galenism. The Galenic physician employs reason and understanding, learning and experience to treat illness to the best of his ability. He is *'well-read, experienced in his craft, after that he is before all else a god-fearing man, compassionate, merciful and friendly, above all to the poor; [he is] able, truthful, dutiful, assiduous in his profession, judicious in all good art and virtue, careful and prepared in giving medicines, well established in predicting future accidents and dangers, and at all times clean and sober, in speaking, moving, clothing and the like, [he should be] well ordered and moderate.'*<sup>21</sup> An exemplary figure, then, the doctor conforms to the model of a man, as characterized by humanists, Lutherans, civic literature and popular declamation. But in this crowd pleasing sentence, designed to appeal to every kind of reader, lies the first significant departure from Fries, Drysander and their ilk. Although the very basic substance of the doctor's activities, guarding health and driving away sickness, conforms to the description of doctors in the medieval tradition, the nature of this service is altered in Camerarius' text. Camerarius departs from his predecessors, however, in his understanding that the first duty of medical care, the preservation of health, is mandated by and redefined in the light of civic service. This is expressly made clear in the duty that a doctor must undertake, when he is promoted to the position. The characteristics of the doctor as discussed in vernacular medical texts are, thus, transformed by Camerarius, via the position of municipal physician into duties and thence into traits, identifying a *service* rather than a subject.

Camerarius' manifesto is more concerned with the service medicine provides than the substance of medical knowledge itself, and medicine as a service meant a process

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<sup>20</sup> StB N, Cent V 42, 95r: Es wird der Arzt genandt ein diener der Natur welcher als viel mueglich, den menschen ihr gesundheit hülft erhalten, und die krankheit vertreibt.

<sup>21</sup> StB N, Cent V 42, 95v: voll belesen, und erfahren in seiner kunst ist, daneben auch vor allen dingen gottsfuerchtig, mitleidig, barmhertzig und freundlich, fuernemlich gegen den armen, erbar, warhaftig, dinstlich, emsig in seinem Beruf, verstentig in allen gueten kuensten und tugenten, fuersichtig und fertig in Artzney geben, in anzeigung zukuenftiger zufell und gefahr wohl gegruendt, und allezeit messig, und nuechtern, in reden, gehen, kleidern, und dergleichen allen, ein guete ordnung und masshaltent.

measured in terms of input and output, something regulated by controlling practitioners, configuring its various elements. This entailed a different kind of regulation. It was answerable to the city. It was a set of behaviours which could be modified and streamlined, as Fries and Drysander attempted to do in *Arzneyspiegel*. But controlling the patient was more difficult than perfecting the physician. Camerarius' concern with ensuring good medical service fell into line with the municipal physicians' focus, even within their pursuit of abstract medical knowledge, on efficacy and results, rather than philosophical coherency or purity. But within the notion of service, Camerarius focused more on what not to do, rather than on defining a positive sphere of activity.

To this end, Camerarius made five prohibitions with regards to the conduct of physicians, that fully defined the requirements of the city. The first is that they are not careless or lazy, the second overconfident, the third is that they should not be greedy, the fourth is not to be jealous, and finally they should not be ambitious, because ambition leads often to the taking of uncertain or false things as true, or distends truth, holding everyone in contempt.<sup>22</sup> These are not positive characteristics of the abstract physician; these are the professional constraints within which the character of the municipal doctor operates. And just as the city circumscribes the position of the doctor, it also trammels his actions through its obstacle course of patients, other doctors, other medical professionals, and over countless urban hurdles such as pollution, overcrowding, under-nourishment and epidemics. Even learned doctors, he writes, after all possible inquiry and investigation, are often uncertain as to what the situation requires and demands.<sup>23</sup>

What medicine was *not* in these instance was also clearly municipal. The prohibitions are personal, just as the virtues of the good physician are characteristics or character traits. It behooves us to take them seriously. These moral virtues were just as germane to the identity of a civic public figure, as were the official qualifications that physicians acquired over time. As characteristics they were all elements of a social measurement which exposed the physician to public judgement. Anyone, patient or patrician, could assess diligence or condemn greed.

This tells us that medicine in its civic guise was, for Camerarius, a series of actions and behaviours. It was a relationship, or series of relationships, as Johannes Lange envisioned, and it took place in an environment that could either enhance or obstruct its proper provision. Medicine as a set of activities and good medicine that relied on correct process and method were the most basic concepts imagined by the municipal physicians of Camerarius' generation. The organization of medicine was crucial to any conception of medicine as a practiced vocation. Camerarius recognized this, and his manifesto was the first formal effort to make manifest this new reliance on practice. What we have in Camerarius' text is a description of medicine as a practice: a set of interlocking tasks, performed by a variety of practitioners.

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<sup>22</sup> St B N, Cent V 42, 98r - 98v: Das erste ist, das er nicht nachlesig und faul sei... das ander nicht vermessen sein, darum verachtung ander leut herkompt, dass dritt nicht geitzig sein... das viert nicht neidisch sein... das funft, ergeitz, welches oft ungewisse und falsche ding fuer gewisse und warhatige aufblaest, und jedermann veracht.

<sup>23</sup> StB N, Cent V 42, 100v: Diweil ein verstendiger artzt oft gegenwertig, nach aller mueglicher erkundigung und nachforschung, nicht alles, was die notturft erfordert und er begert, erfahren kahn, viel wenigerdurch solche mittel, die zweifelhaftig und ungewiss sein, abwesent zu wiederbringung der gesundheit rathen kahn.

If medicine was a set of practices, describing the practitioner was key, and Camerarius went on to define some features of the municipal medicine in that light. First, medicine was educated. Without making constant reference to universities or qualifications, Camerarius described himself and his colleagues as learned doctors. His emphasis on education and learning was pointed, illustrated by the way his sources excluded even otherwise learned readers from their purview. He quoted Hippocrates and Galen at length, especially when addressing the position of the municipal physician. For Camerarius, medical learning was the cornerstone of legitimate medical knowledge and a university education was the mechanism by which legitimate medical knowledge could be distinguished from 'irregular' medical knowledge.<sup>24</sup> It was not, however, what medicine actually *was*; it did not provide the substance of medicine, merely the boundary between who could practice and who could not. It was an entry point. It is commonplace that false medicine, bad medicine and even heretical medicine were all inversions of academic medicine, good medicine, orthodox medicine. Even the structure of the text reflected this. Camerarius' discursion on medical deviancy belonged in the same category as his treatment of municipal medicine and the duties of the municipal physician. Despite an unequivocal condemnation of foreign medicine, and a plethora of derogatory superlatives, the category of 'bad' medicine itself was uncomplicated, and the space that such figures occupy in his thinking is scant. That said, exactly who is conducting these services is an important issue for Camerarius. Legitimate medical knowledge served a function within the text, distinguishing between good and bad practitioners] and delimiting the scope of medical authority, but it is not the subject of the text.

As we have seen, Camerarius took the abstract doctor of the sixteenth century medical literature, and cast him in terms of his employment, as one among several colleagues. He was not the first to refer to the municipal physician, an indirect subject in Brunfels, the main actor in Struppius and a co-conspirator in Lange. He was the first, however, to explicitly treat, and thus theorize, the configuration of their social relationship as one which positioned all municipal, town or even court physicians in a space shared by other medical actors. The oath that bound the doctors changed their habits into duties, but it also changed the relationship between them. Thus, in addition to being educated, medicine was, for Camerarius, also a matter of collaboration. As we have seen in previous chapters, consensus between municipal physicians was always desirable. Camerarius made it obligatory. Colleagues were not to compete. *The doctor should also refrain from vaunting his own self... and defaming or, even worse, hindering others, except when it is necessary to protect his own good name.*<sup>25</sup> Nor were they to allow dissension between them to become known. *Item, they should not disagree, much less*

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<sup>24</sup> Margaret Pelling and Charles Webster employ the term 'irregular' to distinguish learned medical practitioners from their non-learned counterparts, in preference to 'quacks' or 'charlatans', which, they argue, convey an unnecessarily pejorative implication. Margaret Pelling, *Medical Conflicts in Early Modern London: Patronage, Physicians and Irregular Practitioners*, (Oxford: Oxford University Press, 2003), especially 139 -146. Here, I use the term 'irregular' to distinguish varieties of knowledge, which were many and varied along a spectrum from legitimate to heretical. With regards to practitioners however, Camerarius made too many categorizations, along different lines for the term 'irregular' to convey, I feel, the specificity and the variety of medical identities that existed outside the learned, legitimate sphere.

<sup>25</sup> StB N, Cent V 42, 96v: Es soll auch ein artzt sich selber nicht zumal ruemen...und andere verkleinern oder viel weniger verhindern, sondern wenn es die notturft erfordert, iren gueten namen helfen verteidigen und erhalten.

*argue before the sick or others who do not understand, but away from everyone discuss industriously amongst themselves, so that they might speak about and treat the ill with greater freedom and certainty, and so that the sick, who quickly get something stuck in their ear and worry about it, are not made fainthearted.*<sup>26</sup> They were not to create dissension among other medical groups. Doctors were to avoid the special relationships they enjoyed with one apothecary or another, and they should try and refrain from recommending one apothecary above the other, or placing all their orders with one *'because all are appointed by one authority, and given their duty by it.'*

These were negative requirements, like the list of five prohibitions on municipal physicians. But, more than simple positives or negatives, Camerarius' exhortation about collaboration, said something substantial and foundational about the practice of medicine itself. Collaboration was integral both to constituting the subject of medicine and to practicing it in a positive way. Good art, according to Camerarius, arises from tradition and assembly.<sup>27</sup> There is nothing more trustworthy than consensus.<sup>28</sup> To ensure that medicine was good, trustworthy and consensual, Camerarius proposed and described Nuremberg's *Collegium medicum*, an institution that would ensure and regularise collegial harmony on a personal and professional basis. For the first time, then, twenty-four pages into the document, we receive a description of what exactly Camerarius meant by the *Collegium*. *'It is a common council,'* he opened the third chapter, *'to create consensus in all things, and do away with discord and disunity. That which can be discovered in all standings, and for which no handwork or craft is too low that they cannot unite themselves into a group, within which they compare their doubts and differences and therefore conserve their work; it should be seen more often in that art, which is the highest mortal treasure, namely the study of health and the preservation of the welfare of the body.'*<sup>29</sup> He went on to write that the *Collegium* would ensure that what could not be agreed on, could be debated and arrived at in friendly circumstances, and that in the process additional discoveries might be made.<sup>30</sup>

The *Collegium* was, first and foremost, an institutional body. On the public level the *Collegium* involved oversight and a magisterial kind of protection of the commune from the dangers of disease. Foreign doctors have a point of contact.<sup>31</sup> The *Collegium* gave shape to the authority derived from the appointment by the council, and, on a purely

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<sup>26</sup> StB N, Cent V 42, 97v: Item vor dem kranken oder andern, die es nicht verstehen, nit viel disputirn, viel weniger wiederpart halten, sondern allein beiseiten von allem tun sich vleissig unterreden, sondern allein beiseiten von allem tun sich vleissig unterreden, dann also muegen sie feier und sicherer von der krankheit reden und handeln und werden die kranken, die gar balt etwas in die ohren fassen, und sich bekuemmern lassen, dardurch nicht kleinmuetiger gemacht.

<sup>27</sup> StB N, Cent V 42, 103r: Die gewonheit und versamlung hat die guete kunst geborn.

<sup>28</sup> StB N, Cent V 42, 103r: Es ist nichts glaubwuerdigers dann ein einigkeit.

<sup>29</sup> StB N, Cent V 42, 102v: Es ist ein gemeiner ratt alle ding nehmen durch ainigkeit zu, und durch zwitracht und uneinigkeit vergehen sie. Welches in allen stenden also erfunden wird, und derwegen auch kein hantierung oder handwerck so gering ist, das nicht seine versamlung in gueter einigkeit hat, darin sie sich fuerfallender zwispalt und zweifelhafter sachen koennen vergleichen, und also ir tun erhalten, welches fuerwar vielmehr gescheen soll in der kunst, welche den hechsten zeitlichen schatz, nemlich die gesundheit und wohlfart des lebens versorgen soll.

<sup>30</sup> StB N, Cent V 42, 103r-v: viel zweifelhaftige irrige sachen durch das vleissig disputirn und conferirn eroertert, und viel nuetzliche ding zu gefeulichen kranckheiten erfunden und confirmirt.

<sup>31</sup> StB N, Cent V 42, 103v: Zum vierten haben frembte artzte .. an solches ort zu kommen.

pragmatic level, it made fulfilling the duties of a municipal physician easier. As a body, the *Collegium* provided institutional continuity, and a point of contact for the senate. It made oversight of the medical marketplace easier, but it interpolated the municipal physicians between other physicians and prospective clients, and city alike. Facilitating internal debate, collegiality and discussion was, in one respect a claim to professional primacy (on which, more later), but it was also a novel claim to an epistemological primacy. The *Collegium* played an epistemological role. It coordinated individual observations and judgments into a professional opinion and judgement. It ensured a level of experience and expertise that acted as a bulwark to the individual diagnosis, rather than undermining it.

Although it was already common practice both for attending physicians and for patients to solicit consultations from foreign and other local doctors, Camerarius formalized and gave shape to this vague habit. By advocating a mutual process of referrals and checking amongst the practicing physicians, he explicitly created the 'second opinion'. '*So now, two or more doctors are required for a disease, and they should not undermine each other.*'<sup>32</sup> This was an incredible structure to introduce to the city, not least because it suddenly doubled the clientele for municipal physicians. It placed huge collateral on the fact-checking procedures, and it raised the stakes of collegiality: physicians who were guaranteeing each other's work were by necessity in an environment with equal professional respect. But beyond any of this, the value that Camerarius placed on consensus on diagnosis went beyond the structures of conduct, or any other attempts to regulate the abilities or expertise of municipal physicians. At heart, the second opinion was an epistemological mechanism, intended to ensure collaboration against any threats. It placed a succinct but crucial value on the formation of consensus and prioritized it over guarantors of a physician's legitimacy. Consensus was more important than the seniority, learning or popularity of the physician providing the initial diagnosis.

Camerarius shifted the idea of medicine away from abstract theory and towards a mode of practice, but he also made an epistemological claim to the primacy of a certain kind of knowledge. Like the knowledge displayed in Palma's library, or Camerarius' letters this knowledge was local, lateral and inherently sociable. The practice of the second opinion created 'intrinsically collective conditions of knowability.'<sup>33</sup> It characterised the collegiality of the physicians, as first and foremost, an intellectual institution. This epistemological role became the foundation and bedrock for the civic legitimacy and authority over medicine. It was not the first instance where civic authority was tied to elite or elusive knowledge, but it was the first instance where the connection between authority and knowledge was codified and institutionalized like this.

As the implications of collaboration illustrate, medicine was, thirdly, a matter of diagnosis and treatment, and the one was connected to the other. Diagnosis was crucial to the progression of the disease, if not simply because of the course of treatment

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<sup>32</sup> StB N, Cent V 42, 97v: Nun also zween oder mehr zu einem kranken gefordertt werden, sollen sie nichts einander vorhalten.

<sup>33</sup> Peter Galison/Lorraine Daston, 'Scientific Coordination as Ethos and Epistemology' in Helmar Schramm, Ludger Schwarte & Jan Lazardig (eds.) *Instruments in Art and Science. On the Architectonics of Cultural Boundaries in the 17th Century*, (Berlin: Walter de Gruyter, 2008), 301. Their argument is further expanded in Lorraine Daston & Peter Galison, *Objectivity*, (New York: Zone, 2007).

prescribed, then, in addition, because of the psychological effect a diagnosis could produce in the patient. Doctors were entreated not *'to make a small disease bigger'*.<sup>34</sup> But, if the work of the doctor was to safeguard health, the question remained, with what? And how? Therein lay the medical dilemma of the municipal doctor, who wished to identify himself, on the one hand, as the philosopher and servant of nature per Galen's formula, but on the other as a medical practitioner who was required to describe what service he offered, and who also needed to situate himself as a more desirable medical practitioner than his many urban competitors. In parsing the responsibilities of doctors and apothecaries, Camerarius brought to a head the number of deviations the Nuremberg physicians had taken away from the strictly academic formulae.

Central to these, of course, was the redefinition of municipal medicine as an activity that focused on treatment. And central to treatment was the prescription and application of remedies, increasingly, in the sixteenth century, pharmaceutical remedies. Camerarius' medicine, as we have already seen, was a specifically pharmaceutical iteration of the traditional early modern practice. As such, in his botanical writings he dealt with notions of incompleteness. As he thought through his proposed *Collegium medicum*, this was translated into his interpretation of the trials and vicissitudes faced by physicians in Nuremberg. For Camerarius, and for Nuremberg, the issue of distinguishing doctors from apothecaries was complicated by their mutual codependence. As the *materia medica* was the substance of medicine, the apothecary was the *'right hand'* of the municipal physician.<sup>35</sup> Camerarius referred to the necessity of apothecaries and to the importance of their medicines as a developing feature of urban medicine. Unlike his treatment of specialists, surgeons and midwives, the way in which he focused on apothecaries took care to avoid characterising the profession, and, critically, its practitioners. Apothecaries lay at the heart of Camerarius' text, and indeed at the heart of the medical reformation itself.

Medicine, then, was pharmaceutical, collaborative, learned and a matter of practice. But perhaps more than anything else, for Camerarius, medicine was problematic. We have seen that the demands of practice challenged and changed the Galenic orthodoxies imparted by universities. But it is particularly telling that rather than a statement of capability, the first pronouncement we receive from Camerarius is a disclaimer. *'Be he ever so clever and experienced, no doctor can save everyone: as Hippocrates says, all the sick cannot be healed by a doctor.'*<sup>36</sup> Coming to terms with the essential limitations of medicine was personally and professionally difficult for the physician, but even more difficult when it related to the patient. For Camerarius, the dichotomy between order and health, the constitutive role that medicine played to good standing, both spiritual and material, and the importance of order to health were, in all regards, caveats. They established the ultimate paradox on which medical authority was

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<sup>34</sup> StB N, Cent V 42, 96r: Soll ein artzt... ein kleine krankheit nicht grosser machen,

<sup>35</sup> StB N, Cent V 42, 113v: das ist die rechte handt des artzt,

<sup>36</sup> StB N, Cent V 42, 95r: also kan auch ein Artzt, er sei so geschickt und erfarnen er woll, nit all leut gesunden machen, wie auch Hippocrates saget: Omnes aegrotantes sanari a medico non possunt

to reside. The more beneficial medicine was understood to be, the greater the dangers of its misapplication, or the sweeter the wine, the sourer the vinegar.<sup>37</sup>

At every point and in every intervention, Camerarius' manifesto carries with it a worry about the limitations of medicine, even as it seeks to convey the power and authority and, in some cases, almost miraculous capabilities of legitimate medical practice. It was in reaction to the incompleteness of medical knowledge and more specifically the instability of medical practice that physicians turned to experiential knowledge and its formulation.<sup>38</sup> Pamela Smith writes about artisans articulating an experiential knowledge as a result of their own social and economic power. But in this case experiential knowledge represented a retreat from the inadequacies of deductive knowledge, and it was articulated not by the artisan class but by the academically educated. However, in the practical realm, Camerarius leveraged a set of intellectual worries into a definite claim for power and authority over the processes and practices belonging to a wide variety of medical practitioners.

### **Social organization of medicine**

The link between the substance of medicine as consensual and collaborative and the organization of medicine as a *Collegium* is the most obvious way in which Camerarius implemented internal changes and organized accordingly, but it was also only the beginning. He provided only a brief sketch of the Collegium's structure. The Senate will appoint a certain number of doctors, and seniority will accompany age.<sup>39</sup> All appointed doctors, municipal physicians, automatically become members of the *Collegium medicum*. From these, a Decan is elected. This appointment is intended to change biannually. In 1573, discussions between Ayer, Wolff and Coiter led to the additional demand for intermediaries to be appointed from the ranks of the Nuremberg Senate. This would spare the doctors the tedious business of interacting with the Senate, and provide a point of contact for administrative problems. Far more problematic than the order in which Camerarius arranged the doctors, was the order he attempted to impose on medical practice outside the *Collegium medicum*. Camerarius made a number of incisions into the tangle of medical options available to the population of Nuremberg. Some were simpler than others.

Camerarius' text is explicitly conservative. He made a concentrated effort to avoid the appearance of novelty in every dimension. As far as possible, he took on board existing social stratifications and hierarchies, and attempts to align them with the divisions he makes within his text. And, at first glance, it would appear as if the lines Camerarius drew between physicians, apothecaries and the *heilberufe* merely reinforced existing social hierarchies. They do not. In fact, Camerarius reconfigured the relationship between social hierarchy and political power in Nuremberg, a line that was, before the

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<sup>37</sup> StB N, Cent V 42, 91v-92r : je beßer und nuetzlicher eines jeden dings rechte application und gebrauch ist, jer erger und schedlicher hergegen deßselbigen mißbrauch erfunden wird. Eben als wie auss dem sussten und koestlichen wein, wenn er verdirbt, der seuerste und scherpste essig pflegt zu werden.

<sup>38</sup> See Chapter 2.

<sup>39</sup> StB N, Cent V 42, 103v: Es wird von der oeberkeit ein gewisse anzahl der artzt oder doctoren, dem eltisten unter ihnen schriftlich ueberantwort mit dem geding, das er macht soll haben, wann es von ihnen begert wurd.



text, actually less straightforward. As we have seen, Nuremberg's senate explicitly excluded those holding university degrees from its ranks. This entrenched divide was insurmountable, and Camerarius did not attempt to gainsay it. However, by relegating apothecaries, who were eligible to sit in the senate, to a substandard level of medical authority, Camerarius promoted the authority of physicians over those who retained political power.

It was relatively easy to exclude, and Camerarius did so with impunity. *Frembten leuten*, foreigners, were the easiest target. Although they often claimed to be qualified physicians and doctors, qualified especially in foreign, far flung countries, their claims could not be checked, and Camerarius suspected them not only of inventing fictitious qualifications, but forging documents to defraud potential patients.<sup>40</sup> Anxiety about fraud, especially with regard to fictitious qualifications was an exigent issue in the sixteenth century, illustrated most recently by Tara Numedal.<sup>41</sup> By name, Camerarius specified: supposed, fake doctors, wanderers, empyrics, runaway clerics, horse-doctors, inept old women, teethbreakers, gypsies, Jews, sorcerers, corrupt alchemists and goldsmiths alike.<sup>42</sup> The discrepancy between foreign doctors and some of his other categories, like 'teethbreakers,' is immediately obvious. Camerarius did not address this problem head on. If anything, he avoided defining in any complete way the substance of foreign versus non foreign medicine. Certainly real foreigners were suspect. But Camerarius also included within the label of 'foreign' its more idiomatic meaning of 'strange' or other.

Camerarius borrowed villains from other literary and political genres: vagrants, charlatans and Jews. These categories of enemy were cursorily treated. Travelling doctors play into a common set of urban suspicions of peddlers and begging vagrants.<sup>43</sup> Charlatans and sorcerers were connected with common suspicion of fraud. This leaves the Jews, who were at once the most simple and complicated of Camerarius' borrowed villains, simple because their position as 'other' or 'enemy' had been well carved out by the time that Camerarius was writing his tract. Simple too, because after a final purge in 1498, Nuremberg's Jewish population was non-existent.<sup>44</sup> What made the labelling of Jewish medicine as dangerous and deviant more complicated, was the fact that Jewish

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<sup>40</sup> StB N, Cent V 42, 107v - 108r : Zum ersten, wiewohl sie oft mit städtlichem titel der aertzt und doctoren, fuernemlich aus frembten, weit gelegenen lendern, und unbekanten oerten brangen, auf das ir falsch fuernemen, und erdichte suendt nicht balt offenbar koennen werden... weisen sie geschriebene brief und siegel auf, damit man macherley betrug kan machen.

<sup>41</sup> Tara Numedal, *Alchemy and Authority in the Holy Roman Empire*, (Chicago: University of Chicago Press, 2007).

<sup>42</sup> StB N, Cent V 42, 109v-110r: Das sein nun die fuernembsten merkzeichen, damit solche leut muegen bekand werden, darunter in einer summa verfast sein vermeinte, betreigerische aertzt, landfarer, empyrici indocti, verlossene geistliche personen, rossarzt, unerfarne alte weiber, zahnbrecher, zigneuer, iuden, zauberer, verdorbene alchimisten, goldschmied dergleichen.

<sup>43</sup> There is an extensive literature on vagrancy in early modern Europe. See especially: Robert Jütte, *Poverty and Deviance in Early Modern Europe* (Cambridge: Cambridge University Press, 1994); Tom Nichols, 'The Vagabond Image: Depictions of False Beggars in Northern Art of the Sixteenth Century,' in Nichols (ed), *Others and Outcasts in Early Modern Europe. Picturing the Social Margins*, (Aldershot: Ashgate, 2007). 37-60; Natalie Zemon Davis, *Society and Culture in Early Modern France: Eight Essays*, (California: Stanford University Press, 1975).

<sup>44</sup> See R-Po Hsia, *The Myth of Ritual Murder: Jews and Magic in Reformation Germany* (New Haven: Yale University Press, 1988); Dean Bell, *Jews in the Early Modern World* (New York: Rowman & Littlefield, 2008).

medicine, such as it existed, had held an idiosyncratic place within the medical sphere for many years.<sup>45</sup> It is not a position Camerarius cares to investigate. His prohibition is simple: No one should accept medicine or remedies from the Jews, because they have not studied in Germany. It is forbidden in all spiritual and worldly laws in many places, and would not be permitted or tolerated in a well ordered Christian regime.<sup>46</sup> Most literature on Jews and medicine has examined the bitter opposition to Jewish medicine in Germany as a sign of rabid anti semitism, and its many derivations. It is worth noting, however, that much of what made Jewish medical practitioners popular in Germany were precisely the kind of activities that the municipal physicians were intent on stamping out among any religious or ethnic group. John Efron writes that Jewish 'popularity stemmed from several quarters. Free of guild restrictions, they offered a wide array of medical treatments, ranging from diagnosis to minor surgery. Moreover, they tended to render their services cheaper than did Christian physicians, thus providing a viable option in the medical marketplace. In addition, contrary to the law, Jewish doctors most likely filled prescriptions, and again, for less than Christian apothecaries charged.'<sup>47</sup> They also continued to use uroscopy.

More troublesome and far more important were the other *legitimate* medical practitioners. The problem facing Camerarius was the need he saw to share medical legitimacy with other professional practitioners without sharing medical authority. The third section of his manifesto was devoted to the proper organization of the *heilberufe*: those professionals comprising the wide and amorphous field of medical care within the Nuremberg city walls. The aim of this section is a well ordered policy, governing and organizing the different categories of medical practitioners, and serving, as per his dilemma above, to differentiate the foreign or fraudulent quacks from the sanctioned local practitioners.

Legitimacy had two guarantors: the relationship of the prospective practitioner with the city, and the practitioner's qualifications within the practice of their trade. Camerarius wrote: '*A well ordered policy should mean that people are examined, and without the approval and permission of the masters and sworn members of their trade, they ought not be allowed to practice their profession.*'<sup>48</sup> Of specialists, Camerarius wrote that, '*for many reasons, in large cities and communities, many artists, men and women both, become involved in treating especially this or that illness. Among these, bad people or frauds disguise themselves, and thus there needs to be careful oversight.*'<sup>49</sup> Specialists were problematic for a variety of reasons.

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<sup>45</sup> See John M. Efron, *Medicine and the German Jews. A History*. (New Haven: Yale University Press, 2001).

<sup>46</sup> StB N Cent V 42, 112v: Letzlich das niemand von den Juden fuernemlich in Teutschland, da si nichts studirt haben, artzney nehmen oder pflegen soll, ist in allen geistlichen und weltlichen rechten verboten, an vielen orten, und wird in keinem wolgeordneten christlichen regimentt gestattet, oder zugelassen.

<sup>47</sup> Efron, *Medicine and the German Jews*, 36.

<sup>48</sup> StB N, Cent V 42, 124r: Wie und was er gestalt in einer wolgeordneten polickey solche leut examinirt und ohn bewilligung und erkundigung der geschwornen und eltern maistern ires handwerks nit zugelassen sollen werden

<sup>49</sup> StB N, Cent V 42, 128v: Es pflegt vieler ursach halben in grossen stetten und gemeinen, allzeit mancherley kuenstler, von mann und weibs personen, sich einzulassen, deren viele sich ausgeben, in sonderheit diese oder jene krankheit den leuten abzuheffen. Unter welchen sich oft boesse und betruerische leut einmischen, derhalben ein vleisig aufsehen darauf zu haben ist.

Accepting, even tacitly, the existence and the benefits of specialization presented the city with a challenge. By the time of Camerarius' text, oaths existed for *wundaerzte* and bathers, and the interim profession of the *barbieren* seems to have been subject to one or the other of these. A specific *hebammen-ayd*, an oath for mid-wives, did not enter the city books until the seventeenth century. By then, the city had already devised the position of sworn-wives, who were drawn from the ranks of the patriciate and were present at births as observers, as a means of governing mid-wives.<sup>50</sup> However, the increasing numbers of medical professions facing the city outnumbered by far the number of standard oaths. The city was thus faced with the possibility of recognizing the validity of professions without the capacity to delineate the civic duties or obligations such professions entailed.

The business of definition was the first step toward properly ordered healthcare. Just as he had attempted to name and clarify the peddlers of illegitimate medicine insofar as he was able, Camerarius made specific lists of legitimate practitioners. By name, these included *wundaerzten*, barbers, bathers, bone-setters, eye doctors, mid-wives, sworn-wives, and other persons practicing who have received permission to live in the city. These were divided in three categories: those involved in the surgical arts, those occupying specialist niches, and the women who practiced gynecological care.<sup>51</sup> Medical terminology only extended so far. Legitimate members of the *heilberufe* included those in 'professions' (*staende*) who had recognizable occupations, i.e. they had names and were recognized. It could also include a variety of practitioners who fell outside the channels of standardized medical terminology, that is to say, commonplace medical terminology did not exist for their ever increasing degree of specialization, or for the new practices or cures that they offered. Under these unnamed persons, even a brief view of the kinds of practitioners Nuremberg tolerated, illustrates the array of options: *Zuckermachern* (syrup makers), *Wurtzelmaechern* (herb sellers), *Weibspersonen* (old wives).<sup>52</sup> Particularly the last category illustrates accurately the fluidity and ambiguity associated with unorthodox forms of medicine, occasionally a form of subversive medical substance, but more frequently and far more problematically a label that revolved around administrative matters, or local specifics.

First and foremost, acceptable medical care was defined by the city's permission to dispense it. Camerarius explicitly addressed the grey area created by those who, without permission would be rogue practitioners, but when sanctioned made wholly useful contributions to the city's welfare. Particularly eye doctors (oculists) and bone-breakers were considered in this category. Because none of these practitioners enjoyed a university education, Camerarius differentiated the good from the bad by virtue of their skills and intentions, blaming the preponderance of false fraudulent practitioners for the suspicion with which he regarded their virtuous counterparts. Those who wished to operate in the city would confirm their practice before a magistrate, thereby swearing not to cheat in their operations. Camerarius added to the standard civic concern with

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<sup>50</sup> See Chapter 1.

<sup>51</sup> See the table of contents: Cap. I Von wundaerzten, balbieren und badern. Cap II. Von steinschneidern, augenaerzten und dergleichen, die in einer Statt sich wesentlich einlassen. Cap. III Von geschwornen weibern, hebammen und dergleichen personen.

<sup>52</sup> These names are pulled from *Ratsbücher* in which interactions with individual figures are recorded, and not from *Amtsbücher* or from Camerarius' text.

appropriate pay, the provision that when undertaking difficult operations, such as amputations or removing foreign objects from eyes, they were to consult with the doctor, not about the surgery itself, but about preparing the patient and nursing him or her through it, by way of diet, drink and medicines.

Oaths clarified the relationship between practitioner and polity; they also delineated, at the least, the outlines of the duties practice entailed. The two major categories of acceptable medical care givers, surgeons and midwives, were bound by oath. Camerarius proposed that the *Collegium medicum* would relieve the city council from having to make decisions about medical specializations outside their expertise. The *Collegium*, according to Camerarius' proposal, would act like a licensing body for medical practitioners, and would report on the effectiveness or qualifications of foreign or travelling doctors.<sup>53</sup>

Moving from illegitimate to legitimate figures, Camerarius conceded the desirability and specialist status of the surgical practitioners. It is worth noting that the kind of surgical men about whom Camerarius wrote, were not the university educated churgeons, like Coiter or Dalechamp. Regardless of the oddities of their preoccupation with the knife, these figures conformed to the conservative demands of academic legitimacy. Whether Camerarius valued surgery or not, he certainly would not have seen its practice by other academically educated municipal physicians as problematic. The kinds of surgical practitioners considered here are those *wundarzney*, who considered themselves and were considered by others, as practitioners of surgical procedures. Where the oath made clear the relationship between surgeon and city, Camerarius substituted the municipal physician for the municipality itself. He cast them within terms that precluded certain actions and called almost constantly for consultation with the city's municipal physicians.

If the opportunity to employ an experienced or renowned churgeon arose, he allowed that it was not necessary to employ such strictures as governed the hiring of presumably less renowned, and less experienced colleagues. Such a figure, he advises, will probably bring their oath and industry with them from their last appointment. All other surgeons should be examined by their appointed peers. What Camerarius glossed over was the education separating churgeons, and not only renowned and experienced churgeons, from bathers and even barber-surgeons. Most churgeons had at least a year's education in medical schools, and thus had minor university educations.<sup>54</sup> Barber-surgeons were trained for the most part through apprenticeships, while bathers seldom even formed guilds.<sup>55</sup> Grouping the professions together was disingenuous, and denied for their surgical colleagues the same benefit that education gave the municipal physician.

In addition, at various instances Camerarius subjugated the jurisdiction of the surgeon to that of the municipal physician. Camerarius guarded jealously against incursions into what he considered the realm of academic medicine. His definition of this realm reflects the changing interests and sphere of practice of municipal medicine.

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<sup>53</sup> StB N, Cent V 42, 104v: Solches collegium wuerd auch am besten von frembten aertzen oculisten und dergleichen kunst geschicklichkeitt oder auch unerfarenheit und betriegerey koennen gueten bericht und relation tun.

<sup>54</sup> Nutton, 'Humanist Surgery,' 80.

<sup>55</sup> Nutton, 'Humanist Surgery', 92.

Bathers, barber-surgeons and chirurgions were not allowed to open veins without seeking advice of the *leibarzt*.<sup>56</sup> They could not prescribe laxatives, purgatives, pills or diuretics.<sup>57</sup> This departs from the customary distinction between *leibarzt* and *wundarzt*. Such categories of medicine correlated to physical distinction between internal and external. Internal ills were the purview of the physician, whose academic *philosophical* education allowed him to diagnose by deduction. External medicine, obvious, physical and, in the mind of the academically educated, lesser was the domain of chirurgie. Camerarius steps over this separation. He defines the difference between *wundarzney* and *leibarzt*, not on the grounds of any physical jurisdiction but on the basis of acceptable activities. The *leibarzt* can diagnose and prescribe treatments for illnesses that are strictly external as well as for internal medicine.

By contrast those who did not compete with the profession of the physician were given due regard. Of midwives Camerarius wrote benevolently that 'such people who stay in their profession, and do not presume to exceed the bounds of their knowledge, are much to be praised.'<sup>58</sup> These female practitioners lived in the city but seldom derived their citizenship, if they had citizenship, from their practice, instead receiving it (as did other women) from their membership in a family, that is, as daughter or wife. This did not necessarily relegate them to a status below other practitioners. Like the municipal physicians and the apothecaries, the mid-wives and sworn-wives occupied space among the publicly recognised professions. The women who practiced were recorded by name in the annual lists of municipally sanctioned practitioners, and the sworn-wives, those women who oversaw the practice of the midwives, were habitually drawn from burgher families.<sup>59</sup>

Camerarius was not completely uninterested in matters of childbirth and women's health. He allowed some room for it in the plan of his unfinished manual on general medical care, and he was interested in properties of herbs and other remedies specifically used for women. But, like the majority of his contemporaries, he displayed little inclination to deliver babies, and subsequently had relatively little to say with regards to possible deviations from their prescribed duties by Nuremberg's midwifery. He exhorts them to treat rich and poor alike, and he mentions with disapproval that they often treat burns, lance boils, and should not. He made note of frequent contact between mid-wives and apothecaries, and he did not approve. Mid-wives who prescribed remedies, and apothecaries who prepared them were both guilty of overstepping their places. Mid-wives, according to Camerarius, had no business prescribing anything, although midwifery manuals often included recipes for plasters, purgatives and laxatives. These specific remedies had habitually been used by specialists in external medicine, surgeons,

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<sup>56</sup> StB N Cent V 42, 125r: Zum andern sollen sie gleicher gestalt nit macht haben, einigen geuerlichen kranken menschen zu ader lassen on rat des leibarzt.

<sup>57</sup> StB N Cent V 42, 124v: willen keiner person, es sey weib oder man einige laxativa, purgation, pillulen oder andere treibende arzey, die zu der cura der menschen inwendig in leib gehoerig nicht gebrauchen oder geben sollen.

<sup>58</sup> StB N Cent V 42, 130r: solche leut, wo sie in ihrem beruef bleiben und sich nit weiters dann das sie gruntlich wissen anmassen sein sie wohl zu loben.

<sup>59</sup> Gertrud Hering geb. Schmidt, *Die Beruefstaetige Frau in der Reichstadt Nuernberg bis zum ende des. 16. Jhs. MGVN*, 88 (2001), 1-92. See also: Merry Wiesner, *Working Women in Renaissance Germany*, (NJ: Rutgers University Press, 1986).

barbers, bone-breakers and the like. Camerarius ignored any distinctions between types of remedies. Like he did with surgeons, Camerarius attempted to place the prescription of pharmaceuticals outside the purview of mid-wives. More problematic, however, was the issue of selling such remedies. In attempting to regulate sales, Camerarius shifted the terms of the dispute from other medical practitioners to the specific terrain of the apothecaries themselves.

The apothecary himself was referred to only indirectly in Camerarius' text. He was, for example, the 'right hand' of the municipal physician.<sup>60</sup> But he had no persona. Unlike the good specialist, the renowned surgeon or the bad fraud, the apothecary as person or character was noticeably absent from Camerarius' text. Instead, the apothecary existed in the text (as in the legislative measures that Camerarius proposed) as the possessor of tools and the preparer of remedies. He was the point of entry through which the *materia medicamenta* could be regulated and controlled. It was the place, the 'stuff' and the product that Camerarius confronted directly. Taking care not to cast the apothecaries as enemies (taking care, in fact, not to 'cast' them at all), Camerarius' regulation of 'things' nonetheless slid insinuations of authority over the apothecaries into the very fabric of the manifesto. An example of this can be seen in the way in which he treated the institutional relationship between the *Collegium* and the resident apothecaries. For example, when suggesting the benefits of the College to its members, Camerarius mentioned, seemingly off the cuff, that it would be a body from which informal advice could be solicited, such as recommendations for a good apothecary. This is taken as the leading remark for an insertion of one of the reformation's primary requirements, an apothecaries' *dispensatorium* or *artzneybuch*, to be updated daily and supervised by a physician.<sup>61</sup> Remedies would not be in the possession of one or two doctors, but would be shared amongst all the members of the College of Medicine.<sup>62</sup>

The same requirements for a good doctor were necessary to the apothecary, but the means of judging them differed. Medicine must be prepared, as it practiced, with industry and understanding. Not only did the efficacy of a doctor's remedies rely on their accurate and careful preparation, an inaccurate preparation, whether caused by some mistake in preparation or by ingredients that had gone bad, could endanger the health even further. Apothecaries must be able to speak Latin, because they must be able to understand directions written by doctors, and preferably have a good base of knowledge in common with the doctor that they can speak about. They must understand the uses of the herbs and simples that they keep, the appearance, taste, smell and feel, and be able to tell what is good from what has gone bad, and they should question themselves, not just rely on the word of the doctor. They should have read Dioscorides, Messue and Silvius. They should not be greedy. They should not prepare remedies, nor buy remedies made from ingredients with which they are not familiar, or prescribed by people they do not know. They must take care to give patients the right prescription.

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<sup>60</sup> StB N, Cent V, 113v.

<sup>61</sup> StB N, Cent V, 104r: Item das durchaus in allen apotecken ein orntlich dispensatorium oder artzneybuch von allen teglichen irtuemern wohl corrigirt und uebersehen gebraucht werdt, wie solches zu Augspurg vor wenig jarhen gescheen ist.

<sup>62</sup> StB N, Cent V, 104r: dergleichen stuck nicht allein von einen oder zween artzten besichtiget und approbirt, sondern durch das gantze collegium doctorum gescheen.

In order to adequately enforce these requirements, Camerarius proposed visitation. Not a new process, Camerarius borrowed the traditional format of the visitations but placed a physician in charge. A visitation included an inspection of the premises and supplies. Camerarius combined this with the city oath, which was to be renewed annually. Like the physicians, to whom Camerarius devoted the first section of his text, the apothecaries occupy what Camerarius refers to as an 'office' (*Ambt*). This reflects the reality of the civic position of the apothecaries, who swore oaths of office and entered into unpaid contracts with Nuremberg's Senate. Beyond that, however, it also conveys prescriptive overtones. It sets the apothecary apart from other healthcare professionals, and from the myriad specialists who may or may not count as professionals. The importance in office lay first in the fact that it conveyed authority. While Camerarius might be willing, or even eager, to cede jurisdiction to specialists in various medical cases, the provenance of the office was fundamentally different. It had civic dimensions, to which Camerarius alluded. And those civic dimensions entailed an authority, which existed independently of any professional recognition.<sup>63</sup>

To return to the *Collegium*, the appeal to collaboration and consensus, as discussed in previous chapters, was evident within medical practice and also in the presentation of legitimate medical activity. The *Collegium medicum* was not just a form of association, but of representation as well. Like Lange, but with more justification, Camerarius' text made explicit the participation of a group of physicians. Unlike Lange, who presented 'with' them, in his symposium, Camerarius presented on their behalf. In doing so, he moved the kind of representational identity of the doctor a step forward, from the corporate representation of guilds and guild-masters, to the more modern professional interpretation involving a 'first among equals' authority. With Camerarius at their head, the doctors were represented not *as* a 'body' but *by* an 'individual,' this is distinctly different from the medieval corporations. The idea of representation comes into play here in a way that is different to normal governing bodies in the early modern period, borne out also in the association between Camerarius and his other doctors. This kind of associative work was different from the relationships that existed between other social groups or identities. Camerarius claimed authorship over the text, refraining from a presentation that his writing was the work of a collective, or the result of many contributions, but he simultaneously claimed to represent the other doctors, a claim to which they acquiesced. In this light, the text itself acquired a kind of institutional gloss. It was evidence of a corporate association, a method of consensus as a political representation.

Representation of any group by an individual is a step removed from the kind of medieval corporate identification practiced by guilds, anticipating instead the modern assumption of a professional identity.<sup>64</sup> In the case of the municipal physicians the manufacturing of a common professional identity was itself an innovation, departing from the traditional templates for *medici* or *physici*. This professional identity, the relationship it implied between those who belonged to it, and the history it established for

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<sup>63</sup> StB N, Cent V 42, 114r: das ein oebriigkeit solches ambt derglichen und geschickten apoteckern bevehle

<sup>64</sup> See Harold Perkins, *The rise of Professional Society, England since 1880*. See also Quentin Skinner on civic humanism: Quentin Skinner: *The Foundations of Modern Political Thought: Vol 1: The Renaissance* (Cambridge: Cambridge University Press, 1978), 25-26.

itself were all *local*. Like Palma's collection, Camerarius' setting forth of this identity displayed local as well as learned knowledge, binding the two together with the aim of examining and recreating a form of medical practice common to all, but incorporating the many differences among Nuremberg's circle of doctors.

### **Expertise and Medical Authority**

So far in this dissertation, we have looked at the way in which the emerging collective of municipal physicians constructed and thought about their own epistemological rules and structures in the practice of medicine. But the gap between a self-referential notion of one's profession, and the way in which Camerarius was able to convince the Nuremberg council to ratify and validate that kind of profession is great indeed. One of the more interesting functions and one of the greatest achievements performed by Camerarius' text was to imagine and elucidate the still relatively novel *profession* of the early modern municipal physician, as an occupation with both social and economic value. In many ways this was the most important purpose of the text, for it underlined the changes within and among the members of the medical profession and, more to the point, it affected the way in which those changes were incorporated into the social landscape of Nuremberg, thus affording them a degree of permanence. This was a social position distinct from other groups, statuses and kinds of identity. The profession of the municipal physician in Camerarius' manifesto was benchmarked by expertise, it involved authority and it created a distinct social category differentiated by epistemological method, rather than a concept of knowledge or learnedness *per se*.

In the context of early modern Nuremberg, the concept of profession may, at first glance, seem anachronistic. The term itself postdates the sixteenth century, and as a sociological category it has, in European historiography, originated in ways that are not applicable here. In Germany, the focus on profession has consequently been more sociological, focusing primarily on institutions and the relationship of an emergent bourgeoisie with forms of capitalism and the rise of the bureaucratic state, and as a result it has predominantly focused on the nineteenth century as the origin of these developments.<sup>65</sup> This is in keeping with the historiography of German medicine, which stems from and focuses on post-Enlightenment medicine. Furthermore, this implicit link to modernity has been exacerbated (as is the case with so much nineteenth century German history) by the way in which analysis on the origins of modernity has been tied, as it has not elsewhere, to the rise of authoritarianism. A more flexible and historically mutable idea of profession exists within the historiography on early modern England, where a concept of profession has arisen in tandem with the historiography on the middling sort.<sup>66</sup> Recent investigations into professions in Italy have gone earlier still, and investigated the tension between humanist discourse on social contribution, industry and virtue and medieval university learning, although it could be argued that this has more to

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<sup>65</sup>See Hannes Siegrist (ed), *Buergerliche Berufe. Zuer Sozialgeschichte der freien und akademischen Berufe im internationale Vergleich*, (Göttingen: Vandenhoeck & Ruprecht, 1988).

<sup>66</sup>Rosemary O'Day, *The Professions in Early Modern England 1400 -1800: Servants of the Commonwealth*, (Essex: Pearson Education Ltd, 2000), Penelope Corfield, *Power and the Professions in Britain, 1700 - 1850*, (London: Routledge, 2002).



do with 'work' than any social recognition of a group of professionals.<sup>67</sup> Among the Nuremberg municipal physicians, there are interesting foreshadows of certain characteristics of these definitions of 'profession', as, for example, the *esprit de corps* which is certainly visible in the *Collegium medicum*.<sup>68</sup> However, engaging with early modern German medical physicians on their own terms, illustrates more directly the way in which their notion of profession rested upon constructed notions of work, expertise and authority.

Although the English term 'profession' postdates the sixteenth century, the occupations, '*die Berufe*,' were already a literary trope in early modern Germany. Work and social function were closely connected to order; attempts to discover, assert or change order by exhaustively listing and clarifying its categories comprised some of the earliest examples of vernacular literature in German speaking lands.<sup>69</sup> The subject continued to be popular in the sixteenth century, finding its way into a broad range of literature, from pamphlets, sermons and plays to Schedel's *Weltchronik*.<sup>70</sup> The popularity of *Stände* culminated in the publication of the massive compendium by Hans Sachs and Jost Ammann, the *Ständebuch*, or 'Every Position on Earth.'<sup>71</sup> The perception of the process behind these identifications has not always taken into account the complexity of reasoning involved. When critiques of the work have gone beyond the place of its woodcuts in the history of art, the *Ständebuech*, as it has been described, mucked together fairly rudimentary sketches of the jobs involved, which could hardly have claimed to involve the subtleties of modern professional identities, (or the overly complicated list of sociological boxes a modern profession is required to tick).<sup>72</sup> Of course *Stand* does not equate to profession. Among the many positions treated by Sachs were jesters, peddlers, money fools, natural fools and the like. Nor was the sense of commonalities on which guilds and other such craft associations were predicated, necessarily the same, or as complex, as the sense of *esprit de corps* that pertained to educated 'professions' in the nineteenth century.<sup>73</sup>

'Professions', Andrew Abbot wrote in his pioneering sociological work, 'are always in flux, and the dialect between jurisdiction of work and routinization of tasks play a fundamental role in determining the relative position of profession at any one

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<sup>67</sup> George W. McClure, *The Culture of Profession in Late Renaissance Italy*, (Toronto: UP, 2004); Douglas Biow, *Doctors, Ambassadors, Secretaries: Humanism and the Professions in Renaissance Italy*, (Chicago: Chicago University Press, 2002); Richard M. Douglas 'Talent and Vocation in Humanist and Protestant Thought', in Theodore K. Rabb & Jerrold E. Siegel (eds.) *Action and Conviction in Early Modern Europe. Essays in Memory of E. H. Harbison*, (NJ: Princeton University Press, 1969), 261 -98

<sup>68</sup> *Esprit de corps* being the first, mandatory feature of the profession.

<sup>69</sup> See Cordelia Hess, 'The Good, the Bad and the Mighty: Social Imagery in Middle Low German Lay Didactical Literature', (Leiden: Brill). Forthcoming.

<sup>70</sup> Horst Kunze, 'Das deutsche Ständebuch im 16 u. 17 Jh. in, Horst Kunze (ed) *Bibliothekswissenschaft in Berlin*, (Wiesbaden: Harrassowitz Verlag, 1999), 47 - 59.

<sup>71</sup> Hans Sachs, *Eygentliche Beschreibung aller Stände auff Erden, hoher und nidriger, geistlicher und weltlicher, aller Künsten, Handwercken und Händeln*, Frankfurt, 1568.

<sup>72</sup> There are numerous translations and scholarly editions of individual works by Sachs, but, on the whole, the literature on the writer and his place in early modern Germany is surprisingly thin. *Richard Zozman, Hans Sachs und die Reformation in Gedichten und Prosastücken*, (Hamburg: Severus Verlag, 2010).

<sup>73</sup> The title of Sachs' book is usually translated as *The Book of Trades*, but the direct translation of 'Stände' is tricky. As Kunze wrote: '*Stand ist etwas was steht.*'

time'.<sup>74</sup> Task and jurisdiction were critical to the self-definition of the physicians in Nuremberg. This was a dynamic recognized by Camerarius, and jurisdiction and routinization lay at the heart of his professional aspirations. We have already seen what those jurisdictions were: they involved prescribing medicine, deciding upon courses of practice and determining who best would oversee practice, supporting each others medical decisions, vetting visiting practitioners, providing a listening ear and settling disputes internally. Claudia Stein writes that: 'the early modern understanding of the human body was fed by so many different forms of knowledge and could be explained and interpreted in so many different ways, that a monopolization of the body by one of those epistemologies and one group of practitioners was basically impossible.'<sup>75</sup> What Camerarius essentially sought to do, in establishing his hierarchy of medical jurisdiction, was to claim authority over divisions that had previously been written onto the body. The question of diagnosis was elevated into a matter of jurisdiction. The ramifications of this for the practical manifestation of medical authority are paralleled within the text by a new kind of rhetorical function served by the other practitioners. This deepened, in a new way, the dimension of medicine available to the physician. In other texts, for example, quacks or other 'others' serve a rhetorical function, illustrating what the legitimate medical practitioner is 'not', and by extension fleshing out an image of what said practitioner 'is'. Here, every claim that Camerarius makes on behalf of other practitioners is on one level a claim on behalf of physicians, deepening the pool of their jurisdiction and strengthening their authority. Other legitimate practitioners serve a shadow function; they provide shading, contouring and definition to the physician's theoretical authority.

Camerarius used a distinctive vocabulary to describe and justify the profession of medicine and the position of the municipal physicians. Some of this has already been mentioned, i.e. the allusions to civic values and his frequent citations of classical authorities. Outside of this, however, Camerarius utilized particular images, adjectives and allusions in pursuit of his picture of the ideal doctor. Some of them were drawn from legal and governmental tracts, concepts of order and service spring immediately to mind. When Camerarius moved from the abstract to the specific, he talks about qualities of the good doctor versus indications of deviant medical practitioners; and qualities, both good and bad, belonging to apothecaries or other medical specialists. The distinction between the kind of language used to describe the general state of medicine and its broad aims, and the vocabulary used to make incisions within the practical constitution of the medical sphere, supports a distinction drawn by George W. McClure in writing about the culture of professions in late Renaissance Italy. Contrasting humanist appraisals of the professions with a popular discourse criticizing them, a discourse that took shape in rituals, satire and drama, McClure writes: 'Whereas earlier humanist appraisals of the learned professions focused on categories of 'intellectual vs moral', 'contemplative vs active', 'eloquent vs mute' or 'honest vs dishonest', the comic and festive assessments of lower professions allowed for the articulation of other categories of assessment: 'clean vs dirty', 'skilled vs unskilled', 'shrewd vs naive' or 'authentic vs fake'. And in some

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<sup>74</sup> Andrew Delano Abbott, *The System of Professions: An Essay on the Division of Expert Labour*, (Chicago: University of Chicago Press, 1988), 20.

<sup>75</sup> Claudia Stein, 'The function of the quack as a means of group distinction in the medical community of sixteenth century Augsburg,' *Ludica* 5-6, 2000, 199.

categories, 'competent vs incompetent', 'honest vs dishonest' 'authentic vs fake' comic and carnival rhetoric jointly appraised the character of both high and low professions.<sup>76</sup> The distinction between these two kinds of discourse mirrors the separate origins of medical reform, each of which gave rise to a different vocabulary and set of touchstones and demands, as traced in Chapter 2. Camerarius brought together the various genres of medical reformation, and, to a degree, it is unsurprising to find both versions of the profession in his text.

While this distinction is also evident in Camerarius' text, he traversed the boundary between the two discourses on profession, that is, the tract illustrates the importance of this 'low' discourse to matters of government. Without any aim of entertainment, or any provision for the outlet of social pressures, that is to say, without the *function* of any of the 'comic or festive' tropes described by McClure, Camerarius' text resituated the 'lower', vernacular discourse on profession, as constitutive of a general set of understandings that supported the status quo. His profession belonged to, rather than subverting, the order of governance. Camerarius moved away from humanist appraisals of the value of vocation, *and* away from Nuremberg's government's medieval distinction between academic and political knowledge. The dichotomies he drew were not those of the humanists (contemplative vs active), nor were they those of the Nuremberg's medieval government (academic vs political). Nor was Camerarius pulling from ritual, carnival, popular or subversive discourse or rhetoric. The distinctions he drew were specific to medicine: local vs foreign, process vs instrument, general vs specialist. The latter requires elucidation, because the insistence on the primacy of non specialist knowledge has traditionally been taken as a benchmark of non modern medicine.<sup>77</sup> Camerarius' emphasis on the superiority of 'general' medical knowledge entailed not a *separation* of specific, particular, empirical medical practice from abstract Galenic philosophy, but an interpretation of medical expertise, which encompassed the former within the latter. As we have already seen, medicine had always depended upon, even revolved around, the material, particular dimension that was practice. But the exact relationship between the kind of knowledge that Camerarius claims for the physicians, and used to leverage a position of power for them, and the kind of artisan knowledge was hard to parse, precisely because the one built on the other. This was not a hierarchy resting on distinction but on appropriation.

This achievement delimited and demarcated Camerarius' claim from other aspirations, rules for living, displays of brotherhood or fraternity, claims for common identity, expertise. The professions that McClure and Douglas Blow have recently exhumed from the historical detritus continued to measure success and failure in terms of learnedness. For that measure, so too did humanists, who studied to achieve *virtu* and who achieved *virtu* by relative degrees of the mind's training. But medical authority in Nuremberg, the ability to pronounce on social arrangements, was measured *not* by learnedness, but by the quality of one's expertise. Expertise relied not on books, but on experience. When we think of the early modern conception of experience, it is important to remember that the word was more encompassing than its modern English cognate.

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<sup>76</sup> McClure, 69.

<sup>77</sup> This is particularly true of older teleological approaches to the history of medicine but it remains implicit in narratives that focus on the pre-modern origins.

Experience was not limited to the practical, it involved books *and* practice, more specifically, it involved the right combination of books and practice. However, although it involved both learning and application, expertise was nonetheless measured in terms that were material, by the tangible, visible results it affected, by its success or failure.

There were certain implications to this claim to expertise. One consequence is that it relied on a material epistemology that was regulated, as best it *could* be regulated, by procedural conventions rather than axiomatic truths. Another is that it was local; any claim to expertise relied on an experience of which the public was aware. Essentially, what we see here is the beginning of the establishment of expertise and authority based on the inherent value of the process of the activity, rather than the institution from which it was learned, or the approximate connection its writings had to Greek philosophy, or its value to universal knowledge.

All of which brings us to the very odd dichotomy at the heart of Camerarius' text. By emphasising collective expertise, and collective procedures for validating that expertise, the doctors suggested an epistemological hierarchy in which scientific *process* was elevated beyond technical ability. They did this by upholding and maintaining a status quo. Although the municipal physicians in their intellectual, practical and cultural endeavours *all* emphasized the practical element of medicine, in their positioning of it, they kept their representation of what it was they actually *did* far away from the idea of trade, or artisanal work. This sleight of hand reflected the way in which the city valued work and society.

As it did most things, Nuremberg exercised careful regulation of crafts and trades.<sup>78</sup> Having quashed any possibility of restoring guilds, which generally allowed for self-regulation on matters of quality, training, intellectual property and innovation, the Senate in Nuremberg was responsible not just for the conduct, practice, and conditions of employment and sale of goods and services provided by artisans, it was also responsible for policing what was sold and what was made.<sup>79</sup> In 1535 the *Gewerbereform* reorganized existing legislation for the sale and organization of craftwork.<sup>80</sup> Select groups of crafts and trades were recognized as *Geschworne Handwerke*, regulated by oath and represented by a 'Sworn Master'.<sup>81</sup> In addition to these recognized crafts, assorted tradesmen and artisans existed in the loose category of *Freie Kunst*.<sup>82</sup> These included painters, sculptors and woodcarvers who were some of the most famous and enduring of Nuremberg's artists and craftsmen. Artisans took pride in technique and wrote about it, but cities tended to regulate on the basis of *things*, tools, possessions and implements, rather than processes and methods outside their ken. For many of these sworn trades, identification rested with the use of known implements and trades. Specialization according to materials: goldsmiths and silversmiths, coppersmiths, brass and bronze workers, workers in iron, and so on. But specialization was also carried to products, down

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<sup>78</sup> Rainer Stahlschmidt, *Die Geschichte des eisenverarbeitenden Gewerbes in Nuernberg von den I. Nachrichten im 12-13 Jahrhundert bis 1630*, (Nuernberg, Schriftenreihe des Stadtarchivs Nuernberg, Band 4, 1971).

<sup>79</sup> Strauss, 102.

<sup>80</sup> Hermann Kellenbenz, 'Gewerbe und Handel am Ausgang des Mittelalters' in Gerhard Pfeiffer (ed), *Nürnberg - Geschichte einer Europäische Stadt*, 176.

<sup>81</sup> Strauss, 97.

<sup>82</sup> Strauss, 98.

to thimble makers and needle makers. The Council had long ago decreed the strictest separation of tasks. Precise definitions listed the articles each craft could make.<sup>83</sup> All new inventions in the city had to be licensed for sale. Nuremberg was conservative about technical innovation in the crafts. In numerous instances it prohibited the use of new tools: 'The inventor of a gadget that was apt to upset traditional methods was likely to be forced to destroy it, and he counted himself lucky if he was not punished to boot.'<sup>84</sup>

In the popular literature of the day, varieties of medical practitioners were also identified by specific instruments or tools. Hans Sachs and Jost Amman, for example, depict physicians with flasks of urine, apothecaries in shops with rows of remedies, and surgeons with barbaric looking needles.<sup>85</sup> This iconography was repeated in both medical manuals, and vernacular treatises on herbal remedies. Camerarius repeatedly talks about the instruments and tools involved with specialized medical practices, the apothecaries and their weights and measurements, the surgeons and their knives. This focus on apothecaries as possessors of tools and instruments was a common feature of medical literature for the common man, whether written by doctors, surgeons, lay people or apothecaries themselves. It was, safe to say, relatively commonplace. What Camerarius did in using tools to identify apothecaries was neither novel nor subversive. It was, however, tactical. It played into the patrician council's normal modes of regulation for the uninstitutionalized practitioners of crafts and arts. Camerarius evoked a status quo body of tradition and social practice and applied it to an emerging set of relationships in the previously unregulated body of medical practitioners.

In the opposite court, the long, collective self-fashioning by municipal physicians, in books, in libraries, in letters and now in writing, repeatedly eschewed the kinds of traits that might associate them with craft, artisanal medicine. When Camerarius addressed the professional duties, the activities and the authority of the municipal physicians, he elucidated immaterial essentials: learning, thought and knowledge. University learning and trained reason lead to correct and wise thought. Such thought was deployed through a process of medical practice that lies at the heart of medical activity and finds its core in the practice of diagnosis. One knew the doctor by his work. One knew apothecaries, on the other hand, by their tools. As was commonly the case with books to do with surgeons, or the subject of *wundartzney* writ large, Camerarius was very specific in his mention of instruments, the *Dispensatorium*, was not only the basic instrument of apothecarial order, but also the instruments for measuring, distilling and cooking, which defined the process of pharmacy itself.<sup>86</sup> Perhaps most stringent of all the

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<sup>83</sup> Struass, p. 136. This was not uniquely German: Anne Sutton writes about the separation between mercery as an activity, and the mercantile identity of the Mercery Company in London. Anne F. Sutton, *The Mercery of London: Trade, Goods and People, 1130-1578*, (Ashgate: London, 2007). See page 444: 'By 1547 the company found it hard to tolerate mercers who were engaged even in the traditional manual crafts of mercery - few mercers alive would have had any memory of them as an integral part of the mystery, any more than they remembered the 'maidens of the Mercery.' For a more concise statement of this development see Sutton, 'The shopfloor of the London mercers' trade c. 1200-c.1500: the marginalization of the artisan, the itinerant mercer and the shopholder,' *Nottingham Medieval Studies*, 45 (2001)

<sup>84</sup> Strauss, 102.

<sup>85</sup> Hans Sachs, *Das Ständebuch*, Nuremberg, 1568.

<sup>86</sup> StB N, Cent V 42, 118v: Letzlich gehoert auch zu einer wohlgeordneten apoteken, das si mit allerley gueten instrumenten, gefessen und geschirr versorget sey.

regulations was the prohibition Camerarius placed on apothecaries making and discovering new remedies'.<sup>87</sup> This should be separated from the more basic concerns with how the kinds of ingredients, remedies and concoctions should be best stored, which was also a concern for Camerarius. Apart from the specifics of how things ought to be done, keeping containers closed, for example, or instruments clean, Camerarius assumed, and assumed that his audience knew, that having such instruments or storing such potions defined an apothecary. There is a hint here of the same *kind* of definition as that which preoccupied Coiter in his consideration of anatomy: a question of what something *actually was* that moved away from education, or substantial questions and towards method and tools. Like the processes described in Chapter 3, medical preparation, process and method is incorporated into the mutable body of medical knowledge and medical praxis.

What we see here is the glimmer of a modern juxtaposition between the professional orientation around a notion of service and the trade association and identification around 'things'. Profession as practice, action or service was also different from status linked to property, or transferred by inheritance. What was critical to the professional venture, as Camerarius presented it in his text, was the connection between activity, practice and learning. We have already seen the degree to which learned medicine reconceptualized itself as a set of processes. Camerarius' juxtaposition of medical practices with medicines and *things*, created a clear emphasis on the primacy of process and activity over business and trade. Emphasis on the hidden dimension of practice made important the kind of hidden bases for practice, the orienting framework within which it took place. In that light, medical orthodoxy acquired an importance it previously lacked. Camerarius made this possible not only by listing the things traditionally in the sphere of physicians, but also by incorporating into the profession of the physician many benchmarks that traditionally made up the apothecarial practice and civic identity.

In terms of these professional aspirations, we must look at the function served by quacks and other illegitimate medical practitioners. As the first to really define what was necessary for the condition of medical authority to properly obtain, Camerarius had a more developed idea of what was not met, when medicine was practiced without authority. More than that, he understood, or had come to the conclusion that medical authority was fragile, easily undermined, and dangerous when abused. The text emphasized uncertainty, fraud and the problems of bad medicine as the necessitating causes of reform, and in doing so cast frauds, quacks and foreign doctors as the comfortably familiar villains of the piece. Claudia Stein has written about the function served by quacks, a function that served as a means of 'ideological self-justification and self-fashioning' for physicians.<sup>88</sup> For Stein, the division of duties pertaining to the body has ideological consequences. The ease with which Camerarius could summon and dismiss the notion of medical quackery, bad, very definitely bad, with no need to explain or interrogate its reasons for badness, solidifies the functionality of the identification. Recent scholarship has interrogated the category of quackery, pointing to positive

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<sup>87</sup> StB N, Cent V 42, 115v: Item, es soll kein apotecker fuer sich neue arzney erfinden und machen

<sup>88</sup> Claudia Stein, 'The function of the quack as a means of Group Distinction in the Medical Community of Sixteenth Century Augsburg,' *Ludica* 5-6, 2000, 198.

contributions made by the quack to early modern society, and illustrating too the nuanced dimensions of medicine itself that study of the quack brings to light.<sup>89</sup> Without disputing the validity of these studies, it is nonetheless important to remember that in every sense of the word, quack was pejorative. Neither the 'irregular' practitioners who attempted to practice unnoticed in corners and shadows, nor the theatrical bombastic characters performing in market squares, would ever have labelled themselves as quacks. Regardless of their true abilities, the legitimacy of their methods or the efficacy of their cures, calling a figure a 'quack', as Camerarius' text makes clear, rendered them illegitimate. The simple pejorative makes it, in my opinion, more difficult to infer ideological connotations from the category.

The apothecary served a two-fold function. First, the distinctive and complex role that Camerarius described for the apothecaries, as opposed to the simple ban on quacks, did carry ideological connotations about the professional aspirations of the physicians themselves. We have already seen that Nuremberg's physicians increasingly interested themselves in matters of pharmacy and medical treatment. Camerarius cared so much about the centrality and regulation of apothecaries not only because of the danger of bad medicine, but also because of the importance of *medicine* - remedies - in the first place. This was not a foregone conclusion; pharmacy and chemistry were only one branch of healing among several, much Galenic theory emphasized diet, regime and moral order over the importance of pharmacy. Many doctors who argued about the necessity for and shape of medical reforms preferred to push pharmacy to the sidelines. More subtly, we can see the apothecaries as intermediary figures between the municipal physicians, teetering on top of the medical hierarchy, and the fluid mass of other medical practitioners of varying degrees of legitimacy. Writing about Morisco practitioners in Valencia, Maria Terrada observes that despite the difference in their medical systems from the dominant Galenic regime, Morisco 'magical' medicine nonetheless managed a relationship with apothecaries, who filled their prescriptions and sold their remedies.<sup>90</sup> Nuremberg had no such second system of medicine, but it remains true that what its wildly diverse medical practitioners had in common was a reliance on simples. While it was this use of simples, and in some cases a tendency to go farther and use distilled preparations, that had caught the physicians' interest in the first place, attempts at regulation on the general marketplace were impossible; since most ingredients for simples were easily obtainable and basic necessities. The practical sphere of regulation, by necessity had to be the apothecary. The apothecary thus provided the intermediary ground on which a line could be drawn between acceptable medical remedies and a wide variety of other medical remedies, some harmless, some effective and some genuinely dangerous. Moreover, the association between apothecaries and complex remedies provided another means of distancing the physicians from the larger medical marketplace, a means that relied on obscure, complicated, hidden processes.

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<sup>89</sup> Peg Katritzky, *Women, Medicine and Theatre 1500 -1700: Literary Mountebanks and Performing Quacks*, (Aldershot: Ashgate, 2007).

<sup>90</sup> Maria Luz Lopez Terrada, Medical Pluralism in a Renaissance City: the case of Valencia, *Ludica* 5-6, 2000, 223.

### **Conclusion: from manifesto to movement**

Camerarius' manifesto can be read in many ways: as a formal petition, political statement, private letter, collaborative statement, and as an elaborate sleight of hand. It was both sincere and manipulative, it problem solved even as it empire built. Camerarius undertook to represent the interests of his colleagues, and their influence is obvious. Like Coiter, Camerarius made surgical incisions into the medical landscape, and like Coiter he understood the importance of the organizational schema. Like Palma's library, Camerarius' text is lateral, it looks outwards and permits of new knowledge while firmly grounding it in recognizable shapes and forms. It is a collection of sorts, comprising prescription, civic values, commonsense and the commonplace. Nonetheless, at the last, it is in the context of his *own* writings that Camerarius' manifesto makes the most sense. It allies his interests, botany, pharmacy, medical treatment and collaboration, and it speaks to the city he loved. As a botanist, it is not surprising that Camerarius surveyed reform root and branch, that he viewed the city as a soil which could grow good or bad medicine, but must, in any case, be cultivated, carefully. As a humanist, it makes sense that he would carefully ground his plans in ancient phrasing, that we would believe that adhering to classical principles would purify and elevate the complicated realities of contemporary life; even while, as a medical practitioner, as a physician, his profound and primary encounters with practical realities would always undercut principle. Like medical diagnoses, Camerarius' manifesto was cautious and ambitious, optimistic and pessimistic, particular and general. Like medical treatment his solution comprised more than one approach, aimed at the whole body and was prescriptive, interventive and restorative all at once.

Aside from generally reflecting developments in the history of medicine in the sixteenth century on the one hand, and developments within the city of Nuremberg on the other, Camerarius' text achieved several specific things. First, it demonstrated the incursion of the municipal physician's authority and power into the pharmacy. In various ways, the physicians stretched their reach into the apothecaries' place of business, their store of ingredients, their methods of preparation and their relationships with patients, with apprentices and with each other. Second, and as a result, it defined the competition in Nuremberg between apothecaries and doctors. It defined categories of identity tied to process and placed against a tradesman's tools. Finally, it framed this discussion within a conception of medicine that formalized practical developments, tying them to institutional structures like the *Collegium* and the second opinion.

If the fact that Camerarius' text was implemented sets it apart from the tenuous discourse on medical reformation that emerged throughout the sixteenth century, it nonetheless made little immediate impact upon publication. It took twenty plus years for the College of Medicine to be founded. Without question the demand for medical reform in Nuremberg originated among the physicians. The conditions necessary for local demand to mutate into a proper movement came about gradually. Some arose organically, some needed to be wrought. Defining in any finely tuned way, the exact circumstances of medical reformation is problematic. It is clear, however, that before the reformation could be initiated, there were three specific obstacles to overcome.



The first was the coordination of the doctors' aims and desirable outcomes. The doctors for whom Camerarius spoke in 1571 were himself, Heinrich Wolff, Melchior Ayrer, Georg Palma, Volcher Coiter, Johann Schenk, Paul Weller, Georg Ruckher and Justinus Müller.<sup>91</sup> Coiter died in 1576, Ayer in 1578, Wolff, Mueller and Rucker all in 1582, Johann Schenk in 1589 and Georg Palma in 1591. By 1592, when the *Collegium medicum* was finally founded, only Joachim Camerarius and Paul Weller were still living and working in the Nuremberg. They became the Deacon and vice-Deacon respectively of a small group of physicians. Anton Fuchs was city physician from 1575 to 1598, before he was, (perhaps apocryphally), summoned to London to treat Queen Elizabeth I. Hieronymus Fischer, Johann Kuhn and Andreas Laugner were the other recent additions.<sup>92</sup> Kuhn (or sometimes Cuno) was doctor to the Heilig-Geist-Spital, taking over from Johannes Schenk.<sup>93</sup>

In line with his presentation of the position of municipal physician as a profession and with the emerging emphasis on collaboration as an epistemological guarantee, Camerarius had presented the doctors as an association, a corporate group with a well defined set of unvarying goals. Whether the doctors regarded themselves as engaged in a common pursuit is trickier to determine. Was this a movement per se? The best indications of this medical impulse for reform as a 'movement', self-conscious and organised are, as befits the course of the overall reform, private, buried in correspondence or the subtext of various documents. Like the medical business of semi-public collaboration, medical co-operation on the matter of reform took place among a small and select group of individuals. This was in part because of the nature of their pre-existing involvement with one another. Throughout his text, Camerarius emphasized their collaboration. And to a large extent, his representation bears out, it seems that the goals of the many doctors of Nuremberg adhered unusually well together. In one respect, however, the convergence of their interests was not so neat. The different careers and interests of the doctors led not to different goals, but away from different sets of competing or opposing interests. Although they worked together on the reformation, it was only in rare circumstances that they coordinated their medical practices. Two instances of plague in the years following Camerarius' submission gave their latent cooperation a boost. In 1572, the physicians were instructed to prepare a common prescriptive text for use against the epidemic of 'Hungarian disease', probably typhoid, that swept across the city.<sup>94</sup> Plague and times of medical crisis had the potential to fragment or bind together the medical personnel in the city. In Nuremberg it seems to have had the latter effect. In recurring bouts of pestilence, in 1582 and 1585, the physicians cooperated privately to produce public collective action<sup>95</sup>. Among the many strategies deployed by the city in these times of crisis, reference was made to the union of doctors in 1582, 1585 and 1587. It seems that in the 1580s, then, the collegiality and consensus that Camerarius advocated in 1571 became a reality, and was also recognized by the Senate.

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<sup>91</sup> Sta N, Rep. 62 Amtsbuecher, Heft 82.

<sup>92</sup> StA N, Rep. 62 Amtsbucher, Heft 82.

<sup>93</sup> Ulrich Knefelkamp, *Das Heilig-Geist-Spital*, 160.

<sup>94</sup> *Anzaig und Bericht der Statt Nuernberg*, Nuremberg, Katherina Gerlach, 1572.

<sup>95</sup> StadtA N, B/19 Coll Med. 472.

The second obstacle lay in the relative novelty of the institution proposed by Camerarius. There was no pre-existing structure on which to build, or to make over, unlike the thirteenth century *Guild of Doctors, Apothecaries and Grocers* in Florence, from which the 1392 College of Doctors was formed,<sup>96</sup> or the major craft associations on which Linacre modeled the College. Nuremberg had a long history of suppressing institutions, or bodies that could conceivably compete with the Senate, from the ban on guilds that it maintained throughout its history to its careful dismantling of religious orders. While the city relied on a certain devolution of authority through personages, preachers, patricians, diplomats, jurists, doctors and others, it rigorously enforced the division between authority, dispensed by the Senate, and political power which was restricted to members of the Inner Council. Although the city had to some degree encouraged the growth of the authority among the municipal physicians, it is not surprising that they were slow to recognize or institutionalize the physicians as a body comprising authority.

If the first barrier to the medical reformation was internal, and the second theoretical, the problem posed by the final obstacle was real, political, vehement and not easily solved. A reluctant Senate was a mere hiccup compared to a furious group of apothecaries. Although Camerarius had done his best to disguise it, the very practical grounds that he listed in support of this plan did not mask the increase of the de facto authority it entailed. The apothecaries were the first to pick up on this massive increase of de facto authority that implementation of the manifesto would entail. Their concerns about this, and the subsequent parries by council, doctors and apothecaries collected by Palma form a process of negotiation. But the terms of this negotiation were select, limited to the interests of the parties concerned. Unlike the coherence of the physicians' group-interest, which arose naturally, or the problem of precedent, which was solved by the foundation of colleges in Ulm and Augsburg, the obstacle presented by the apothecaries had to be overcome.

The apparent coherence of the process of negotiation does a lot to disguise its hiccupping progress. The relationship between the physicians and the apothecaries became the contentious centerfold in the subsequent process of reform, requiring submissions from both camps, eliciting opinions on quite a broad spectrum and involving the city definitively. Camerarius' manifesto was, at heart, an aspirational document. In the subsequent controversy it provoked and its stuttering implementation in the social and medical framework, the institutionalization of municipal medicine had entirely different results. The following chapter looks at the progression of the reform from manifesto to local movement, provoking collective action from various sectors of the city's population, the council, the apothecaries and the doctors, and ending in the institutionalization of a series of social changes. In meeting the needs of the city, in facing the objections by apothecaries and councilors, Camerarius' reformation was interrogated, obstructed and eventually revised.

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<sup>96</sup> Katherine Park, *Doctors and Medicine*, 20-38.

## Chapter Seven: The Negotiation of Reform in Nuremberg

### Introduction: process of reform

Two texts bookmark the process of establishing the *Collegium medicum*; one, Camerarius' *Short and ordered considerations for a well ordered regime*, submitted to the council in 1571, the other, *Laws, Order and Taxes*, published by the city in 1592, Nuremberg's first medical ordinance.<sup>1</sup> More than twenty years elapsed between the two texts, and the process of reform took place unevenly throughout. Indeed, for the first decade, it seemed that Camerarius' text was doomed to obscurity. His technique of disguising innovative and provocative claims may have worked rather too well. His work was received by the council with a polite lack of enthusiasm, and, aside from a grudging acknowledgement of Camerarius' continued 'complaints' in 1573, his writing hardly made waves in the grand scheme of Nuremberg's medical marketplace.<sup>2</sup> It might have sunk into the recesses of the sixteenth century archives, if not for the sudden re-emergence of a problem which was originally a feature of the earlier sixteenth century. The state of the city's apothecaries became an issue that was reactivated by changes within municipal medicine.

In 1581, the city's two medical 'inspectors' Hieronymus Schürstab and Joachim Nützel undertook a visitation of Nuremberg's apothecaries. What they found appalled them. As happened so often, when attempts were made to regulate a business the patriciate didn't understand but felt was necessary, the inspectors went in search of a blueprint for better order. The inspectorate, then, either remembered or rediscovered the lengthy opinion of Camerarius, who was now a senior physician in the city, and a published author of botanical and pharmaceutical tracts besides. They dug up Camerarius' manifesto and proposed to implement a thorough reform of the provision of medicines. The apothecaries, along with everyone else, had taken little notice of Camerarius' manifesto, but at the first sign of proposed regulation, they revolted. In a lengthy submission they voiced vehement objection to the plans themselves, to the physicians as a source of authority, and to the implications for medicine and the place of pharmacy in the medical marketplace. They sent their reply to the inspectors, the council and the physicians, who in turn wrote another tract re-stating and strengthening the position that Camerarius had claimed for them. What followed in the years between 1581 and 1592,

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<sup>1</sup> StB N, Cent V 42, 90r - 139v: *Kurtzes und ordentliches bedencken, welcher gestalt in einem wohlgeordneten Regiment, es mit den Ärzten und Arzneien sambt allen andern darzu notwendigen stücken möcht geordnet un gehalten werden; Gesetz, Ordnung und Taxe : Von einem Raht der Statt Nürnberg, dem Collegio Medico, den Apotheckern, u. andern Angehörigen daselbsten, gegeben.* Nuremberg, Lochner, 1592.

<sup>2</sup> StA N, Rep. 60a, 1358, fol. 22b, 30 July, 1573: Herrn Joachim Cammermeisters bedenken, was nit allein der aerzt, arznei, apotecker und wundarzt halb fuer beschwerungen, ordnung zu statuiren, welches inen die anderen medicos auch als ein gut werk gefallen lassen, sondern wie sie, die medici auch ein collegium anrichten mochten, solle man inen sagen, nunmehr die sach ins werk zu richten, die capita zu extendiren und dieselben allerdings stellen, wie sie vermainten, dass sie sein sollten. darnach so es geschen, sol man bedencken, ob es also zu passen und wie es mit dem collegio anzustellen, darnach die ordnung beim rat abhoren lassen.

was the first systematic debate on the public provision of medicine(s) and its place within medicine.

The debate was a written process of negotiation between apothecaries and physicians that took place in a series of informal submissions to the Nuremberg Senate. What survives of these exchanges was collected by Georg Palma and remains in the Nuremberg City Library.<sup>3</sup> As Palma would have it, these negotiations were uncomplicated, and solved by rhetoric, the victor of which was, without question, the physicians. Palma, as we have seen, was a conscientious record keeper. He was also, however, a man with an agenda. His cluster of recorded exchanges grants the movement a coherence, it is safe to say, that did not exist in real time. The narrative of the reformation owes much to his intervention and record keeping, but the apparent smooth sailing was as much a result of changes beyond the control of medical professionals as it was due to their intervention. The twenty years and change between proposal and implementation may not seem like a large swathe of time, but bear in mind that Nuremberg's religious restructuring was undertaken in about a quarter of that time. Between 1571 and 1592, the cast of characters altered. Volcher Coiter, Melchior Ayrer, Heinrich Wolff and Georg Palma himself were all dead, by the time that the *Collegium medicum* was finally established. A generation of careers was devoted to reform, and the problems and obstacles raised by opposition to the reformation literally lasted a lifetime.

Camerarius' manifesto had relied on two existing impetuses for reform: one, a literary consideration by medical writers about the broad problems facing German medical care, and the other, a consideration by the Nuremberg Senate of how best to regulate and organize its medical population, particularly the apothecaries. As the reformation unfolded, it both changed and was changed by the shifting balance between these two impetuses, medical and civic. Camerarius' manifesto was the culmination of the literary movement. The relationship between his manifesto and the discourse of reform was, therefore, relatively straightforward. The relationship between the manifesto and the second impulse, that of the Nuremberg Senate, was much more complicated, and it changed over the twenty year interval between proposal and implementation. What we are looking at, then, in this chapter, as we trace the implementation of the reformation, is not only the process of negotiation between interested parties in the reformation, but the shifting balance between the medical world and the civic governance in Nuremberg.

In 1592, Nuremberg published *Gesetz Ordnung and Taxe*, the city's first medical ordinance. In a series of thirty eight articles, the Nuremberg Senate laid out a plan for the organization of Nuremberg's medical marketplace, regulations governing the sale of remedies, a system for the taxation of raw ingredients and chemical compounds, and the institution of the *Collegium medicum*. The process of negotiation that led to this, modified the terms of the reformation, and it also refocused them. Uncontested points were left aside in favour of greater discussion about what *was* controversial, i.e. the division of duties between doctor and apothecary, and their respective jurisdiction over other members of the healthcare professions. The result of this was two-fold. When the city passed its first medical ordinance, the legislative reforms cast a set of relationships in more concrete terms, than even Camerarius might have intended, that governed the provision of medicine in Nuremberg. In addition to the outcome of the negotiation, a

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<sup>3</sup> StB N Cent V.

cluster of significant changes were issued in without any problem, under cover of other regulation. Because they did not bear significantly on the status of apothecaries, they did not figure in the series of controversies that preceded the creation of the ordinance. They, nonetheless, figured largely in the ordinance itself, and the legislation created around them was momentous. We need to examine the following documents with both paths to reform in mind. One was the public and controversial calculation of the respective positions of doctors and apothecaries in the polity. And two was the sleight of hand introduction of a series of definitions that governed the notion of acceptable and legitimate medical care, one which favored *both* doctors and apothecaries.

### **Apothecaries and medicines**

On 4 May 1506, Anthonius Kress and Jeronimus Ebner were commissioned by their colleagues in the Nuremberg Senate to find and gather the writings and laws of the apothecaries, and present them to the council.<sup>4</sup> There had been apothecaries in the city of Nuremberg since at least 1276, almost as long as the city had been a city, and by 1506, they had certainly been set up long enough to have formed certain customs and traditions, if not 'writings and laws.'<sup>5</sup> Although they held their position by oath, they were neither appointed nor hired by the Senate. They were private businessmen, and in some cases they had maintained a family business for several generations. In all cases licensed apothecaries operated out of fixed abodes. Patients or prospective clients travelled to them, arriving with ailments, prescriptions and complaints and expecting to leave with the means to treat them. As a result they dealt with property and its attendant concerns, and their practices had both commercial and artisanal dimensions. As property owning, mercantile figures, they had a strong presence among the burgher class in Nuremberg, and by 1506 several apothecaries had served on the city Senate.

In the early sixteenth century, then, apothecaries outnumbered physicians, and they had been in Nuremberg longer. They had a stronger presence among patients and legitimate stakes in the city's government. They owned property and they commissioned portraits. At the same time, the council's request to Kress and Ebner was ominous. The reference to their 'writings and rules' suggested that the apothecaries were viewed as a professional group with common, organized practices, standards, and a degree of literacy. At the same time, even before the city's religious restructuring, the Senate mustered a conscious effort to regulate and, more threatening perhaps, to *know* the apothecaries' business. Kress and Ebner either found nothing worth reporting, or did and nothing came of it, because the fact finding mission remained a small byline in the Senate's minutes. The die, however, was cast. This was the first sign that occasional intervention by the Council was not a sufficient means of regulating the apothecaries.

In 1515, the problem of a drunken apothecary reminded the council to revisit the matter. Master Michael, the apothecary in the *Mendelshaus*, a hospice for elderly artisans, was called before the Nuremberg Senate twice to answer for his drunken conduct. This

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<sup>4</sup> StA Nuremberg, RV 463, fol. 17, May 4 1506: 'die schriften und gesetz der appotecken, so in heusern durch etlich gehalten werden betreffend, zusammen suchen und beim rat fuerlegen.' in Philipp, 32.

<sup>5</sup> Although there are documents attesting to the city from ca. 1050, the imperial charter was granted only in 1219.

was in answer to complaints made by the city's doctors and the administrator of the *Mendelshaus*, Michael's employer.<sup>6</sup> There were no specific incidences mentioned in the complaint. Evidently the Council was more concerned with the potential harm a drunken apothecary might wreak in the work place, than with specific incidences that had already taken place. After the initial reprimand produced no changes in Michael's behaviour, the Council warned the apothecary that if he did not curb his heavy drinking (*sein grosses trinken*) they would remove him from the apothecary.<sup>7</sup> Michael remained working in the charitable institution without further complaint, but the incident reminded the Council of the latent problems among the apothecaries. Less than three weeks later they commissioned another council member, Hans Stromer, to investigate the materials sold in the apothecaries.<sup>8</sup>

Again, little of note resulted from this investigation, if it did in fact take place. The period between 1515 and 1527 was punctuated by minor incidents, to which the council habitually reacted by resuscitating their unease with the lack of information on the practice and content of the apothecaries. This was felt particularly strongly in the cases of apothecaries who presumed to do business without the council's approval. In 1524, the Senate resolved to inspect and improve the conditions governing the apothecaries' oath,<sup>9</sup> and in 1525 the city renewed a ban on all foreign or unapproved apothecaries.<sup>10</sup> The apothecaries' oath was rewritten in 1529, to include stricter prohibition on pharmaceutical innovation.<sup>11</sup> Sporadic efforts at visitation were commissioned, sometimes tasking doctors and other times magistrates. In 1536, Dr. Johannes Schuetz and Dr. Johannes Zacharius were sent to inspect the apothecaries.<sup>12</sup> However, these were strictly one off events. It is not clear whether they were undertaken in response to particular circumstance. There is certainly no evidence whatsoever that they were meant to lead to any kind of system; the visitations were cumbersome and unwieldy, yielding sluggish results. It was only a year later, for example, that the results of Schuetz and Zacharius' visits were even presented to the council.

Until the middle of the century, regulation of the apothecaries followed a very general pattern. There were certain tools, used only sporadically, to oversee the apothecaries, chief of which was the visitation, or inspection, by members of the city council, the results of which could prompt a council decision. As well as occasional

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<sup>6</sup> StA N RV 588, fol. 6, September 3, 1515: Den doctores der in die appotecken und dem mendelpfleger zuschreiben, zuhoeren, wie ungeschickt sich der appotecker meister michel im trinken halte.

<sup>7</sup> StA N RV 588 fol. 9, September 7 1515: Michel, appotecker under Mendels haus zu sagen, seins ungeschickten wesens in sein grossen trinken abzutun, wo nit, so woll man ime die appotecken zusperrren.

<sup>8</sup> StA N, RV 588, fol 24 September 24 1515.

<sup>9</sup> StA N, RV 702, fol. 16, 1524, April 4 1524: 'Der appotecken ordnung anschawen und in dem pessern, das sie auch bei der schaw der materialia sein und je einer dem andern helfe.' Egon, 33

<sup>10</sup> StA N,RV, 716, fol 15: 'dass sie niemandt on ein rats erlaubnus der kugelein machen, damit in dem wassern visch gefangen werden.' ; RV, 743, fol 18' Bey den ertzten ratschlagen, was ordnung zu machen sei, damit die appteken frische ungemischte materialia zu den arzneyen geprauchten.

<sup>11</sup> Josef Baader, 'Nuernberger Polizeiornungen aus dem XIII bis XV Jahrhundert', (1861), 141.

<sup>12</sup> StA Nuremberg, RV 852, fol. 26, August 12, 1536. The result of their work appeared in RV, 877 June 6, 1537: Die apotecken alle beschicken und ihnen in gegenwartigkeit der doctoren in der artzney meiner herren missfallen anzaigen, indem das sie die doctores zu den compositiones nit erfordern; darumb wirt erst bevohlen, der pflicht hinfuero nachzukommen und die doctores nit zu umbgeen; danach den doctores auch zusprechen, so sie also gefoerdert werden, auch darzu willig ze sein.

intervention, an oath kept the apothecaries, at least in theory, honest. Every apothecary swore an oath which, much like a physician's oath, set out a vague set of prescriptions for the apothecary's behaviour. Apothecaries swore to perform industriously, to provide the customer with the required remedy, to use fresh ingredients of good quality, and not to 'misuse costly ingredients'.<sup>13</sup> Like the oaths binding midwives, the apothecaries' oath also referred to the taking and training of apprentices. Apothecaries swore to oversee their apprentices, and to prevent them making bad remedies. Apothecaries who worked in the *Heilig-Geist-Spital* went into further detail about the ingredients, swearing not to waste expensive ingredients, which had presumably been paid for by the hospital's endowment.<sup>14</sup>

As far as civic attention on the apothecaries went, it was fixed on the pharmacies as collections of *things*. The city itself was concerned with the *provision* of medicine, in the sense of the remedy being something that was made and sold. Primarily, the city was concerned with the cost of the remedy, its affordability, and with making sure that citizens were not overpaying. Variation among compositions, accuracy in filling prescriptions and untested innovations were the main concerns of the consumers of pharmaceutical remedies. The professional capacity of the apothecary was tied to his place of business and was measured according to the supplies and instruments available there. Apothecaries in this sense were more like merchants or artisans, making and selling goods, rather than providing a service or profession, as did physicians or lawyers. Because the apothecary was a place of business, and a business of things at that, it produced certain tensions, for both the practitioner and the council, between the notion of medicine as a public good, and the provision of remedies as a private business. The incidents that prompted intervention by the council were often personal failings that tapped into broader worries about conduct, as with Master Michael's drunkenness, and, in general, regulation of apothecaries was undertaken on an adhoc, person-by-person basis.

Around the 1540s, this changed. From a concern with the conditions of the sale of the remedy, the council discovered an interest in the remedy's composition. That is to say, from a regulation of apothecaries, the council attempted to move to a regulation of *pharmacy*. This shift was heralded by the first major effort at standardizing and regulating the preparation of medicines and medicaments, an effort spearheaded by the council, but incorporating in several ways the contributions of both doctors and apothecaries. It led to the publication in 1545 of the *Dispensatorium Norimbergensis*, the first German civic pharmacopeia.

The demand for an *Apothekerbuch*, a pharmacopeia, was preceded by the proliferation of popular *Arzneybücher*, collections of medicines or recipe books. For the most part these were written in the vernacular and were intended to inform the common man about the fundamentals of pharmacology. Otto Brunfels, Walter Ryff and many

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<sup>13</sup> UB Erlangen MS 1143. There are numerous examples of the apothecary's oath in private manuscripts and in the city's archives. Palma included a copy in his book on reform. The Erlangen oath is one of the longer versions and dates from 1529, after it was rewritten.

<sup>14</sup> Knefelkamp, *Heilig-Geist-Spital*, Anhang VI, Eid. des Apotheken, des apotheken im Neuen Spital pflicht, 386

others produced bestselling *Arzneybücher*.<sup>15</sup> The level of information actually disseminated by such books, popular though they may have been, was debatable. Although they were often illustrated, the woodcuts were still relatively rough, indications of the major veins for bleeding, or the instruments required for surgery. They serve to give the reader a general sense of the gravity of a situation, or the type of treatment he should seek, but not enough information to replicate in any exact way the procedures included. They provided exhaustively comprehensive lists of remedies, but few books had instructions for their preparation. They tended to recommend simples, remedies that, as the name would suggest, were comprised of only one or, at maximum, two ingredients and required no complicated processes of distillation; that is, they relied on no pharmaceutical knowledge. Complex remedies, which depended on the chemical mixture of ingredients were, in the early sixteenth century, reserved for apothecaries and were treated with great suspicion by some doctors, Brunfels included. (They were outside the ken of the ancient authorities, and had been developed and passed down through Arabic innovations, unfashionable in the light of the humanist project for the restoration of classical authority). Add to that the lack of consensus on the terminology of plants and herbs, confusing even the provision or preparation of simple remedies, and the books acquire an almost ominous patina as if seeming to inform the reader just how much they didn't know.

Though there was a definite consensus as to the merits of standardizing knowledge and educating the public, the concern then was to provide the right knowledge. And the right knowledge in these kinds of cases was always local. Thus, even before the turn of the century, able cities with well regulated medical marketplaces were casting about for official versions of these books; books whose content could be verified and sanctioned for the finite area in which they were published. Two earlier efforts at town pharmacopoeias were the Venetian *Luminare Majus* of 1496 and the Florentine *Nuovo Receptario*, published in 1498.<sup>16</sup> *Nuovo Receptario* was a translation with commentary on Galen's book on the preparation of medicines. By far the more comprehensive text was *Luminare Majus*, which was reprinted numerous times throughout the sixteenth century. Both these Italian pharmacopoeias were written for physicians. Their aim was to 'cast light' on the methods of preparation and the manner of the art of medicines. Mutoni, for example, prefaced his work with a discussion of the failure of medical writings to adequately educate physicians on the practice of pharmacy, while *Nuovo Receptario* explicitly situated itself as affraying the dangers of ingesting hazardous or false remedies.<sup>17</sup> Both books addressed the need for their work as caused by the failures or problems inherent in the popularity of *Arzneybücher*.

The foreword to *Nuovo Receptario*, for example addressed the problems of *Arzneybücher* head on. The proliferation of *Arzneybücher* had led to many dangerous

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<sup>15</sup> Otto Brunfels, *Kreüterbüch contrafayt : beyde Teyl vollkommen, nach rechter, warer Beschreibung der alten Leerer und Artzt*. Strassburg, Hans Schott, 1539; Walter Ryff, *New Kochbuch für den Krancken*, Frankfurt, Christian Egenolphs, 1555.

<sup>16</sup> Johannes Jacobus de Manliss, *Luminare Maius Opus erinium quod luminare mai de Medicis Aromatiriis perquis necessariu*. 1496; Collegio della arte medicina, *Nuovo receptario, composto dal famosissimo Chollegio degli exmii doctori della arte et medicina della inclita cipta di Firenzi*, Florence, 1498.

<sup>17</sup> *Nuovo receptario*, preface: volendo adunqua a tali inconuenienti & pericoli di insermi & insamia a medici falsamenta data.



errors in prescriptions. The Florentine apothecaries requested that a definitive register be put in place and the work was the result of collaboration between Florentine university professors, Florentine apothecaries and physicians. The author, Hieronymo del Pozzo Toscanelli, was a Florentine and his book had three sections. The first dealt with the selection, preparation and preservation of common ingredients, the second longer section lists and describes the most common medicines (compound drugs), and the third discussed the standards for preparation, composition, preservation, burning, pulverising and cleaning the constituent ingredients, before a final short discussion of the weights and measurements employed in Arabic medicine.

More important even than the contents and organizing principle of these two books is the fact that they contained information mandated and verified by city councils, rather than appeals to antiquity. They did not rely on the intellect of the reader, nor were they intended to engage a reader's critical capacity. They did not rely on the arts of persuasion, or rhetoric, or on the structure of argumentation. Although they included images, these were illustrations, not visual aids to persuasion, nor part of a language for the unlearned. They were demonstrative. Produced outside of the university, these texts were purely educational, and the first summaries of previously verified information. Despite this, both books were orientated around ancient writings. *Nuovo Receptario* was a rewriting of Galen, *Luminare Maius* followed the basic tenets of Mesue.

Undoubtedly the Nuremberg apothecaries and doctors owned, or were aware of, these earlier efforts at town pharmacopeias, Palma, e.g., owned a 1556 edition of *Luminare Maius*, edited by Niccolo Mutoni. Such books were, however, inadequate to the task of providing the city of Nuremberg with a clear and reliable guide to local plants and remedies. While they were excellent guides to the fundamental categories of pharmaceutical medicine, laxatives, purgatives and poultices, neither of these texts was deemed up-to-date enough, nor did they make use of the specialized local provisions. The book that replaced them, and secured for itself a place in the reformation of the medical sphere unshaken for almost two centuries, was the *Dispensatorium* by Valerius Cordus.<sup>18</sup> The Nuremberg Senate, the city's municipal physicians and even the professional body of apothecaries were uncharacteristically in agreement about the fundamental role that this book ought to play in the organization of pharmaceutical healthcare.

The unwitting participation of Valerius Cordus (1515-1544) in the reformation of Nuremberg's medical community and the relations subsequently enforced between apothecaries and physicians, is a riddle left by the Nuremberg records. Cordus himself had only a passing acquaintance with the city of Nuremberg. However, given the brevity of his life, his single stay of a matter of months in the Imperial city of Nuremberg assumes a significance it would not have had, had the possibility of further travels not been snuffed out by his premature death. Born on February 15, 1515, in Erfurt, Cordus studied in Marburg, where his father, Euricius Cordus was professor of medicine, and also in Wittenberg.<sup>19</sup> His father, Euricius Cordus, was a correspondent of Joachim Camerarius the elder and Johannes Lange.<sup>20</sup>

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<sup>18</sup> Valerius Cordus, *Pharmacorum conficiendorum ratio, vulgo vocant Dispensatorium....* Nuremberg, 1548.

<sup>19</sup> On Cordus' biography see, Karl Peters, 'Ein weiteres Exemplar der ersten amtlichen Pharmakopoe: Vielfaltige Analyse, *Pharm. Vorzeit*, Pharm, Ztg, Nr. 26, (1929); Ludwig Winkler, *Das Dispensarium des Valerius Cordus, 1546*, Faksimile, Gesellschaft fuer Geschichte der Pharamzie, Verlag Neumeyer

Cordus first visited Nuremberg in 1542.<sup>21</sup> He was twenty seven years old. Hieronymus Schreiber, with whom he had studied medicine in Wittenberg, was a friend of Cordus, and it was probably to visit this Nuremberg intellectual that Cordus journeyed to the city. He returned briefly on his way to Italy in 1543. While in Nuremberg for the second time, we know that he stayed with Dr. Magenbuch, who was commissioned by the Senate to see that Cordus' wage reached him.<sup>22</sup> He travelled onwards to Rome and was joined by Schreiber. Shortly after, Cordus died in Rome in 1544. Several of Cordus' works appeared posthumously. His annotations of Dioscorides appeared as an appendix to Ryff's 1549 translation of Dioscorides; and were reprinted in an omnibus volume by Gesner. The fifth book of the *Historia* finally went on to be published by Gesner as an independent work in 1563.

However briefly he remained in Nuremberg, he must have met and circulated among the many humanist and medical scholars working there, including Joachim Camerarius the elder, and Georg Öllinger, the famed botanist and Nuremberg apothecary.<sup>23</sup> He had not yet received his doctorate, he was promoted at Wittenberg in 1544, and, in fact, was still peregrinating from university to university. Cordus' primary academic interest was botany,<sup>24</sup> and the *Dispensatorium*, like many broader herbals after it, attempted to provide a standard method of identification for the many herbs and plants used across southern Germany. In his foreword to the original *Dispensatorium*, Cordus averred that the text was written in response to a request by his uncle, Joachim Johannes Ralla. Ralla was an apothecary who lived and practiced in Leipzig, and Cordus had spent several months, possibly years, living with him, while he attended the University of Leipzig. It was probably that urban context that influenced him more than Nuremberg. According to Cordus' English biographer Sprague, it was Ralla who not only requested the text, but who subsequently brought it to the attention of Nuremberg's city council and lobbied to have it printed.<sup>25</sup> In the case of this book, the identifying impulse was informed by practical considerations pertinent to the business of pharmacy. In 1543, when Cordus came to Nuremberg, the Senate had reached a general consensus on the need for new regulations concerning the provision of pharmacological goods and took advantage of Cordus' presence in the city.

The first two editions of the *Dispensatorium* were undated examples by Johann Petreius, the Nuremberg printer. Of these, the first ran to a hundred copies, circulated

Mittenwald, (Bayern: Verlag Neumeyer, 1934); Rudolf Schmitz, Zur Bibliographie der Erstausgabe des *Dispensatoriums Valerii Cordi*, *Sudhoffs Archiv*, 42, (1958), 260-270.

<sup>20</sup> Letters in the Trew Collection: To Camerarius, 24 May 1521, 4°, 2, 1/2.

<sup>21</sup> StA N Rep. 60b, Ratsbuch, Nr. 21, fol. 30a, 1542, June 14: Dr... Cordum der beruehmbten medico, so jetzt hie ist, von rats wegen zusprechen, ein dispensatorium den hieigen apothekern zu begreifen. Volgens dasselbig mit rat der hieigen erzte institutiren und verfertigen lassen. Mit inen nit also gar des lateins unverständlich und amn etwan pesserung, so neue ankommen sollten, furgenommen werden mecht, soches alles widerpringen. Hero Paumgartner. RV 944, fol 10, 1542, June 14.

<sup>22</sup> StA N RV 962, fol. 15 20 October, 1543.

<sup>23</sup> On Oellinger see Eberhard Luetze, *Herbarium des Georg Oellinger: anno 1553 zu Nuernberg*, (Salzburg: Akadem. Gemeinschaft, 1949).

<sup>24</sup> August Schulz, 'Valerius Cordus als mitteldeutscher Florist', *Mitt. Thuering. Bot. Ver. N.* xxxiii, 37-66.

<sup>25</sup> T.A. Sprague, *The Herbal of Valerius Cordus* (London: Linnean Society, 1939), 3.

among the doctors, apothecaries and magistrates in Nuremberg.<sup>26</sup> The second edition belonged to Hieronymus Baumgartner (1498-1565), and is the only extant copy. It may have been a proof, never officially printed at all. Although Cordus had not, by this stage, published any of his writings, he had already achieved significant fame for his lectures. In 1543, the Nuremberg Senate paid Cordus 100 gulden for the rights to his book. The deal was sponsored by Hieronymus Baumgartner, although it took several years after the purchase of the book to see it published.<sup>27</sup>

Cordus, thus, had little to no involvement in the reformation as a movement. The shuffling of medical authority in Nuremberg was a feature of the urban landscape in which Coiter neither played a role, nor had a vested interest. That said, although it was inspired by Leipzig, Cordus's text belonged in the strictest sense of the word to Nuremberg. The Senate paid him for the use of the book, essentially buying the equivalent of copyright from the author. Thus appropriated, Nuremberg's Senate used the text not as a practical guide but as the basis for regulation. The author of the book's foreword was either Johannes Magenbach, or Hieronymus Paumgartner, both of whom already played a significant role in securing Cordus' publication for the city, and both also cropped up numerous times in connection with apothecarial reform.<sup>28</sup> Johannes Magenbach, a municipal physician, was a personal connection of Cordus'. Hieronymus Paumgartner was, in fact, the referent of every entry in the Senate's meetings in which Cordus was mentioned.

The significance of Cordus' book is undiminished by his own lack of cooperation - in fact, I would argue that the text is an extremely valuable example of a genre of medical writing yet to be explored. When the *Dispensatorium* appeared under public authorisation by the Senate, it created a municipal register for prescriptions filled by Nuremberg apothecaries and it went on to be one of the most controversial points in the larger reforms debated by physicians and apothecaries for the rest of the century. Despite their orientation around their respective cities, both *Luminare Mauius* and *Nuovo Receptario* were 'learned' texts, purporting to reproduce ancient remedies, produced by academically educated authors, engaging and referencing academic sources. They distilled abstract, academic learning and produced it in concrete form for consumption by a civic population. Cordus' pharmacopeia was a departure from both of these. Having worked in his uncle's apothecary, Cordus mainly collected prescriptions in current circulation. He listed recipes for various medicines according to their importance: first those for internal ailments, and then those for external. The book included roughly 309 composites and thirty five unguents. For the most part, Cordus recorded the originator of the medicines. By far the greatest part of the book came from Mesue (one hundred and fifteen remedies in total) and Nicloaus von Aegineta (sixty three). In addition Cordus recorded remedies by Aetius, Alkindus, Andromachus, Arnaldus di Villanova, Avicenna,

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<sup>26</sup> Ludwig Winkler, *Das dispensatorium des Valerius Cordus. Fakisimile des im Jahre 1546 ershcienen ersten Drucke durch Joh. Petreium in Nürnberg*, (Mittenwald: Gesellschaft für Geschichte der Pharmazie Mittenwald, 1934), 9.

<sup>27</sup> Jakob Büchi, *Die Entwicklung der Rezept und Arzneibuchliteratur*, (Saarbrücken: Juris, 1982), 86.

<sup>28</sup> Egon Philipp, 'Das Medizinal-und Apothekenrecht in Nürnberg', Nat. Diss. Frankfurt, 1962, 43.

Azaranius, Bartholomaeus Montagna, Democrates, Franciscus von Pedamontium, Galen, Gabriel, Haly, Manlus di Bosco, Nicolaus Alexandriunus, Rasis and Rufus.<sup>29</sup>

The form of the recipes was straightforward. Cordus named the remedy and cited its source. Next, he briefly described the remedy's physical attributes: tastes, smells etc. The lists of ingredients could be incredibly long, as many as a hundred ingredients in the case of *Theriaca Andromachi*, but more usually they numbered between ten and twenty. Some of the most complex remedies were Cordus' own, one, for example, had over thirty six ingredients in total. By contrast, the fifty five anonymous recipes were the most simple. There was a large number of *simplicia*, with herbal ingredients. Minerals appeared less frequently; Cordus excluded Paracelsian methods and remedies completely. Cordus also distinguished between methods of preparation. Mixing, extraction, (through the methods of maceration, digestion and decoction variously), confection, conservation and preservation all received separate treatment. From Cordus, we also get a better idea of what apothecaries were actually allowed or expected to do, which was quite a lot. By the middle of the sixteenth century, they were evidently expected to be familiar with a large variety of chemical processes.

The spread of the *Dispensatorium* was dramatically rapid. It was the first official pharmacopoeia to spread beyond the borders of Germany, appearing also in Belgium, Holland, Slovakia and the Tyrol.<sup>30</sup> The text circulated through both private and public channels, was acquired by countless collectors and individual doctors, and entered into official record in sixty one cities and ten territories across the Holy Roman Empire. It was made the official pharmacopoeia of Heilbronn in 1561, Schlettstadt in 1563/64, the Duchy of Wuerttemberg (including Stuttgart, Tübingen, Göppingen, Calw and Bietigheim), and the City of Regensburg in 1566, the Dukedom of Coburg and its attendant territories in 1567, Liegnitz and Antwerp in 1568 and, a major coup, Ulm in 1569, Magdeburg in 1577, Speyer in 1578, Quedlingen in 1580, Worms and Kurpfalz in 1582, Middelburg in 1590 and Prague in 1591 and 1592, before being reconfirmed and reprinted in Nuremberg as the official text of the medical ordinance there. Its influence continued to spread through the seventeenth century, most notably reaching as far as Rotterdam, Breslau, and Slovakia.<sup>31</sup> The possibility of tracing possession of the book through private collections is far outside the scope of this dissertation, but Karlheinz Bartels counted a number of monasteries and cloisters who owned it, including, in the sixteenth century, Augustinians in Venice and Norbertines in Prague. Camerarius gifted a 1580 copy from Antwerp to Georg Palma, who also owned the original 1546 Nuremberg edition, as well as two copies from Lyon, dating from 1552 and 1559 and a Venetian edition of 1563.<sup>32</sup> Augsburg also offered a pharmacopoeia: *Pharmakopea Augustana*, written by Adolf Occo. The second official printing of the *Dispensatorium* in 1592, by Christoph Lochner and Johannes Hofmann was published to accompany the establishment of the College of

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<sup>29</sup> Alfons Lutz, 'Das Nuernberger Dispensatorium des Valerius Cordus von Jahre 1546, die erste amtliche Pharmakopoe,' in Georg Urban Dann (ed.) *Festschrift zum 75. Geburtstag von Ernst Urban*, Stuttgart: Verlag R. Schmiedel, 1949), 107- 125.

<sup>30</sup> Rudolf Schmitz, 'Valerius Cordus' in Charles Gillespie (ed.) *Dictionary of Scientific Biography*, Volume III, (New York: Scribner) 1971, 414.

<sup>31</sup> Karlheinz Bartels, 'Die Verbreitung der Nuernberger Pharmakopoe', *Geschichte der Pharmazie*, 44, 2 (1992), Table. 1, 18.

<sup>32</sup> Bartels, 20.

Medicine. The third, in 1598 was published under the auspices of the College itself, and printed by Paulus Kaufmann.<sup>33</sup> It was reprinted in 1612, an exact copy of the 1598 edition, and updated in 1666. The famous medical humanist Jacobus Sylvius was in part responsible for the London edition.<sup>34</sup> His index provided guidelines on how to read and apply the core knowledge compiled by Cordus, to the specific circumstances and environment of London.

Is there another instance where a single publication had such direct influence in the city that received it? The *Dispensatorium* of Valerius Cordus, commissioned by an apothecary, compiled by a physician, appropriated by a city and used as a cornerstone for regulation and legislation, was an example of the melding of medical humanism with political reform. Its transmission continued this trend. It was used in manifold urban communities, but in each it was interpreted by different physicians in light of different environmental circumstances. Independent of author, editor, disciple, reader or reply, the *Dispensatorium* carved out the terms of the medical debates of the latter half of the century, the contents of the city's pharmacies and the limits and levels of what was to be known by their administrators for two centuries and more. The text became the terms, used to disguise a host of other actors and their participation in a political struggle for the supply and control of a city's medicines.

The categorical detail he provided, and the variety of species he included was significant enough to ensure that Cordus would be remembered in the mammoth compendia of botanical 'precursors', remembered primarily for pre-empting modern work throughout the eighteenth and nineteenth centuries. But the real significance of his text depended not on the plants included, but on the relationship his recommended remedies had to the business of pharmacy in the cities that adopted the work. The publication of the *Dispensatorium* was almost immediately incorporated into the terms governing the actions of the apothecaries in Nuremberg. Not only did the *Dispensatorium* mark a moment of civic interest and interference in the preparation of medical remedies, it also introduced a new tool for their regulation. The apothecary's oath of 1547 expressly prohibited the Nuremberg apothecaries from preparing any remedy that deviated from the recipes contained in the *Dispensatorium*.<sup>35</sup> The first condition of the 1555 oath, was that the apothecary agreed to prepare remedies only according to the instructions given by Cordus.<sup>36</sup> An addendum, also from 1555, contained 'improvements' to the original oath, among which was the prohibition on selling remedies without 'approval' from a doctor, presumably in the form of a prescription.<sup>37</sup>

In addition to the Senate's requirement for the Apothecary's Book, the governing council appointed a member to conduct a visitation of the various apothecaries. This had

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<sup>33</sup> Ludwig Winkler, 8.

<sup>34</sup> Jacques Dubois, *Dispensatorium hoc est Pharmacorum conficiendorum ratio. Authore Valerio Coro. Cui accessit D. Iac Sylui Appendix pro instructione Pharmacopolarum utilissima. Lugduni. Apud Theobaldum Paganum*, London, 1560.

<sup>35</sup> RV, 1009, fol. 20, April 21, 1547. 'den apothekern ir pflicht ze pringen, dass sie dem jungsten durch doctor Cordum gefertigen dispensatorii gemes handeln sollen. im falle auch was inen mangelt, bei den doctorn rat und bericht suchen sollen. solches auch zum amptbuch verzeichnen und inen alles vorm amptpuch ernstlich sagen,' cited in Egon Philipp, 46-47.

<sup>36</sup> StA N, Rep 52b, 101, fol. 2 Erstlich das sie die artzneien nit anndert machen noch beraiten sollen, dann nach dem derren doctorio Valerio Cordi.

<sup>37</sup> StA N, Rep, 52b, 101, fol2- 4v.

been common practice since the fifteenth century, but, with the growing interest in pharmaceutical methods, the onus on visitation changed; the purpose was now to inspect the conditions of preparation, rather than the conditions of sale. In the sixteenth century, this position was occupied by Michael Behaim (1496-1507), Hans Stromer (1507-1512), Jobst Haller (1512-1515), Georg Futterer (1515-1519), Nicolaus Haller (1519-1526), Christoph Koler (1526-1529), Andreas Imhof (1529-1531), Lazarus Holzschuher (1531-1533), Gabriel Imhof (1533-1544), Balth Dorrer (1544-1558), Gabriel Nützel (1558-1568), Julius Geuder (1568-1569), Barthel Poemer (1569-1581), Hieronymus Schürstab (started 1581); Joachim Nützel (1581-ca.1584); Paul Koler (started 1584).<sup>38</sup> Regular inspections began in 1563.

At the same time as Nuremberg was industriously providing and regulating Cordus' book and its use by its own apothecaries, apothecaries were the subject of similar Imperial concerns. Provisions appeared in the *polizeyordnungen* of 1548 and 1577 (although not in the original set of ordinances that had appeared in 1530). In 1548 the ordinances stated simply that 'authorities should ensure that apothecaries are visited to inspect unfit remedies.'<sup>39</sup> In 1577 they were more specific. Authorities should 'visit and inspect at least once a year, and thereby ensure good order and reformation, and that the proper materials are in stock, so that everyone gets his worth of good and fresh and suitable materials and remedies.'<sup>40</sup> Apothecaries were, therefore, the focus of *polizeyordnungen*, of good governance, long before physicians proposed medicine as the subject or centerpiece of similar reforms. 'Reforming' them, as the Imperial mandate calls for, was a sixteenth century commonplace. In this Nuremberg was the trend setter. In 1558, the reformation of the apothecaries was regarded as fairly complete, enough, in

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<sup>38</sup> Ludwig Wittwer, *Entwurf einer Geschichte des Kollegiums der Aerzte in der Reichsstadt Nuernberg. Eine Einladungs-Schrift zu der Oeffentlichen Iubel-Feyer der vor zweyhundert iahren geschenen errichtung desselben. Am 27 May 1792. Nuernberg, gedruckt mit Stiebner'schen Schriften, Nuernberg, 1792, 10.* This was a lecture given on the two hundredth anniversary of the founding of the *Collegium medicum*.

<sup>39</sup> 1548: Von den Apoteckern: [Obrigkeiten sollen Apothecken auf untaugliche Medikamente visitieren lassen] Nachdem inn den Apotecken zu zeitten/ alte verlegene und untuegliche Materialia/ und andere dergleichen Species/ so mann inn den Recepten/ und Artzneien pflegt zugebrauchen/ befunden werden/ die dem Menschen/ so die innimpt/ zu erlangung seiner gesundheytt/ mehr schaedlich dann nuetzlich seindt. So meinen wir hiemit ernstlich und woellen/ das die Oberkeyten under denen Apotecken seindt/ dieselbigen durch ire darzu verordnenten/ unnd der sachen verstendige jaerlich/ auffs wenigst eyen male visitieren und besichtigen/ und gute Ordnung/ und Reformation darinn fuernemen/ und den Materialien gebuerlichen werdt/ setzen lassen sollen/ damit eyen jeder umb sein gelt/ gute frische und tuegliche Materialien/ und artzney bekommen und haben moege, see: Matthias Weber, *Die Reichspolizeiordnungen von 1530, 1548 und 1577.* (Frankfurt am Main: Klostermann, 2002), 207.

<sup>40</sup> 1577 Von den Apoteckern: Nach dem in den Apotecken zu zeiten verlegne alte/ und untaugliche materialia, und andere dergleichen Species, so man in den Recepten/ und Artzneyen pflegt zu gebrauchen/ befunden werden/ die den Menschen/ so die eynnimpt/ su erlangung seiner gesundheit/ mehr schaedlich/ dann nuetzlich seindt/ darzu auch solche materialia durch die Apotecker ired selbst gefallens uebersetzt/ und unleidlich gestaigert werden/ So maynen wir hiemit ernstlich/ und wollen/ das die Obrigkeiten/ under denen Apotecker wohnen/ dieselbige durch ire darzu verodnenten/ und der sachen verstaendige/ jaerlich auff wenigst einmal visitirn und besichtigen/ und gute ordnung und reformation darinn fuernemen/ und den materialien gebuerlichen werht setzen lassen sollen/ damit ein jeder umb sein gelt gute frische/ und taugliche materialien und artzney bekommen/ und in deme nicht betrogen/ noch ubernommen werde, cited in Matthias Webster, 207.

any case, that the city felt confident in producing a report on its process and content and subsequently shelving the report.<sup>41</sup>

The efforts made by the city of Nuremberg to direct and organize the sale of pharmaceutical remedies were justified by virtue of the city's moral responsibility to provide for the citizen's wellbeing, a responsibility enhanced by the convergence of charitable and medical forms of welfare. Over the course of the century, the same concerns, fears and preoccupations motivated civic attempts at the reformation of medicine, and the reformation of apothecaries. But the actual proposals confer very different understandings of just what was being reformed. All rules, regulations and discussions centering on the apothecaries concentrated on the *materia* of business: the shop, its personnel, the instruments, the plants and herbs. Rules and regulations for the reformation of medicine focused instead on practice. The profession of the apothecaries was derived from mastery over things, and the reformation of the apothecaries was an attempt to govern things. That which required reforming in the medical world were medical activities, i.e. medical *practice*.

Whether connected to these events or not, the desire to establish a body for the protection and regulation of medical care was already evident in 1562.<sup>42</sup> As apothecaries settled into the role of the regulated, from the middle of the century the municipal physicians in Nuremberg were collectively striving for recognition of their authority. The Sanitats Ordnung of 1562 directed those currently employed as municipal physician, to find and produce a series of directives for the citizens of Nuremberg that would prevent the spread of plague. This approach to public health care, supporting, as it did, medical-led organisation of a much wider concentration of trades, food and drink etc., clearly placed medical authority above that of the citizens of Nuremberg at large.

The *Dispensatorium* was a medical text written by physicians, reflecting their preoccupation with the development of pharmacy. The competition between apothecaries and physicians was organic, it arose because of a mutual interest in the growing possibilities of pharmaceutical practice. Nonetheless, in Nuremberg, the apothecaries made for a happy choice of opponents. They were the object of reform, not its subject. They did not call for reform, and the direction it took came from outside them. In terms of the apothecaries themselves, we are talking about a movement from magisterial-led reformation at the beginning of the sixteenth century, towards the formation of professional control in opposition to the doctors at the century's end. But, as happened when jurisdiction over lepers was passed to the municipal physicians, the city, by regulating in this manner, enlisted medical authority in the form of physicians. This difference, implicit in the way in which doctors and apothecaries were the *objects* of reform, manifested itself as the physician's growing desire to be the subject of both reformations. They would be not only their own authors, but also the authors of the apothecarial reformation. It was the physicians who produced the literature of both movements, a literature that was at first incremental and then increased in both frequency

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<sup>41</sup> Stadt A N, B/19. Coll Med. 195.

<sup>42</sup> RV, 1208, fol. 14a 1562, April 8: 'die jungsten gebrechen, so von den doctorn der leibarztney einkommen, soll man zur handt bringen und uebersehen, und wo es von noeten, einen jeden doctor deswegen insonderheit verhoeren und darauf bedenken, wie der sachen zu helfen, ob und welcher gestalt ir pflicht zu bessern sey und widerpringen.'

and confidence, becoming more coherent and consistent and converging from different territories and contexts.

## Negotiation

On 18 April 1581, after visiting the apothecaries in their capacities as Senate appointed inspectors, Joachim Nützel and Hieronymus Schürstab made a report to the Nuremberg Council.<sup>43</sup> Nützel and Schürstab were appointed in 1581, and for some years afterwards, they served as the city's two medical inspectors to visit the apothecaries. Drawn from the ranks of the patriciate, both were members of the Senate's inner council. Nützel, who rented shop space to the apothecary Martin Just, had maintained an interest in matters of medicine and pharmacy for some time. With regard to their experience across several apothecaries in the city, generally the pair was unimpressed. They had been greeted, the two senators reported, with strenuous complaints by the apothecaries, who claimed that business was suffering because the sick did not want to take medicines.<sup>44</sup> And in addition to this, the patients complained that they were uncertain how the remedies were being prepared by the apothecaries; they mentioned particularly a 'strange and unusual' taste from newly made waters and juices, and it appears that older versions of the remedies were very expensive.<sup>45</sup>

Neither Nützel nor Schürstab were sure exactly what to make of this. It seemed clear to them that the state of medicine in Nuremberg was in disarray, but the problem was compounded by the inspectors' tangible unease with the subject. Their inability to adequately deal with the problem is clear from their vague but pervasive worry, which refused to focus enough to even identify a problem at the heart of situation. In this regard, despite reporting on a specific inspection, Schürstab and Nützel were even vaguer than Camerarius had been. Rather than settling on 'bad' practitioners, or bad practices, as they cast it, the problem with medicine was the general and increasing *belief* in a problem with medicine. General fears and insecurities about medicine resulted in disregard for the art and a breakdown of the system from the patient up. Complaints and deficiencies had run rampant, and no authority had known or wanted to provide a solution.<sup>46</sup> This was specifically a problem in governance, and their focus is evident from the preoccupation of the two members of the patriciate with the dissatisfaction and distrust of the patients and consumers. Although they were clearly aware of the doctors' complaints, it was only when patients engaged in complaint that they were spurred to action.

In an elegant turn of phrase, the councilors reminded the Senate that their first task as inspectors was to act in the manner of doctors to the city and its medical

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<sup>43</sup> StB N. Cent V, 85v- 88v: Bericht der Ratsverordneten Nützel und Schuerstab.

<sup>44</sup> St B N Cent V 42, 86r: das die apotecker sich zum hoechsten beschweren in dem das sei vermelden wie inen von tag zu tag ire narung ie ie schwacher werde, dieweil die kranken irer medicamente nicht gern gebrauchen.

<sup>45</sup> St B N Cent V 42, 86r: hergegen beklagen sich die patienten, dass sie ungewiss sind wie die arzneyen in den apotecken zugericht werden in sonderheit weil die saft und wasser die an inen selber sonst lieblich gar seltsame ungewonliche geschmeck haben zu dem das sie alte ding ser teuer bezalen müssen.

<sup>46</sup> St B N Cent V, 42, fol 85r ursach, dass solche mengel, missbreuch und beschwerden zu weit eingerissen, und denselben durch die obrigkeit bishero gebuernder weis nit aht woellen, oder villeicht nit koennen, abgeholfen oder gesteuert werden.



problems, and to assess the medical profession with its complaints by doctors and apothecaries alike, in order to decide what should be done to ensure good order and good policies.<sup>47</sup> The problems were not specific to Nuremberg (the problems were not specific at all), but the motivation to fix them was, and the set of solutions that Nutzen and Schürstab grasped built on the city's previous reforms, while borrowing from the doctors' manifesto. Thus, to the best of their abilities, they emphasized the need for regulation of what the city could regulate. They singled out two issues in particular: they stressed the need for a yearly inspection of the apothecaries, and the need for a college of medicine.

It was obvious to Schürstab and Nutzen, as they pointed out to the council, that remedies produced in one apothecary were substantially different from those produced in another, and although this was in one sense likely, it was also intolerable. Showing their prejudice towards senatorial oversight, they recommended that more time be allotted to the annual visitations. In 1581, the two inspectors were expected to visit all, or most, of the seven apothecaries in one day. Realistically, they wrote, they would want a day or two per apothecary, to thoroughly oversee the preparation of remedies, and inspect ingredients.<sup>48</sup> In addition to demanding closer oversight by the appointed magistrates of the apothecaries, Schürstab and Nutzen advised the council to enforce closer regulation of the irregular practitioners, those who prepared syrups and potions without sanction. This was in line with the kinds of regulations the city had put into place before 1558 and on-and-off afterward. Insofar as they were capable, Schürstab and Nutzen addressed the pharmaceutical problems in terms of business, and devised business solutions for them. For example, having identified a problem with the supply of frequently requested remedies, they recommended that common remedies, those that would be in demand across the city's population, ought to be shared, not sold in only one apothecary.<sup>49</sup>

In the lack of adequate understanding of the nature of the problem, however, addressing the situation in the traditional terms of business, albeit familiar, was not entirely reassuring. What Schürstab and Nutzen introduced to their recommendations, what made this fundamentally different from the kind of regulations sought and passed in the period prior to Camerarius' text, is a recognition that at least some of the problems facing the organization of medicine in Nuremberg were *medical* in nature, and lay outside their ken. They grappled with these problems. As far as they could push the business measures they did, but when business ended and the problem remained, the inspectors turned to existing expertise where they could find it. Despite the council's silence on Camerarius' application, his text was the first thing that came to mind when problems within the medical community arose. They used Camerarius' language; throughout the text, they repeated the phrase '*unordnungen, missbreuchen und mengels*', '*disorder,*

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<sup>47</sup> St B N Cent V 42, fol 88v: wollen einen E. Rat die deputirten zufforderst undertenig gebeten haben, das ihre solche capitel abhoeren wollen, werden sy sonder zweifel ein solche versamlung oder Collegium Medicorum anzustellen inen belieben lassen, und demselben wie und welcher gestalt obangeregten mengeln in den apotecken und sonst hin und wider, und was sonst in disem handel zu guter ordnung und pollice dienstlich sein mag zu berathschalgen bevelsch geben.

<sup>48</sup> StB N, Cent V.42, fol 86v: uf einen tag sieben apoteckern visitirt, da man doch, wann man recht visitation solte und wolte, mit einer jeglichen apotecken einen oder ja wol mehr tag gnug zu schaffen hett.

<sup>49</sup> StB N Cent V.42, 86v: und die selbigen nit in ain Apodeckern ablainen sonder durchaus den andern auch mittheilen solte.

*missuse and deficiency.*<sup>50</sup> Tellingly, they recalled that they had been warned about these problems, repeatedly over the past few years.<sup>51</sup> Finally, they explicitly pushed for the council's consideration of Camerarius' text, which they reminded the Senate had been submitted now for some years without eliciting a verdict.<sup>52</sup> Without directly providing a judgment on Camerarius demands, the two inspectors requested that it be given consideration. They spoke around the problem in general terms. Regulation of malpractitioners, for example, was tied to greater consideration for legitimate doctors, who ought to be praised. They then went on to give their own list of recommendations to be implemented immediately. The influence of Camerarius' text on these recommendations is clear. Most importantly, they recommended that a *doctor* be appointed and salaried by the council for the purpose of overseeing the preparation of *Composita*, complex remedies that were distilled by pharmacists.<sup>53</sup> The particularly problematic nature of composite medicines was illustrative exactly of the failure of traditional means of regulation to cope with pharmaceutical medicines. The process of preparing them created a fundamentally new product, which could not be regulated simply by inspection of the primary ingredients, or even the specific tools used in their distillation.

At this point in the progress of the medical reforms in Nuremberg, the two trajectories came together: the civic reforms passed to regulate the business of selling medicines, and the reformation sought by municipal physicians to reorganize the provision of medical treatment. Camerarius built on and co-opted much of what had previously lain outside the purview of the physicians' interests, but, until Schürstab and Nützel settled on Camerarius' blueprint of reform as their own, there was little evidence to suggest that the council saw the ambitions of the physicians as something worth integrating into their conception of civic order. With the backing of Schürstab and Nützel, however, the Senate appointed Camerarius to the task of inspecting the apothecaries.<sup>54</sup> The apothecaries revolted.

On August 8 1581, the Nuremberg apothecaries issued their reply. Presented by Georg Trittler the elder, apothecary on the main marketplace, it was signed and endorsed by all the apothecaries in Nuremberg with the exception of Trittler's son, Georg Trittler the younger, who worked in the *Heilig-Geist-Spital*, and was thus subject to a separate set of regulations. In 1581, these were Erasmus Oellinger, Christoph Pfister, Linhard Stoeberlein and Bartholomäus Zimmerman on Heumarkt and Martin Just, who worked in the space he rented from Joachim Nützel, a cellar store by St Lorenz. The text was titled: *Grundtlicher gegenbericht unnd Confutationes der Apotheker in Nuernberg Contra der*

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<sup>50</sup> StB N Cent V.42: 85v, 86r, 87r, 87v.

<sup>51</sup> StB N Cent V.42, 85v: Es haben vor ettlichen Jahren. einem E Rath die hierigen herren doctores Medicina bewerben ihrem einig die appodecker klagen.

<sup>52</sup> St B N, Cent V.42, 88r: von welcher ordnung und wie diesem handel im grudn zu helfen einem erbarn Rat hievon ein ausfuerlich bedenken und consilium (davon hiemit abermals copeny) durch herren Doctor Joachim Camerarius uebergeben worden, darinnen ausfuerlich welcher gestalt in einem wolgeordnetem regiment.

<sup>53</sup> StB N Cent V.42, 87r: das einen oder zwein erfaren doctores medici von ainem E Rathes verordnet bestellt und deswegen auch sonderliche besoldt und der zu verpflicht wurden welche mehren irer practik mit aller vleiss besichtigen und sonderlich bey den visitatis Compositis wann sig zu beraitt werden.

<sup>54</sup> RV 1462, fol. 66a, 1581, April 19.

*Herren Doctorn Medicinae beshehen vermainnt beschuldigen unnd bekhlagen.*<sup>55</sup> It ran to some fourteen pages and was circulated among select council members and doctors, (allowing it to be transcribed by Georg Palma).

The tone was incensed. Whatever attempts Camerarius may have made to frame his manifesto as a response to widespread, deep rooted problems, or to avoid unduly targeting any one group, it is clear that the apothecaries themselves interpreted the text, and its appropriation by the Senate, as a full-blown attack on their profession. They presented their own writing explicitly as a defense and refutation, claiming that the problems Camerarius pointed out had nothing to do with them, and that the incursions he recommended into their independence as businessmen were unjust and unfair. They acknowledged the problems that were by now generally assumed to be true, but they protested the solutions that were devised at their expense. They would accept a medical ordinance, they claimed, but they asked the Senate to recognise that they were the doctors' equals, that each had their own profession and that the apothecaries ought not to be made subordinate to their partners in medical practice.<sup>56</sup>

The problems that motivated Camerarius, and the complaints brought to Schürstab and Nützel disappeared in the apothecaries' text. Although they admit that there were problems inherent in the medical marketplace, which had been accepted as a basic tenet of medical writing by 1581<sup>57</sup>, neither the concerns of the municipal physicians, nor the responsibilities of the medical inspectors were at issue for the apothecaries. It was the substance of what was proposed that troubled them. The apothecaries claimed that such problems had nothing to do with them, and could not be solved by placing restrictions on their practice. They begged the Senate to listen and accept their *'exceptiones, gravamina und notwendige bedencken.*<sup>58</sup> Their response blended together the demands of the city council, and the prescriptive statements contained in Camerarius' text. And thus began the process of actual *negotiation*; as the dispute dragged on, it gained focus. Uncontested points were left aside, in favour of greater discussion about what was controversial: the division of duties between doctor and apothecary, and their respective jurisdiction over other members of the healthcare professions.

At the beginning of their submission, the apothecaries made seven complaints. First, they explicitly defended their right to make different remedies. Each apothecary had different ingredients, and different instruments specifically to prevent widespread competition for the same small business. Second, they referred to their *handtkampff*, the handcraft of making remedies, which set them apart from other medical practitioners. Third, they reminded the council and Camerarius that the costs of creating remedies ran outside the simple cost of primary ingredients. They required labour, and other instruments, and the apothecaries emphasized the amount of effort and work that they physically put in to making medicines. There were also incidental costs, for example, the cost of paper on which they were being asked to write their remedies. Fourth, they

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<sup>55</sup> StB N Cent V.42, 46r- 53r.

<sup>56</sup> StB N Cent V.42 47r: dass wir apodecker von den herren doctorn nicht undergetruckt werden, sondern ein solch einsehen haben, dass ein jeder seines berufs.

<sup>57</sup> See Chapter 5.

<sup>58</sup> StB N Cent V.42, fol 47r: 'Und seind guenstige Herren wie oben gemeldet, dies unseres exceptiones, gravamina und notwendige bedencken.'

lambasted those who stole business from them. Specifically, they named the sugarmakers (zuckermachern) and barber-surgeons as the providers of irresponsible medical care. They pointed out that their business existed not at the behest of the doctors alone. The apothecaries were also commissioned to produce plasters and ointments for both barbers and surgeons, and they had responsibilities and duties about which the physicians knew nothing at all. Ultimately, the apothecaries came to the point of their profession. It was they and not the doctors, they stated in no uncertain terms, who were trained specialists in the preparation of medicines.

How did the apothecaries present themselves as a professional group? Though there is little evidence to describe their association, it was certainly of reasonably long duration. These six apothecaries had operated in the same residences over a period of relative stability. However, before the appearance of their joint complaint, the apothecaries had never, in the history of Nuremberg's medical legislation, appeared as a group that was self-aware and that possessed an *esprit de corps*, in the same manner of the physicians. In answer to Camerarius' summoning professional ethos, the apothecaries replied, for the first time, as an associated group. As an expression of this identity, however, we have nothing comparable to Camerarius' thoughtful essay on the position of the physician. Although they defined their field of practice as the preparation of remedies, they themselves described this as a *handtkampff*, a type of manual labour. A key component of the apothecaries' defense was tied to their instruments, paper, paraphernalia, ingredients, as it was the ownership of, and expertise over these instruments that gave them their professional identity. In this way, they unwittingly supported the identifications made by Camerarius and consolidated in the way that Nuremberg ran its regulation of apothecaries. The apothecaries accepted the *Collegium medicum*, and they accepted that some reform or reorganization was necessary. What they rejected was not Camerarius' text per se, nor even his conception of a medical hierarchy, but two, very specific elements of it: the appropriation of pharmaceutical oversight, and the standardization of pharmaceutical remedies.

The apothecaries' reply formed the springboard for further discussion of the position of medicine in Nuremberg from the point of view of the apothecaries as business owners and providers of remedies. The Senate attempted to appease the apothecaries, promising to 'take into account' their thoughts on the matter.<sup>59</sup> On the other hand, the doctors, this time united, made speedy and lengthy reply.

On August 25, 1581, the physicians submitted a twenty four page letter to the council, signed by Wolff, Camerarius, Palma, Paul Weller, Justinus Mueller, Johannes Richthausen and Johannes Schenk and titled, at least by Palma, '*Antwort der Doctorn Artis medicae auff der Appodecker*'.<sup>60</sup> The text added little to the terms of the debate, but it shed the pretense of alliance. In fact, the doctors accused the apothecaries of breaking ranks, 'because they have bypassed with this writing, other, contrary plans they had discussed with D. Joachim Camerarius and Justinus Mueller.'<sup>61</sup> There might have been genuine indignation on display. Unlike the clear, succinct statements more typically

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<sup>59</sup> RV, 1464, fol. 70a, 1581, June 20th.

<sup>60</sup> StB N Cent V.42 , 53v - 65r.

<sup>61</sup> StB N Cent V.42, 54v: Da sie mit diser schriften umgangen sein contraria plane mitt D Joachim Camerarius und Justinus Mueller geredt habt.

presented to the Nuremberg Senate, the letter to the apothecaries was longwinded, repetitive and occasionally catty. A sly dig at the apothecaries' ungrammatical Latin sets the tone: '*They say that only few of their Confectum or as we would say, Confecta...*'<sup>62</sup>.

Together, the physicians distinguished between the process and principle of medical reform, attempting to dismiss the apothecaries' submission as irrelevant. By neglecting to address the specifics of the process that Camerarius had outlined in his submission, the physicians argued that the apothecaries had basically waived the right to complain. They opined that the apothecaries had already accepted visitations, and couldn't recast their position on this now. They challenged the apothecaries to show 'how no *Dispensatorium* would cause fewer complaints.'<sup>63</sup> Yearly visitations and a rewriting of the *Dispensatorium* in the pharmacies was the best answer to all the problems, which both the apothecaries and the city council had agreed existed. In fact, the doctors wrote, rather piously, 'how they (the apothecaries) may serve medicine and at the same time be served, they may in their oaths discover, which together with the official pharmacopeia of Valerius Cordus, faithfully set forth the terms.'

They then systematically moved through various allegations and disagreed with every one. The apothecaries had complained about the sugarmakers; the physicians said this was nonsense. The apothecaries thought the *Collegium medicum* would threaten their livelihoods, but, the physicians wrote, the *Collegium medicum* would *protect* livelihoods. (In what manner a professional association for physicians would benefit the livelihoods of apothecaries was nowhere made clear.) The apothecaries had written that they were asked by many people how to provide cures for the poor, or how to help people, but, the physicians blazed, was this not the very root of the problem? The apothecaries were providing remedies to people with the wrong disease, and the wrong remedies to sick people.

It seems clear that specific ingredients, or kinds of remedies, were an issue. After correcting the apothecaries' grammar on the issue of *Confecta*, the physicians offered that the *confecta* would more effective if they were only made on demand. But instead, the apothecaries prepared many 'thousands' of these *confecta* and sold them to patients without a prescription.<sup>64</sup> The implication, then, was that patients *with* a prescription were then sold less effective remedies which had passed their sell by date. Unlike their opposition to other derivative forms of medical practice - peddlers, quacks and the like - the physicians always justify their claims to control pharmacy by emphasizing, rather than diminishing, the importance of the product. It was the effectiveness of the remedies that dictated the amount of control and regulation that was necessary. At the same time, the identity of professional versus tradesman, which was so carefully constructed in Camerarius' manifesto, actually came into play in the process of reform. Here, the physicians explicitly support a tax on medical remedies, and they point out that the apothecaries deserve to be taxed precisely because they are in trade.<sup>65</sup>

The introduction of taxes into the conversation about reform provides another clue to just why the council had so vigorously pursued a standard register of remedies

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<sup>62</sup> StB N Cent V.42, 55v.

<sup>63</sup> StB N Cent V.42, 56r.

<sup>64</sup> StB N Cent V.42, 55v.

<sup>65</sup> StB N Cent V.42, 63r: Von ainem gelassen unnd anderliches Tax ist .. darvon in der beshriben ordnung genug sain gehandeltte wirdt.

over the century. Certainly physicians and city inspectors alike were genuinely worried about safeguarding the quality of medicine on offer to patients, and even apothecaries had called for the provision of a *Dispensatorium* in 1546, as a book that would enhance their ability to prepare more remedies in a safe way. But the ability to tax pharmaceutical remedies efficiently also depended on attaching a value to known quantities. Where taxes were levied on simple ingredients and remedies, a good register to more complex remedies would involve quantifying and standardizing medical cures as commercial units. This must have been attractive to the council, and it featured prominently in the eventual ordinance.

Separately to their answer to the apothecaries, the doctors addressed the inspectors: *Antwort der Doctoren Artis Medicae auff beider Herrn des Raths Herrn Joachim Nützel und Herren Hieronymus Schürstaben bedenken einem Erborn Rath fuergebracht*.<sup>66</sup> The difference between their two answers, one to the apothecaries, and the other to the Senate, was marked. In stark contrast to the virulent rhetoric on display between doctors and apothecaries, the tone of this text was designed to convey companionable agreement. Strategically it presented the apothecaries as sharing in the aspirations and plans of the doctors. The physicians interpreted the recent events in a way that shares the burden of complaint and solution across apothecaries and municipal physicians evenly.<sup>67</sup> This time they called, aloud and overtly, for 'ein ordentliche reformation der appotecken', a reformation which they say will take on board the complaints of both the apothecaries and the doctors, but whose object, as they wrote it, was very definitely the careful regulation of apothecaries and the systematic protection of the physicians. The format of this text was also more straightforward. Leaving aside the context and explication that accompanied Camerarius' manifesto, and the debate, rebuttal and argumentation that marked the negotiation between apothecaries and physicians, the text simply lists a number of demands. For the most part these merely rephrase the strictures within Camerarius' earlier text. They discard however the language of justification, the thoughtful construction of the ideal medical community, the classical references and the medical knowledge on which his reforms were based. Instead, the text is a simple, managerial style set of demands and conclusions.

It began with the *Collegium medicum*. In a subtle shift from his earlier wording, Camerarius asked not that the *Collegium medicum* be established, but that it be confirmed and ratified by the council: 'That an orderly assembly and *Collegium medicum* would also be put in place by us, as it is in other places, and would be confirmed and ratified by our honourable Senate.'<sup>68</sup> Removing the onus from the Senate to establish the *Collegium* asserted in one fell swoop a series of privileges: first, that establishing a professional body of this nature was a privilege of the profession, and second, it removed the barrier of waiting, as the physicians had been doing since 1571, for the Senate to act. Clearly, Camerarius had lost patience with the governing body of Nuremberg. There was a touch of impatience to the careless mention of 'other places', which had been so carefully itemized in his 1571 text. By referring to the 'other places' Camerarius asserted a right for

<sup>66</sup> StB N Cent V.42, 65v - 71r (although 67v is blank).

<sup>67</sup> StB N Cent V.42, 67r: 'von uns begert ist worden, das wir auff AA und so schriftlich bedencken, die Doctoren und Apotecken und dergleichen sachen betreffend unser meinung und gut wirken.

<sup>68</sup> StB N Cent V.42, 66. Das ein ordentlich vorsamlung und collegium medicum auch bey uns, wie an andern orten angestellt und von einem Erborn Rath bestettigt.

such an association to exist. Impatience at the delay in establishing the *Collegium* perhaps produced the less rosy view of city government that Camerarius displayed in this text. He positioned the *Collegium* as an auxiliary to the Senate, reminding the governing body that they were much occupied by important business. But in doing so, he also hinted that the Rat was unable to perform the duty. In *Kurtzes und ordentliches bedencken*, Camerarius constantly subsumed the duties and subsequent rights of the doctor under the general duty and rationale of city government. However subtly phrased, there was a bald statement being made in the text about the basic inadequacy of city government to cope with and regulate medical problems.<sup>69</sup>

Camerarius quickly reiterated the role that the *Collegium* should play in examining foreign doctors who daily disturbed the medical order and placed patients in danger. Then, leaving aside the uncontroversial question of other healthcare professionals, he turned to the matter at hand: the vexed position of the apothecaries. The degree to which pharmaceutical matters formed the basis of the medical debates in Nuremberg was highlighted by the absence of other healthcare professionals in Camerarius' later writing. It was also, consciously and explicitly, the object of the majority of reforms in this text. On the margins were the problematic figures, i.e. the 'bad' practitioners, against whom good medicine had to assert itself. But the bulk of the text, both in the format of its reiterated demands and in the substance of its few exploratory passages, concentrated on matters pharmaceutical: 'The doctors are all of the opinion that in many things there would be greater order in the pharmacopeia, which the apothecaries would follow for better... in which written order could be put into practice, and all reports could be put, and this might, perhaps, serve as a good beginning for the appointed deputies from the Senate to measure the individual authority of each apothecary'.<sup>70</sup> The pharmacopeia was reintroduced. Camerarius calls for 'ein ordentlich catalogin als bald wie moeglich', where all *simplicia* and *compositior* are written. Here he introduced for the first time the assertion that the Nuremberg Senate could tax ingredients. More than that, if certain mixtures were established, then the council could tax the mixture, rather than the original ingredients for it. In terms of the pharmacopeia, Camerarius reasserted the central place of Cordus' *Dispensatorium*. He called for the doctors to update it, and stated that, in order for doctors to recommend and prescribe, it was necessary to have a central record of what was available and how it was made. The major concession made by Camerarius recognized that only the apothecaries could make these remedies. Only physicians (*medicis*) and no one else without explicit permission was allowed to 'Curirern', purge and do other things.<sup>71</sup> He touched on the structure of the *Collegium* again, saying that yearly a new Decan or Senior would be chosen.

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<sup>69</sup> StB N Cent V.42, 66r: dieweil ein Erbar Rath sonst mitt vielseltigem und wichtigen geschaffen beladen, und die Doctores night gern mitt allerley klagen und schriffthen gar zu offt ihre herrlichkeiten belestigen.

<sup>70</sup> StB N Cent V.42, 69v: des collegi medicorum abzuhalten und zuvor personen, auch mit wach deselben ein Dispensatorium dieweil deren gar viel sein unnd sich unsere appoteckern selber nicht allezeit ein ..) nach des cordi dispensatorio verhalten sondern das Arznei.. haben, undn offte demselben volgen.

<sup>71</sup> StB N Cent V.42, 68v : 'Zum andern wirdt solchem medicis allein und sonst niemandt one sonderliche erkantnus zu Curiren, ungieren und ander sachen die seinem medico vor andern zuerichten gepueren zupflegen... von der obrigkeit fuergefordert und als dann dem Collegio medicorum zu examiniren.

## Foundation

The trigger for the founding of the *Collegium medicum* lay somewhere in the 1580s. It included a combination of frustrated negotiations and eventual compromise among the participants in Nuremberg's medical marketplace. It seems likely that, by the time the *Collegium* was ratified, the doctors had been acting unofficially in an institutional capacity for some time; certainly they had been practicing an increasing degree of authority over the medical affairs of the city. But there were other things at work too. In 1588, Johann Aichholz (1520-1588) the keeper of the emperor's gardens in Vienna, and a close friend of both Camerarius and his collaborator Carolus Clusius died. Shortly before his death, he created an endowment, possibly as large as 1000fl, to fund the studies of young doctors from Nuremberg.<sup>72</sup> After his death, this bequest was funneled into the plans for the *Collegium*. The costs for the *Collegium* were thus, suddenly, minimal. The potential benefit to the city accrued against a spate of epidemics that had wracked the city since 1575.

The 1580s in Nuremberg was a particularly bad time for plague. In 1581 the city lost one of its most prominent physicians to the most recent rash of epidemics. Heinrich Wolff died on the 21 December, at the very beginning of an outbreak of plague that would recur for the next four years. At one point in 1582, still the first major outbreak, the deaths numbered 400 in one week alone.<sup>73</sup> Single outbreaks could drag on for months. The epidemic reoccurred in a milder form in 1583, and broke out again on the city's outskirts in 1584. In 1585 it revisited Nuremberg with a vengeance: estimated 'thousands' lost their lives, and the council erupted with a flurry of ordinances aimed at preventing further contagion.<sup>74</sup> In its quest to counter plague, the city enrolled grave-diggers, members of the Senate, purveyors of meat and vegetables, merchants of almost every conceivable ware, and, of course, its physicians.

The opportunity for the new 'collegial' system to assert itself was not lost on the physicians. In 1585, they gathered *Collegium*-like for an informal colloquy on possible causes of action. In the various documents submitted in the 1570s, from Camerarius' manifesto to the manifold *gutachten*, formal opinions on matters solicited and unsolicited, the doctors, while alluding to a spirit of collegiality and consensus, had nonetheless represented themselves in print as individuals. In this private meeting, held under the auspices of Anton Fuchs, the physicians came to a collective opinion, which they subsequently sent to the council.<sup>75</sup> Given the previous efforts made by the Senate to wangle a collegial authority on the matter of plague, the benefit of further facilitating collective action might have seemed especially germane. There was one further development that may have swayed the Senate, and this was the establishment of *Collegia medica* in two of their neighbouring cities: Augsburg and Ulm.

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<sup>72</sup> Wittwer, *Entwurf einer Geschichte des Kollegiums der Aerzte*, 22.

<sup>73</sup> StadtA N, B/19, 480.

<sup>74</sup> StadtA N, B/19, 482. Massnahmen in Pestjahr 1585 unter Überprüfung der aus gleichem Anlass gegebenen Sterbeordnung in den Jahren 1562, 1582 und 1583.

<sup>75</sup> StadtA N B/19 Coll Med, 472. September 2, 1585: Diskussion der Nuernberger Aerzte zu einem von Dr Anthon Fuchs vorgetragenen Mittel gegen die Pest.



On the subject of establishing precedent about colleges, there was one, final contributor to the long process of negotiation: Georg Laub (1550-1597), a municipal physician in Augsburg. Laub, who had studied in Tübingen, and graduated with his degree in medicine from Padua in 1572, was a correspondent of Camerarius', and a close friend of Adolph Occo. In 1582, Augsburg's *Collegium medicum* was the first to be founded in the German territories of the Holy Roman Empire. The *Collegium* in Augsburg was run by Lucas Stenglin (1523-1587), and it was structured similarly to the college that Camerarius proposed. It was swiftly followed by a *Collegium medicum* in Ulm, although the printed ordinances governing Ulm's various medical groups were not produced until 1653.<sup>76</sup> At the request of Camerarius, Laub sent a report on Augsburg's recently established college to the Nuremberg Senate. His text did the rounds of the participants in the debate and copies survive in Camerarius' correspondence, Palma's collection, the archives of the College itself and the city's official *Briefbuecher*.

What Laub chose to say in order to convince the Senate, or illustrate to it the feasibility of a plan for the *Collegium medicum*, speaks to concerns that the Senate may have had that had not been addressed in the public debate between apothecaries and physicians. Specifically, the detailed illustration of the constitution of the *Collegium*, and the reassurance of the continued primacy of the Senate in matters of healthcare are telling. What continued to be a non-issue is interesting too. Midwives, for example, did not figure. Neither did Laub waste breath on the regulation of and jurisdiction over other legitimate practitioners. Despite the political prominence of surgeons in Augsburg, there was only a brief mention of their work in this text, when they were included with the physicians and other medical practitioners whose presence in the city was to be ratified by the *Collegium medicum*.

The significance of live examples of the *Collegium medicum* cannot be underestimated. Sixteenth century Imperial Cities were by nature conservative. Their legal systems, their political codes, their governmental ethos all depended on unwritten banks of tradition or common order, tacit acceptance of which was the glue that held the commonwealth together. Innovation in any realm, political, theological or other, had to consolidate this order and not disturb it. To this end, cities frequently swapped amongst themselves opinions, working examples and sets of questions and recommendations about problems held in common. This had already been the case with apothecarial regulations in the late fifteenth century, when systematic correspondence and investigation took place among several Imperial Cities (although not Nuremberg) with regard to creating regulations.<sup>77</sup> But assurance that the otherwise new institution of the *Collegium* maintained the status quo was, thus, an invaluable asset to its eventual implementation, and it meant that Laub's text was in the perverse position of potentially wielding more influence than any of the submissions made by Nuremberg's own physicians.

Whatever the trigger was for the Senate's action, in 1592 the Nuremberg Senate published its medical ordinance under the title: *Law, Order and Tax, (Gesetz, Ordnung*

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<sup>76</sup> *Wiederholte und erneuerte Gesetz und Ordnung Eines E. Rathes des H. Reichs .Statt Ulm*, Ulm, 1653.

<sup>77</sup> Armin Wankmueller, 'Die Ulmer Apothekenordnung von 1491', *Beiträge zur Württembergischen Apothekengeschichte* III, (1955), 6.

und Tax).<sup>78</sup> The decision on the part of the Senate made public the results of what had been a private, limited debate between competing professionals. It established the long heralded *Collegium medicum*, adhering closely to the demands made by Camerarius. The overall structures of the College's governance were pulled variously from Camerarius and from the addendums made by his fellow doctors. Thus a Deacon would be chosen every two years from the College's members, and two magistrates would be appointed to act as liaisons. The College, envisioned by the Senate, would include all the doctors of medicine appointed by the Senate, and they would renew their oaths annually.<sup>79</sup> Although the oaths sworn by members of the medical profession were, until this time, differentiated according to speciality, i.e. the apothecary swore a different oath to the doctor of physical medicine (*leibarzt*), and the surgeon swore another oath again, this was the first time that the qualification conferred by swearing the oath was differentiated along professional lines. Membership in the college was restricted to *Doctores der Artzney*, a professional title claimed in the main by those who saw themselves as body/physical doctors (*leibarztney*). The claim this professional title implied was made further explicit by the next clause, which stated that only graduates of known universities, German or foreign, would be included.<sup>80</sup> Furthermore within this highly restricted group of medical professionals, that is graduates of universities, only the orthodox practitioners of Galenic medicine need apply.<sup>81</sup>

The Senate repeated the fears voiced by Camerarius: man believes no one more readily than a doctor, and no one's lies are more dangerous.<sup>82</sup> The idea of the person as authority, the notion of limiting or divesting the peddler of that authority was a theme running through the beginning of the text. Doctors of physical medicine, graduates of established universities, adherents to Galenic medicine, these were the favoured few. In order to ensure that no mistakes were made, the Senate went on to list those prohibited from entry, banning *Doctores Bullati*, empirics and *Winkelarzt* (the term is reminiscent of the *Winckelpfarrer* - crafty preachers who practiced outside of churches).<sup>83</sup> The prohibition on *Doctores Bullati* makes very clear the council's preference for institutional medicine. These were honorary doctors, candidates who had been conferred with a degree by either a Count Palatine or, in rarer cases, the Emperor himself.<sup>84</sup> Although the

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<sup>78</sup> *Gesetz, Ordnung und Tax/ Von Einem E. Raht der Statt Nuernberg/ dem Collegio. Medico, den Apotheckern/ und andern angehoerigen daselbsten gegeben. Aegrotorum salus suprema lex esto. Gedruckt zu Nuernberg/ bey Christoff Lochner. Anno M.D.XCIII*, Nuremberg, Christoph Lochner, 1592.

<sup>79</sup> *Gesetz, Ordnung und Tax*, Article I: So vil nun erstlichen die anstellung solches Collegi Medici belangt/ sollen demselben alle von einem Erbarh Raht angenommene Doctores der Artzney (welche iarlichen ihren Erbarkeiten die gewonliche Pflicht leisten) incorporirt und eingeschriben werden.

<sup>80</sup> *Gesetz, Ordnung und Tax*, preface, 2, Da auch in kunfftig andere welche auff bekanten Universtiteten Teutschalands oder anderer Ort/ira studia absolvirt/ daselbsten wie gebrauchlich promovirt.

<sup>81</sup> *Gesetz, Ordnung und Tax*, preface, 2: ..und in doctrina veterum Hippocratica & Galenica und derselben praxi wolt geubt/ dessen auch ein publicum testimonium auffzulegen haben.

<sup>82</sup> *Gesetz, Ordnung und Tax*, 6: Das ist/ man glaubt keinem mehr/ dann der sich fuer einem Arzt aussgibt/ da doch kein Lugen gefehrlicher ist.

<sup>83</sup> *Gesetz, Ordnung und Tax*, 3: 'Doctores Bullati oder Empyrici und Winckel arzt/ so an verdecktigen und unbekanten Orten sich auffhalten/ unnd des Titus falschlich gebrauchen/ sollen in disem Collegio nicht begriffen sein.'

<sup>84</sup> Hilde de Rydder-Symoens (ed.), *A History of the University in Europe. Volume II, Universities in Early Modern Europe (1500 -1800)*, (Cambridge: Cambridge University Press, 1996), 183; A. Von Wretschko, 'Die Verleihung Gelerte Grade durch den Kaiser seit Karl IV', in *Festschrift Heinrich Brunner zum 70*

practice had been banned by Pope Pius V, it remained a contentious issue in university politics throughout the sixteenth century. It has not, however, previously been thought to have much practical impact on a professional's career. Here, the distinction between honorary doctors and university qualified doctors (*doctores legitimae promoti*), is obviously very clear. Countering other licensing bodies, like the Emperor or the church, was also a gesture of political self-sufficiency in the medical realm. Furthermore, if honorary doctors, empirics and 'corner' doctors were prohibited from membership in the *Collegium*, the Senate went on to list a greater number of practitioners who were prohibited from practicing in Nuremberg altogether. Those banned included the old faithfuls: Jews, sorcerers and old wives, but also alchemists, teeth doctors and a brand of apothecary termed '*Destillatorn*'. If such practitioners were inhabitants of Nuremberg they would be fined ten gulden. If they were foreigners, they would be banned.<sup>85</sup>

Throughout the text, the Senate placed emphasis on the importance of swearing oaths. Members of the *Collegium medicum* were to renew oaths annually. So too were apothecaries. Midwives swore oaths, surgeons swore oaths, and specialists were mandated and examined by those who had sworn oaths. Even a cursory reading of the text makes it clear that *Gesetz, Ordnung und Tax* was not intended in any way to replace the primary role that oaths played in establishing the relationship between city and profession. Having clarified the line in the sand around the qualified, the text then moved through different categories of practitioners.

Midwives receive scant mention in the text, but is predominantly positive, at least as far as their own professional aspirations extended. 'The understanding and sworn wives, as well as the midwives, should not be forbidden from childbirth and the care of young children; and the apothecary should give them the harmless things that they need, However, they should proceed with caution and in other cases call in the doctors.'<sup>86</sup> By their inclusion in the text, the Senate counted them among the approved practitioners of medicine. No additional restrictions were placed on them. In fact, the only novel legislation confirmed a privilege, rather than amending it. Contrary to Camerarius' inclination, the Senate stated that sworn-wives and midwives were *not* forbidden to prescribe remedies to young children, as long as the remedies they provided were not themselves inherently dangerous.<sup>87</sup>

With regard to the surgical professions, the doctors scored a mixed victory. The Senate shrugged its shoulders about bloodletting, which was, they acknowledged, the

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*Geburtstag* (Weimer: Bölau, 1910), 689 - 735; E. Horn, *Die Disputationen und Promotionen an den deutschen Universitäten seit dem 16. Jahrhundert*, (Leipzig, 1893) 103 ff.; F.Gall 'Palatinatsverleihung in italienische Universitäten und Gelehrte Gesellschaften 1530-1653', in *Mitteilungen des Oestereicheschen Staatsarchivs*, 15 (1962), 93 -113.

<sup>85</sup> *Gesetz, Ordnung und Tax*, 6: Und soll also allein den verpflichten Doctorn disem Collegio zugethan/ und sonsten niemands in diser Statt zu Practiciren zugelassen seyn. Den Empyricis aber/ als Thiriacks kramern/ Zanchern/ Allchimisten/ Destillatorn/ verdorbnen handwercken/ Juden/ Schwartzkünstlern/ auch alten Weibern so der Krancken zuwarten... und ihnenen Arzneyen bey zubringen/ den Fremdben bey der Straff der Relegation, denn Innwonern aber bey straff 10 Gulden verboten seyn. 6.

<sup>86</sup> *Gesetz, Ordnung und Tax*, 9: Den verstandigen unnd geschwornen Weibern/ so wol auch den Hebammen allhier/ soll unverbotten seyn/ den kindbetterin und jungen Kindern/ unschedliche Mittel zugebrauchen/ auch inn der Apothecken machen zu lassen/ Jedoch sollen sie hierinnen behutsam handeln / und sich in andern fallen des Artzneyens enthalten.

<sup>87</sup> *Ibid.*

defining feature of surgical treatment. However, it was highly advisable to consult with the doctors, without being mandatory to do so. On the other hand, surgeons were prohibited from prescribing dangerous purgatives. This probably says more about the Senate's relationship with medicines than it does about their preference for physicians over surgeons or apothecaries. When Camerarius inserted this clause into his text, he did so with the clear aim of drawing a ring of authority and professional competence around the prescription of internal drugs. What the Senate sounds fearful of is, less the notion of surgeons prescribing drugs, than those drugs which surgeons tended to prescribe: 'powerful and dangerous Paracelsian and mineral things, like *Antimonium*, Laudanum, Turbith minerals (a subsulphate of mercury), *Mercuriam praecipitatum albus* and *sive aurum vitae*, and so on and so forth.'<sup>88</sup> Clearly, the Senate was familiar with the most widely used Paracelsian innovations. Just as clearly, they were critical of their affects. This was not a question of jurisdiction over prescriptions; it is highly unlikely that the Nuremberg municipal physicians would prescribe any of these remedies. It was a matter of banning the remedies themselves. In a similar fashion, the Senate demonstrated its familiarity with, and opposition to, certain diagnostic practices, such as the inspection of urine.<sup>89</sup>

There is a certain throwing up of hands when it comes to specialists, who continued to defy the requirements and expectations of the Senate to regulate them. 'The bone-setters, dentists and the like, those who have citizenship, which they can get with the permission of the Senate, should demonstrate their skills by examination before the *Collegium medicum*, and practice their skills in the city while they are needed. They should stay within the remit of their profession, and if they examine urine, or if they damage or cause harm to people while treating them, they will be fined 10 Gulden.'<sup>90</sup>

Thus far, the text yields a mixed victory. The physicians won the right to collectively organize. The Senate defended the right of other medical practitioners to use remedies, even if in a more limited capacity, and so the apothecaries were not to be denied the clientele that midwives and surgeons brought in. The various categories into which the Senate divided Nuremberg's *heilberufe*, repeated the categories in Camerarius, or Struppius. The categories of professional experience reflect the differences between learning, and studying, understanding and doing, preparing and diagnosing. As it moved through the various professions, however, the medical ordinance introduced to civic policy a politically recognised distinction between the groups. Medicine, as a publicly regulated activity, had to comprise of actions that could be overseen. The private art of diagnosis was not accessible to government, but specific aspects of a patient's treatment

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<sup>88</sup> *Gesetz, Ordnung und Tax*, 21: soll ihnen bey ihren Pflicht verboten seyn/ die Starcken und gefehrliche Mineralische Paracelsische stuck/ als Antimonium, Ladanum, Turbit minerale, Mercuriam praecipitum sive aurum vitae, und der gleichen mehr zugebrauchen.

<sup>89</sup> *Gesetz, Ordnung und Tax*, 8: Es ist auch ein zeitdero ein beschwerlicher/ unnd kranckn Personen sehr gefahrlicher Missbrauch bey etlichen Medicis eingerissen/ welche durch besehung der Urinen, und ohne fernere grundliche erkundigung des Patients zustands... Weiln aber ex inspectione Urinae nichts gewiss von vilen des Patienten Kranckheitn...

<sup>90</sup> *Gesetz, Ordnung und Tax*, 21: Die Steynschneider/ Dentisten/ unnd dergleichen/ so dem Burgerrechten allhier seynd/ so wol auch die mit vergunstigung eines Erbarh Rhats/ auff zuvor beschehene Examinirung des Collegi Medici ein zeitlang ihre Kunst in diser Statt gebrauchen/ sollen allein bey ihrer profesion bleiben/ unnd sich die Urinas zubesehen/ die Leute zu curiren/ Verwundung unnd Schaden zu heylen/ bey straff 10 gulden enthalten.

were. Thus the Senate's text focused in the main on the provision and application of remedies, and the problems that resulted from their misapplication, as an element of professional, municipal medicine.

The greater part of the Senate's text, as it pertained to the apothecaries, derived verbatim from Camerarius. Apothecaries were enjoined to be friendly with one another, to conduct themselves peaceably and refrain from slandering each other.<sup>91</sup> Apothecaries should use good, fresh ingredients, buy from trusted suppliers, use clean water and keep track of the dates on which they prepared mixtures. Article XXIII displays a fairly typical concern with accurate measurement, especially important when doctors were using dangerous ingredients. The Senate made mention of the kinds of instruments designed to produce more accurate measurements; they should be used in such circumstances, it opined.<sup>92</sup>

So that the apothecary would prepare the remedy, the doctor cure appropriately and accurately and the patient trust both to act in his best interests, the Rat, in consequence, would appoint two doctors to inspect and oversee the apothecaries. Then the Doctor would record the results in the book.<sup>93</sup> The Apothecary could keep both the records and the recipe.<sup>94</sup> He was, however, strictly prohibited from sharing, exchanging or publishing these formulae. This relatively simple clause comprises regulation of a complicated set of relationships. There was an evident desire, on the part of the Senate, for increased transparency around medical practice. Accountability, on the parts of both physicians and apothecaries depended upon this. On the other hand, the Senate obviously respected the importance of the remedy as a profitable, marketable commodity, requiring that the apothecary respect the physician's intellectual property, and that the physician respect the apothecary's contribution to the process by allowing him retain the recipe. Record-keeping was not just a by product of regulation, but was essential to the way in which the city attempted to regulate, both in terms of generating material and making clear and accountable sets of practices.<sup>95</sup>

Building on the implied association between apothecaries and trade in Camerarius' manifesto, and their own set of legislative traditions, the Senate made explicit the connection between trade and place of business. The apothecary was forbidden to practice from home or in public.<sup>96</sup> What made an apothecary legitimate was

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<sup>91</sup> *Gesetz, Ordnung und Tax*, 10: Es sollen auch die Apothecker mit einander fridlich und einig seyn/ keiner den andern falschlich verkleinern.

<sup>92</sup> *Gesetz, Ordnung und Tax*, 16: Sie sollen auch sonderliche Wegschalen unnd Instrumenta darzu gebrauchen/ darinnen sonsten nichts gewogen oder paerparist wirdt.

<sup>93</sup> *Gesetz, Ordnung und Tax*:14: Wann dann solcher gestallt dise composita praeparirt worden sollen der verodnetetn zween Doctorn einer diselben nicht allein in ein besonder Buch einschreiben/ sondern auch an die Puchlein oder Gesetz/ den Tag/ Monat und Jar mit eignen handen verzeichnen. Ebener massen unnd bey obvermeldter Straff/ soll es mit bereitung und abreibung der Edelgesteinen und Perlein gehalten werden.

<sup>94</sup> *Gesetz, Ordnung und Tax*: 11 Die Apothecken sollen auch die Recept/ welche von den Doctoribus in die besondere Bucher (deren eines sie in jeglicher Apothecken pflegen zu haben\_ verzeichnet werden// fur sich selber behalten.

<sup>95</sup> Intensity of record-keeping grew in every time of crisis in Nuremberg. See plague records, grave-digging records etc. Nuremberg frequently co-opted its pseudo-officials to keep records on its behalf.

<sup>96</sup> Darneben soll auch den Apotecker und ihrer Gefellen/heimlich oder offentlich zu Practiciren/ bey straff 10 Gulde/ verboten seyn.

his fixed abode, and the tools and instruments of his trade. Without these, little separated the legitimate apothecary from the *winckel* apothecary. As we have seen, it was tools, instruments and ingredients, the *materia medicamenta*, that the city council could and did regulate. From these, authority over the process and manufacturing of remedies was also derived. If the council shut down the apothecary's authority in terms of diagnosis and prescription, it also defended their monopoly not merely over the sale of remedies, but over their preparation and distillation as well.<sup>97</sup> Unsurprisingly, they regulated against non-learned peddlers of remedies, including the apothecaries' *bête noire*, the *Zuckermachern* and the herbalists, who were forbidden, on pain of the same 10 Gulden fine, to sell purgatives or mixed remedies. Even if the instructions for these remedies belonged to the *Dispensatorium*, only the apothecaries were permitted to prepare them.<sup>98</sup> *Zuckermachern* and herbalists were not banned. As legitimate tradespeople, they were allowed to sell simple ingredients, and many of these ingredients had medical properties. This in itself was not illegal. Rather the act of pharmacy, the pharmaceutical preparation of these individual ingredients in combinations, was the preserve of the apothecary. Further prohibitions fell on the '*Winckel Apothecken*', the corner-apothecaries, who operated outside legitimate businesses. These shady figures served no definable civic purpose, and were prohibited completely from operating within the city walls. Specialists, about whom the council could only harbour unspecific worries, were also prohibited from selling their characteristic remedies: '*Petroleum, unnd andere Salben und Oel*.'<sup>99</sup> The terms of the legislation prohibited doctors from favouring one apothecary over another, or from hindering one apothecary over the other.<sup>100</sup> Apprentices were also evidently an issue for the council as well as for the doctors. When apothecaries took them, the boys were to be of a reasonable age and must pass a test in Latin.<sup>101</sup> In their training stages the apprentices were not allowed to prepare purgatives or opiates, under penalty of a five gulden fine.

Unravelling the place of Cordus' text at the heart of the Senate's regulation on pharmacy is tricky. In article XXV, the Senate refers to work carried out by the *Collegium medicum* (by which, presumably it means the municipal physicians who were

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<sup>97</sup> *Gesetz, Ordnung und Tax*, 17: Also soll erstlichen den Doctoribus bey ihren Pflichten verboten seyn/ einige medicamenta fuer ihre Patienten allhie/in ihren hausern zu praepariren, und in diser Statt zuverkauffen.'

<sup>98</sup> *Gesetz, Ordnung und Tax*, 12: Nachmals sollen die Zuckermacher/ und andere gemeine Wurtzelkramer/ bey hirhem Thun und handthierung bleiben/ und sich bey straff 10 Gulde alle purgirende oder andere vermischte Sterckarzney von Grieben und Safften/ deren descriptiones dem Dispensatorio einverleibt. unnd den Apoteckern allein befandt seyn/ zu preparire.

<sup>99</sup> *Gesetz, Ordnung und Tax*, 22: Da aber in diser Statt andere Bruchschneider, Thyriackskramer, Zambrecher, Salbenframer und andere Landfahrer/ so das Petroleum und andere Salben und Oel fuer mancherly krankheiten und Schaden/ betruglicher weiss feyl tragen.. Deren Wahren sollen... verboten werden.

<sup>100</sup> *Gesetz Ordnung und Tax*, 12: Gleich wie aber die Doctoren keinen auss den Apothekern vor dem andern auss gunst oder ungunst/fordern noch hindern sollen.

<sup>101</sup> *Gesetz, Ordnung und Tax*, 10: Die Jungen und Discipuli da sie von den Apothekern angenommen werden/ sollen eines zimlichen alters/ auch in Latienischer Sprach/ als vil ihnen vonnohten/ erfahren seyn/ und derenthalben zuvorderst examinirt werden.

about to be formally incorporated) to improve and amend Cordus' text.<sup>102</sup> The *Dispensatorium* was re-issued in Latin in 1592.<sup>103</sup> The new edition, published in 1592, was given a fresh framework, integrated into the set of reforms. This marked the final stake through the apothecaries' question. Camerarius had called for 'ein ordentlich catalogin als bald wie moeglich', where all *simplicia* and *compositior* are written, and what he got was the official manual of the apothecaries and physicians retooled.

The structure of the text remained similar, but with three significant changes. First, the foreword re-situated the volume within the context of the medical reformation. Although Valerius Cordus' name remained on the cover page, the text was presented as a work by the *Collegium medicum*. The second change was made to the structure of the work; the contents expanded to include two new sections: *Decocta* and *Aqua destillate*. Less cosmetically obvious but perhaps more significant was the final change. Throughout, the number of ingredients and volume of all kinds of mixtures increased dramatically. In 1556, Cordus' pharmacopeia numbered 372 *Compositorum medicamentorum*. In 1592, this had almost doubled. The new *Dispensatorium* listed 599 *Compositorum*. Although presumably remedies were replaced with newer, better versions the *Dispensatorium* did not omit the earlier cures, it simply added to them. This speaks more to the idea of taxing and itemizing, and less to the idea of regulating for *better* medicine. By contrast, the number of simples detailed declined from the mid-century total of 243 to the much smaller number of 93. And while the redundant or out-of-fashion *compositiones* were not abandoned, the 93 simples included in the 1592 edition of the *Dispensatorium* included only a handful of the 243 ingredients listed in 1556. In 1556, the index was an index to ingredients. In 1592 it may have been an index to taxable ingredients. Certainly the smaller list is full of rarer ingredients.

The major development illustrated by this new edition of Valerius Cordus' *Dispensatorium* was the same development encountered by Schürstab and Nützel in their 1581 inspection of the apothecaries. Their problem had been the unavailability of the apothecarial 'product' to senatorial inspectors. Here, the revised text concentrates on processes of distillation, purification and extraction, rather than the old organization around types of remedy, such as purgatives and laxatives etc. Both show a new emphasis on pharmaceutical methods, as the professional process which changed ingredients into cures. This passage from earlier ideas about inherent herbal properties to a more modern notion of manufacturing medicine from non-medical ingredients, entailed a far more complex conception of what the apothecary actually was, and how best he ought to be regulated.

The process of this was gradual. In the *Kurtzes und Ordentliches Bedencken*, Camerarius concentrated on the person and qualifications of the apothecary. In the course of the subsequent controversies he shifted focus, increasing his emphasis on the actual

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<sup>102</sup> *Gesetz, Ordnung und Tax*, 17: Betreffend die Dispensatoria damit man sich darnach zurichten wisse/ hat ein Erbar Raht dess Cordi dispensatorium fleissig von dem Collegio Medico emendirn, und mit mehrern nutzlichen Medicamentis bessern lassen/ demselben gemess die Apothecker sich verhalten sollen.

<sup>103</sup> Valerius Cordus, *Pharmacorum Omnium, quae in usu Potiss sunt. Comonendorum Ratio. Vulgo Vocant Dispensatorium Siue Antidotarium Ex optimis Autoribus tam recentibus quam veteribus collectum, ac scholiis utilibus illustratum in quibus, ac scholis utilibus illustratum in quibus in primis siimplicia diligenter explicantur. Autore Valerio Cordo*. Norimbergae, Christophorum Lochnerum & Johannem Hofmannum. 1592.

ingredients and remedies. This shift, from apothecary to remedy was both rhetorical, allowing for narrower strictures while ostensibly avoiding the tricky question of professional boundaries, and also practical; allowing the Senate to concentrate on *things*, which it preferred. In his original manifesto, Camerarius spent a good portion of time on the various professions. By the time of the passage of the reforms he had discarded the notion of a shared 'profession', in favour of an intellectual primacy over a set of shared practices. The apothecaries were the losers in terms of the mechanics of the legislation, and they were forced to accede to an increase in oversight at almost every level. But the concept of medicine that the text enshrined, was fundamentally tied to professional processes which only apothecaries could manage. Far from resolving the dispute between apothecaries and physicians on any permanent basis, this picture of medicine and its organization set up a competition that, almost necessarily, endured.

If the dispute between physicians and apothecaries gained focus only to be unsatisfactorily, and temporarily, resolved in 1592, that was by no means the sum total of changes in medicine that took place within the period of the negotiations and the council's subsequent legislation. We must look at the many changes implemented in legislation without debate, some of them Camerarius' innovations, and some of them not. The most notable of these was the designation of the *Collegium medicum* as the de-facto licensing body for medical practitioners in Nuremberg. While approved practitioners would continue to swear their oaths to the city council, the *Collegium medicum* would arbitrate on their suitability for work within the city.

None of these categories was particularly controversial. Laub's letter to the council stated that Paracelsians were also banned in Augsburg. 'Even among the promoted doctors', Laub wrote 'and those accepted by the *Collegium* there are to be no Paracelsians allowed, rather everyone is to be faithful to Hippocratic medicine.'<sup>104</sup> Paracelsus himself had been banned from almost every city he entered (he was run out of Nuremberg in 1529); Paracelsian texts had been censored or forbidden, certainly in Nuremberg, but also in Augsburg, individual traveling practitioners were often censored or fined for providing 'Paracelsian' remedies, usually the mercury cure. To a degree, Camerarius' stricture merely clarified a line in the sand that already existed. It also did more than that. By defining Paracelsians as unacceptable, it projected the common educational background of legitimate physicians into a defining school of thought. The concept of a 'Paracelsian,' however entrenched it is in modern historiography, had no material purchase until the passage of this legislation. The categories of Galenicists and Paracelsians created in legislation, had a complicated reality. As we have seen, the Nuremberg doctors picked and chose from Galen and Paracelsus both, as they saw necessary. Paracelsianism never became an acceptable, or even a truly vital, kind of medical affiliation. Conversely, the idea of an overarching Galenic philosophy was already past its heyday, if it was ever a strict intellectual paradigm.

The *Gesetz, Ordnung und Tax* was not intended to change the place of oaths, but the introduction of public and civic regulation did modify the perception of the medical world. The city council divided, less between foreign and local than it did between

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<sup>104</sup> StB N Cent V.42, 74v: was promovirt und vom Collegio acceptirt sind, seines usam und wann sie wollen, allein kheinen Theophrastenlichen wird, sondern wir wollen alle sint omnes Hippocratica Doctrina alles und fideos.



qualified and unqualified. Unqualified medicine was an abuse, not just of the regular citizenry 'heilsame ordnungen gemeiner Burgerschafft', but also of the other healthcare professionals, particularly the apothecaries, the barbers, the wund and augen doctors, the bone breakers and bathers. And thus, they have decided to order and regulate the College of Medicine.

The first significant deviation from matters concerning other members of the healthcare professions was the council's clause on conduct during epidemics. Articles V and VI of the text deal with epidemics. Article V specifies that in 'common illnesses' (*gemeinde krankheiten*), doctors who treat patients will receive a Gulden for their first visit, and that in dangerous contagions (*gefahrlichen contagios Kranckheiten*), such as pestilences or plague, each first visit will earn a doctor a Croner, and each follow-up visit will earn a half-Croner. The Senate walked the fine line between bribery and stricture without writing in to the doctor's duties any obligation to treat plague. Nuremberg's patriciate clearly recognized the danger to the doctor. The text includes a nod to the city's rich, reminding them that in instances 'since the doctor works day and night with grave danger to his own life,' that they might consider paying a 'danck'.

What the doctors *were* obligated to do, in the legal terms laid forth by the *Gesetz*, was to collaborate on a 'Ratschlag'.<sup>105</sup> In times of acute crisis, the Senate required that a part of the doctors, or the whole College, was to provide a general consultation or advisement to the city. The validity of such a piece, examples of which had been published prior to this in 1572, was generated by the consensus between doctors. Although the Senate respected and required differences between its doctors, it also accepted the general principle sold by Camerarius, that consensus was not only desirable but manifestly required. Nowhere is this clearer, or more critical, than the Senate's decision that, in times of crisis, the need for consensus was more important than medical innovation, a patient's right to choose between multiple remedies, or the participation of other members of the medical marketplace.

As for the patient, the terms of the Senate's text includes him or her, in a way that neither Camerarius nor the apothecaries did before. The duties of the doctors, apothecaries, midwives et al, are cast in terms that reflect the relationship between the profession and the sick. Civic duty, of course, reflects the responsibility of the doctors and other healthcare professionals to the citizenry, rich and poor alike. Article III, describing the duties of the doctor, requires the physicians to maintain 'friendly communication' with their patients.<sup>106</sup> To a certain extent, the rights of the patient as consumer are also present. The Senate recognizes, for example, that patients develop relationships with specific doctors. They recognize that a potential patient has, if not a right then at least a legitimate desire to exercise choice over which doctor he or she visits. Where a patient wanted his own prescription, having paid the apothecary, he was allowed to look at it, but not to remove the record.<sup>107</sup> The patient's rights were recognized, but

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<sup>105</sup> *Gesetz, Ordnung und Tax*, 5: Da auch in schweren und gefehrlichen krankheiten von eines theil der Doctorn/ oder wol zu zeiten einem gantzen Collegio, consultationes Medicae oder Rahtschlag (...) erfordert wurden.

<sup>106</sup> *Gesetz, Ordnung und Tax*, 4: mit allem ernst bestendiglich erhalten/ auch mit vertrawlicher freundschaft unnd communication (damit dann sonderlich den Patienten wol geholffen seyn wirdt).

<sup>107</sup> *Gesetz, Ordnung und Tax*, 11: Die Apothecken sollen auch die Recept/ welche von den Doctoribus in die besondere Bucher (deren eines sie in jeglicher Apothecken pflegen zu haben) verzeichnet werden/ fur

limited. The patient's health took precedence over his rights as a consumer. The right to consult or use something was not equated with the right to make available the same knowledge to others. The first port of call for poorer patients is often the surgeon, or barber-surgeon. The Senate provides an avenue for complaints. If patients wish to complain that they were neglected by a barber-surgeon or bather, they should go to the *chirurgion*. If that fails, or if he recommends they do so, they can then take the complaint to the Senate, who takes it upon itself to punish wrongdoing.<sup>108</sup> Without coercion or incitement by the municipal physicians, the council recognizes a further hierarchy internal to the surgical arts, and in this case too they privilege the members of the profession with academic education.

## Conclusion

Humanists, physicians, patients, merchants and even religious leaders all displayed a vested interest in medical remedies at various points in the sixteenth century, and the trajectory of pharmaceutical interests among the Nuremberg physicians was an inextricable component of the development of their medical practice. Medical humanism took a fixed canon of literature, ancient medicine, and opened it up. Galenic medicine, especially Galenic pharmacy, became more flexible to suit the demands of material practice. As a regulatory tool, the *Dispensatorium* was the opposite, a text that attempted to fix fluid, practical, material information into a set of rules and standards.

The stakes of the *Dispensatorium* and the change in the kind of medical regulation pursued by Nuremberg's council, reflected a conception of medicine that fundamentally involved the arts and practices of pharmacy, which were known to physicians, but regulated like a trade. As pharmacy developed and remedies grew more complex, they became more dangerous, more expensive and more specialized. It was in tandem with these changes that the council acted. In Nuremberg, medical regulation met the reformation of the apothecaries before it met the medical reformation.

There were essentially four participants in the reformation of medical practice in Nuremberg, though not all participants were equal and not all results were satisfactory. They were: the doctors, the apothecaries, the city and the citizens. At various stages the subject of the reform movement was the city, and later the physicians. The object of the magisterial reformation was the *materia medicamenta*, medicine as remedy, and thus, largely, the apothecaries who produced and provided the cure. The object of the physician's remedy was medicine as diagnosis and, thus, apothecaries challenged the authority of the physicians by undercutting them as the point of contact. The doctors,

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sich selber behalten/ und niemand anders/ als dem es geburt/ furlegen. Auch da etwas daran gelegen/ ohne vorwissen des Medici so es geschrieben/ nicht auss der Apothecken geben/ oder verteuscht andern Leuten/ die damit nicht wissen umbzugehen/ zustellen. Dann die erfahrung zuerkennen gibt/ dass hierdurch grosser Missbrauch und vil ungereimbtes/ vor der Zeit ist begangen worden. Jedoch da ein Patient/ auff bezahlung des Apotheckers/ seine Recept fordern wurde/ soll er ihme die Verfolgen zulassen schuldig seyn/ der gestalt/ dass deren Copia in der Apothecken behalten werde.

<sup>108</sup> *Gesetz, Ordnung und Tax*, 21: Wurde sich iemands beklagen/ dass er von einem Balbierer oder Bader were verwarlost worden/ der soll sich von den geschwornen Wundartzen entscheyden lassen. Unnd da sich die Verwarlostung befinden wurd/ soll es fuer einen E Rath gebracht werden/ damit man gegen demselben Wundarzt die geburliche Straff fuernemmen moechte.

possessors of no shops, and countless instruments were allowed a *practice*, an intellectual set of activities which caused similar problems to the apothecaries, but required quite a different set of solutions.

There is one simple reason that the doctors were more successful political figures in Nuremberg than the apothecaries; they managed to enshrine in legislation a mandate for the 'second opinion'. As we have seen in Chapter 5, it was an increasingly common practice within medical cooperation to involve other doctors in validating one's opinion. In Camerarius' network this was a written procedure. But it could also be a bedside matter, where a second physician was brought along to corroborate diagnosis. More and more in the sixteenth century, this was the case. Making a second opinion a general principle of medical care inscribed the collaborative process of medical consultation into the medical reformation.<sup>109</sup> This wasn't simply a translation of one principle (collaboration) into practice (collaborative), it affected the dynamics of the medical marketplace. It altered the balance, admittedly always tentative, between the various medical practitioners because it encouraged patients to see not one, but two physicians. It encouraged them to view the same opinion given twice, or confirmed, as something desirable. This increased the clientele for every physician, and it increased the role of the municipal physician in the patient's healthcare plans. It encouraged a view of medicine by the consumer that was collaborative, and, by virtue of providing an outlet for profitable consensus, it encouraged practical collaboration as well. Consensus, of course, remains the focal point of medical legitimacy today. In the sixteenth century, it became the touchstone for a professional impetus on the part of the physicians, and a public identity as viewed by patients.

There was no such avenue available to apothecaries. Competition between apothecaries was inevitable, tied to their mode of business. They sold cures, and provided prescriptions and as merchants or salesmen they competed with each other to be either the maker chosen to fill a prescription, or the purveyor chosen to sell the ingredients or simples of the patient's choice. At the most basic level, one could encourage and sell the notion of a second opinion on diagnosis, but no one was going to pay for the same remedy twice. The result of this inevitable competition prevented apothecaries from actively consolidating their interests, and hindered them in their struggle to protect their sphere of activity from the encroaching professional interests of the physicians. In addition to this latent competition and dissension, inherent to the practice and sale of pharmaceutical medicine, the actual content and shape of the medical reformation, proposed by Camerarius, amplified and accelerated the divisions and fissures between the apothecaries in Nuremberg. Passing regulations that required apothecaries to standardize the name, list of ingredients and method for making particular remedies reduced the overall amount of remedies available in Nuremberg and increased competition between the apothecaries. Prior to this, customers who visited apothecaries could distinguish between them on the basis of what they sold. Camerarius and the physicians, while trying to regulate the making of pharmaceutical remedies, lessened the bases of distinction between apothecaries, and thus intensified the competition between them.

The process of medical reformation illustrates the ways in which internal trends within medicine met and manifested within the social reality of the city. Camerarius'

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<sup>109</sup> See Chapter 5 for the growing process of consultation in correspondence.

original submission demonstrated an understanding of the profession of medicine that was accepted, with modification, by the Nuremberg Senate. The growing interest in pharmacy spurred the competition between doctors and apothecaries. Collaboration and consensus were given social meaning in the adoption of the formal 'second opinion'. The medieval place of diagnosis in the physician's lexicon was consolidated, but imbued with novel ramifications for jurisdiction and authority. It remained the fundamental purview of the physician, but it came to entail not just private correspondence between physician and patient but the physician's jurisdiction over the medical marketplace. Diagnosing a medical problem entailed deciding within whose remit, subsequent treatment lay. In effect, by a kind of osmosis, this meant that medical treatment of every sort potentially fell under the physician's authority. The physician's reach over both protection and treatment, as seen in Chapter One, was granted, in the ordinance of 1592, primacy over Nuremberg's medical marketplace.

The struggle between doctors and apothecaries was a fight between the privileges of property and tradition, and qualifications and status. The victors of the medical reformation were, thus, unquestionably the physicians. In 1552 the Senate sought to limit the apparently stronger, and certainly more entrenched society of the apothecaries. In 1592 they moved to recognize the society, and also to curb its powerful sphere outside both the Senate's and physician's control. But there were other considerations also at play. The council, in severe financial difficulties in the wake of the Schmalkaldic War, moved to tax pharmaceutical remedies. Contingency played a role. So too, did manipulation and politics. Threatened by recurring bouts of plague, it was an opportune moment for the physicians to make political demands. The successful foundation of *Collegia* in Ulm and Augsburg provided a template to ease uncertainty about the shape or implications of the institution. There were, however, two fundamental, unsurpassable reasons for the success of the physicians at the expense of apothecaries.

Quite apart from the question of professional identity, the physician's insistence on his art as a set of hidden, varying processes meant that his practice was difficult to manage. It eluded the grasp of the city government. 'The professionalization of both medicine and law', wrote Pomata, 'required the suppression of the traditional view that regarded legal and medical services as similar to a craftsman's labor and thus compensable upon successful completion.'<sup>110</sup> But devoid of consideration for a hierarchy of professions, or services, in order to regulate efficiently, the city of Nuremberg required known objects of fixed qualities. Apothecaries had these. They worked in permanent establishments, they possessed and used tools, they sold, and were increasingly forced to sell, remedies of established ingredients and purpose. Apothecaries provided, both for the doctors and the Senate, a point of reference, an entry into the arcane, urgent world of medical care.

The relative difference between the two professions was only exacerbated by relations among the members of the respective groups. The most successful innovation proposed by Camerarius and accepted by the city council was the 'second opinion'. The acceptance of consensus as not only desirable but necessary did two things. First, it ushered in collaboration as a general principle of medical care, the same principle upon which the College of Medicine would be founded to guarantee. Second, it theoretically

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<sup>110</sup> Gianna Pomata, *Contracting a Cure*, 165.

doubled the market for medical care. It removed the principle of competition between physicians. It was a perfectly legitimate business strategy, and it was, in fact, civically responsible, to charge a fee in order to agree with a colleague's diagnosis. For the apothecaries, this kind of collaboration was unattainable. The nature of their business was essentially competitive. A patient might pay to have a diagnosis confirmed, they would never pay for the same remedy twice.

These were medical conclusions, but the stakes of the problem were still, for those that experienced it, predominantly civic.

## Conclusion: Ordinary physicians and general practice



Joachim Camerarius, *Matthioli Kreutterbuch*. Frontispiece.

This image is taken from the frontispiece to the 1586 edition of Pietro della Matthioli's *Kreutterbuch*, compiled and edited by Joachim Camerarius.<sup>1</sup> The physicians of Nuremberg gather front and centre, their heads bent in earnest consultation. Scholars and gentlemen, the doctors are bearded, gowned and capped. They wear robes, the loose and unstructured garments of scholars, combined with the typical dress of nobles including slashed doublets, fur trim, and intricately patterned cloth.<sup>2</sup> The other people in the image observe and confirm this identity. In the front right, the seated apothecary looks up to the clique of doctors. Although also richly dressed, the apothecaries are not in university robes but wear instead fashionable form-fitting jackets. They hold their tools in hand, emphasizing their connection to the provision of remedies. In the background to the left, wise-women gather plants; and to the right a patient lies in bed while another physician inspects his urine.

<sup>1</sup> Camerarius, *Matthioli Kreutterbuch*.

<sup>2</sup> The best and most recent study of costume and material history in German identities is Ulinka Rublack, *Dressing Up: Cultural Identity in Renaissance Europe*. (Oxford: Oxford University Press, 2011).

Physicians, wise-women and pharmacists stand together in a garden, which is the natural representation of health and order. The primary materials of healing surround them. In the far distance, behind the fountain, the unfettered wild represents the original garden, God's gift of Eden, in which perfect health and harmony reigned. This garden, however, is cultivated. It is severed from the wild by boundaries, and there are potted plants and an abundance of fruits and exotic species that could not occur naturally. A gardener, replete with scythe, drives this point home. A fountain in the middle suggests both the aesthetic purpose of the garden and its ordered, engineered production, exhibiting technical mastery over nature rather than philosophical insights. To the front and right, distillatory equipment provide the garden's endgame, i.e. to produce, from the prepared cuttings and ingredients, the quintessential live-saving remedies.

Elements of this representation can be found in the traditional iconography of medicine, the physician inspecting urine, the patient in bed and the doctors in consultation.<sup>3</sup> But, like the medical reformation for which it was a unifying image, the engraving that accompanied Camerarius' text put familiar elements into a new relationship, and, in so doing, made a claim about the place, power and process of medicine as wielded by the municipal physicians at its centre. Like Camerarius' manifesto for reform, the engraving depicted physicians at the top of a medical hierarchy. Other practitioners, medical materials, and even the garden itself, the local, medical space, all depend upon the physicians. In this imagined world, the apothecaries are literally overseen by the physicians. Just as they were excluded from Camerarius' college of medicine, they are excluded in this image from the educated elite. Their low stools, hunched posture and mechanical tools reinforce their lesser position. They are manual workmen, like the gardener and the women gathering herbs. Although permitted to work in the garden, none of these practitioners share any part in the medical decision making which so engages the physicians. The physician inspecting urine in the corner of the picture is the sole, learned practitioner allowed to undertake this diagnostic practice.

The engraving embodies the arguments of learned medical reform. The garden setting suggests a natural order to this hierarchy, but in 1586 the relationship it depicted was still an aspiration rather than the norm. In 1571, Camerarius' manifesto made the case for the municipal physicians for the first time. On behalf of his colleagues, Camerarius presented a distinctly dystopian medical marketplace, in which the threat of bad medicine loomed over every patient, and bad practitioners lured respectable citizens only to fail them at their moment of need. The specter of fraudulent foreigners, sorcerers and heretics haunted the Nuremberg Senate, but though Camerarius stoked the fires of their fear, dangerous medical practitioners were a smokescreen for Camerarius' real target: other legitimate practitioners. In the course of his manifesto Camerarius appeared to praise midwives while advocating their regulation, define a need for surgeons while

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<sup>3</sup> For discussions of medical iconography and cultural representations of physicians see, Alex Bamji, 'Physicians and identity in early modern Venice,' Conference Paper, RSA, Washington DC, 2012; Tom Nichols, 'The Vagabond Image: Depictions of False Beggars in Northern Art of the Sixteenth Century.' in Nichols (ed), *Others and Outcasts in Early Modern Europe. Picturing the Social Margins*, Aldershot: Ashgate, 2007, 37-60; Petra Schramm, *Die Quacksalber. Heilkünstler und Scharlatane. Ein dokumentarischer Bildband*. Taunusstein; Edition Rarissima, 1985.

dismissing their qualification, and rely on apothecaries while subordinating them to his own botanical interests. Camerarius relegated the status of apothecaries to artisans, possessors of tools and instruments. He prohibited pharmaceutical innovation in apothecaries and argued that all distilled remedies ought to be approved by physicians. Apothecaries, he wrote, were essentially tradesmen, and their apprentices, their records and their places of business should be carefully scrutinized in annual inspections. In what amounted to a ritual performance of the physicians' superiority he proposed that these inspections would be best carried out by the municipal physicians.

These claims were, perhaps to a greater extent than even the physicians had foreseen, realised. Although they never won the right to inspect the apothecaries, over the course of twenty years the physicians suppressed the jurisdiction, professional abilities and identity of their competitors by public, private and political means. When Nuremberg's *Collegium medicum* was eventually founded in 1592, it mandated and formalized the previously informal collaborative association between municipal physicians, and institutionalized the corporate identity of the medical profession as something apart from, though not opposed to, its medieval academic orientation around either praxis or theory. Practically speaking, it placed the physicians at the top of a medical hierarchy. Physicians alone were admitted to the *Collegium medicum*, whose members were then in a position to decide which foreign physicians could practice in Nuremberg, which remedies could enter the city's pharmacopeia, and which medical practitioners were allowed to operate, or to amputate and to bleed Nuremberg's sick. With the publication of *Gesetz, Ordnung und Tax*, all patients were instructed to consult at least two physicians. After 1592, learned physicians in Nuremberg were thus assured of a livelihood in addition to their annual salaries and of protection from claims of malpractice. Although provided for under the terms of the new legislation, other legitimate medical practitioners had no such standing, while practitioners deemed illegitimate, a decision made by the members of the *Collegium medicum*, were banned from providing medical services at all. In their battle with apothecaries, in their claim to professional primacy over surgeons and midwives, in their bid to establish themselves as the arbiters of legitimate medicine, the physicians were decisively victorious.

The nature of the physicians' newly legitimate authority was twofold. It was, first, a measure of social power granted by the Nuremberg Senate, but won at the expense of other medical practitioners. The great tactical manoeuvre by the physicians was to use learned medicine to shore up civic authority. In the years following the religious reformation, medical vocabulary justified the Senate's decisions on the new, expanded hospital, on the city's famous *Lepraschau* and on the distribution of medical literature. However, learned medical authority was not gained solely in the public sphere. The ordinance of 1592 was also a medical statement. In this guise, it constituted a second, and possibly greater, victory for the physicians. It redefined medicine. By establishing a *Collegium medicum*, by granting the physicians' jurisdiction over the provision of medicine in the city, by limiting pharmacy to learned physicians, the ordinance recognized a set of practices beyond the traditional Galenic focus on diagnosis, prognosis and treatment within the interior body.

Camerarius' engraving reflects this expansive attitude to medicine. Aside from its focus on medical relationships, the image also depicts medical activities. Botany, horticulture, distillation, examination, consultation, collaboration are all medical



practices; and the accompanying image and text, in addition to the reformation that followed, make explicit the physicians' claim to the right to regulate these practices. This was not simply a result of their social and political ambitions. The Nuremberg physicians thought long and hard about practice, and they dedicated personal, professional and public means to its pursuit.

Camerarius used his botanical writings to reflect on medical practice, and for him botany and pharmacy were inextricably linked. His botanical texts describe the identification of plants as a communal project. In the same manner he described healing and pharmaceutical treatment as incremental methods and products of collaboration between networks of like-minded, locally active physicians. What he advocated in print, he followed in practice. Camerarius' massive correspondence network engaged hundreds of physicians in his quest to better procedural identification; and demonstrated a dynamic *esprit de corps* among the Empire's practicing physicians.

Through rigorous anatomical study and long, careful writing, Volcher Coiter, contributed a more experimental, tactile and material conception of truth-seeking. Coiter dissected bodies in private and he used his findings to demonstrate causal theories of disease. He saw a clear link between the diseased and the healthy body and his many case-studies prove that he used surgical and anatomical knowledge to treat a wide variety of accidents, injuries and diseases.

Camerarius and Coiter were both interested in truth. Georg Palma took a different approach. Camerarius and Coiter used botanical and anatomical methods to produce knowledge, with the aim of improving medical practice. Palma however collected and digested particular knowledge of all sorts. He read widely, combating uncertainty by eclectic note-taking rather than exhaustive truth-seeking. Palma aimed not to place one truth against another, but to expand his reading laterally. Because of this, his library and note-taking reveal the important place that local knowledge played in the medical community. This emphasis on local knowledge found its correlation in the strong networks of communication that linked practicing physicians across the Holy Roman Empire and enabled both shared knowledge and consensus between them. Depending on the intellectual interests and practical circumstances of the physicians in question, concern with and interrogation of practice took specific forms, Camerarius, Coiter, Palma and the other Nuremberg physicians had two common aims: to make medical practice more effective *and* to improve medical practice in theory.

Broadly speaking, the increased emphasis on practice was a major characteristic of sixteenth century medicine. Early modern medical practice differed from both modern experience and scholastic *praxis*. While practice had always been the point of medicine, in the sixteenth century careful, rigorous criticism and speculation was brought to bear on its Aristotelian categorisation as *praxis*. Experience and observation were crucial components of *praxis*, but practice was a wider category. It was comprised of, and occasionally compromised by, social context as well as intellectual methods. The emergence of learned medical practitioners in cities and courts across the Holy Roman Empire coincided with a rethinking of the place of practice in Galenic medicine. Humanism, publishing, developments in anatomy, clinical medicine, and the importation of plants and remedies from the New World were all contributors, while the sudden appearance of new diseases, pox, sweating sickness, and new remedies, had effects on medicine, at both learned and popular levels, and in both theory and practice. This new

emphasis could be seen in universities, in private scholarship and in medical texts. It dictated the reception of Galenic texts and guided reading, writing and general scholarship. As it related to their social role, the emphasis on practice expanded the physicians' participation in medical treatment, far beyond the limits that the medieval designation of the physician, as purveyor of 'inner medicine,' imposed. Accordingly, pharmacy, which fell under the remit of practical medicine, became of interest to physicians generally, and to ambitious, politically motivated municipal physicians specifically.

This was the relationship that the medical reformation in Nuremberg consolidated, a relationship not just between physicians and apothecaries, or physicians and patients, but between physicians and *medicine*, a relationship in which physicians changed the orientation of medicine towards broad, practical methods. The historiography of medicine in the sixteenth century has not adequately addressed this. As well as a corpus of learned texts, and a systematic Galenic philosophy, we should think about early modern medicine as a set of practices. If we do, we can see that the substance of medicine changed in the sixteenth century. Within each of the traditional medical activities of diagnosis, prognosis and treatment, physicians relied increasingly on tactile, procedural methods. They focused on incremental, experimental, trial and error, on consensus and collaboration, and on generating and thinking about particulars. None of these emphases was exclusive to medicine. Some were appropriated from artisanal medical activities. Others were held in common with those who had interests in nature and natural philosophy. While the history of science, in recent years, has depended upon an excavation of practice in various realms, it has yet to fully confront the profession which built its public identity on an elevated concept of learned practice, i.e. the profession of medicine.

The purpose of the medical reformation was to make practice general. Early modern regulation relied on specificity. However, the aim of Nuremberg's medical *polizeyordnung* was not further fragmentation but generalization. The prescriptive legislation aimed to create general conditions of medical care, to mitigate the need for ad hoc decisions. The medical aims of the demand for reform were intellectually complementary. Through restricting jurisdiction to the learned, and introducing new mechanisms for collaboration and regulation, physicians sought to elevate, to the same status as intellectual principle, the ad hoc arrangements that governed practice. They desired to regulate, to make general, epistemological structures and methods within practice.

Reforming medicine was a matter *for* as well as *of* practice. As evident in their private records, medical treatment was already a compilation of incremental processes for the Nuremberg physicians. In their libraries, their collections, their anatomy and their botany, Palma, Camerarius and Coiter all relied upon and paid homage to the particular. They used trial and error methods, eclectic information and experimental procedures. Their new concern with practice and treatment relied on techniques that were local. Though medicine came to focus on the specialized, the particular, the experiential and the observed, these standardized qualities of medical knowledge were previously local and anecdotal. While medical thought relied on aligning unusual symptoms into a picture of what ought to be present, its aim was to elucidate the commonplace, the norm and the standard.

What drove this development? In fourteenth century Italy plague summoned physicians to cities, and partly because of this medieval legacy, plague in the sixteenth century continued to force examination and re-examination of medicine in cities. In England, Thomas Linacre proposed the College of Physicians, and the resulting conflicts were patterned by the traditions of London's guilds, a simple continuation in a different sphere of older rivalries. Nuremberg's medical reformation was not provoked by one specific disaster, nor was it the result of the social evolution of urban affairs. The physicians in Nuremberg had to manufacture their own cause for reform, and they had to grapple with an entrenched political structure, a conservative governing body and a vocal opposition.

The mechanism for reform came from within medicine itself. I argue that it came from the augmentation of the demands of practice, and that the reason the medical reformation succeeded was the public perception of that same medical engine. The religious reformations in Imperial Cities like Nuremberg created opportunities for physicians and a necessity for new conceptions of moral order, new welfare institutions and new ideas about the state. The sudden emergence of municipal physicians in cities across the German speaking lands, and in clusters among the territorial and princely courts, put in place a group of highly learned scholars with a vested interest in social organization, at exactly a moment in time when the social organization of cities was in flux. It was this combination of learning and ambition in the context of the city that provoked, sponsored and led the reform of medicine.

This brings us back to the physicians themselves. Few of these men have been remembered. When historians think about the contribution of figures like Palma, or even Camerarius, the end result often seems negligible. Beyond libraries, beyond translations and compilations, the physicians in Nuremberg were responsible for no significant discoveries or innovations in medicine. Even Volcher Coiter, whose provocative anatomy was certainly innovative, presented his work as the result of notes on Gabriele Fallopio's lectures, and made his greatest splash by copying an Aristotelian experiment conducted in the third century BC. Like Heinrich Wolff, whose entry to Nuremberg set the scene for the physicians in Chapter One, and who died serving the city during the typhoid epidemic of 1582, municipal physicians throughout the sixteenth century served, died, were given suitable eulogy and presumably grieved by their families only to fade into obscurity.

In recovering the history of the municipal physicians, one answer to this problem is to point to the significance of the Nuremberg physicians in question, to demonstrate, as I hope I have done, the consequences of their reform, the oddities of their careers, and their general intellectual prowess. In many ways, it is easy to make the case for the Nuremberg doctors as exceptional figures, physicians who stood out, or apart from, their early modern peers. But Joachim Camerarius, Georg Palma, Volcher Coiter, Heinrich Wolff, and their colleagues in Nuremberg were all *ordinary* physicians. They graduated from universities that produced hundreds of other medical physicians, and while distinguished, their careers were by no means unusual. The same patterns of learning, employment and medical practice describe other, more famous, physicians with whom they collaborated or from whom they learned. Otto Brunfels, Leonhard Fuchs, Conrad Gesner, Johannes Lange, Johannes Crato, and even Carolus Clusius were all general practitioners of medicine. Education and practice also describes the careers of hundreds of other physicians we know only by name. Dr Ulrich Ulmer, Dr. Johann Cramer, Dr.

Wolfgang Kern, Dr. Johann Schoener, Dr. Damian Beheim, Dr. Gabriel Ehinger, Dr. Johann Hess, Dr. Johann Vogt, and Dr. Paul Pfann all worked in the city of Nuremberg during the sixteenth century. Gabriel Beatus, Joachim Cureus, Johannes Echter, Petrus Holland, Paul Jenisius, Leonard Rauwolff, Adam Schilling, Martin Schilling, Bruno Seidel and Matthius Stoius all wrote to Camerarius from other cities, seeking or offering medical advice. They were practicing physicians who faced similar circumstances and had, at their disposal, similar resources. These were the men whom the Nuremberg physicians claimed as colleagues. Although there were individuals of varying ambition and different degrees of success, the very point of the medical reformation was to elevate the concept of general medical practice and to create a collegial identity that encompassed those who *did*, as much as those who wrote.

Reforming medicine in sixteenth century Nuremberg meant a slow, hard-won process of rethinking the commonplace. It was a series of small changes and a set of practices within medicine rather than a systematic body of thought. When we think about change within practice, we should look at the practitioners. If the broad, sweeping, sometimes contentious historiography of medicine agrees on anything, it must surely be that early modern medicine did not exist in a vacuum, that it was experienced and learned in ways shaped by other experiences, by other learning and by other intellectual debates. Ideas have 'social histories,' wrote Erik Midelfort and this applies to medicine no less than to other subjects,<sup>4</sup> as medical historians themselves have determined about various of their subjects, 'medical ideas, writings, and practice cannot be considered in isolation from his ideas on other subjects and his life experience'<sup>5</sup> These are connections that were also made often by the early modern subjects themselves, with both positive and negative conclusions.

For the doctors in Nuremberg, the connections between medicine and the many other subjects their writings and interests encompassed, this influence went both ways. The very subject of medicine depended upon an ability to detect the influence of environment and to counteract it, to use elements of nature against the body, to manipulate and change what was natural, unnatural and even, when the doctor was very good, against nature. And so medicine was embedded in a social landscape, the subject of medicine as it was practiced and thought of could sometimes prevail, reaching out and changing the social reality within which it found itself. If medicine was influenced by overarching interests and trends that dominated the sixteenth century, by religious reformations and struggles, by renaissance approaches to text and antiquity, by the shifting political landscape, or even by events and consequences not made by man; by plague, by weather, by the new and profoundly unsettling geography of the New World, the ways in which they viewed these shifts were similarly influenced and informed by the tasks which they had elected for themselves. At the heart of the physicians' self-perception, there was a grand romanticism to their endeavour, even in its minute, mundane and intricate details. The routine elements of medical practice were tasks that united hundreds of other practicing physicians, across the farthest reach of the Holy Roman Empire. In some cases, they viewed themselves as uniquely suitable for facing

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<sup>4</sup> H. C. Erik Midelfort, 'Toward a Social History of Ideas in the German Reformation,' in *Pietas et Societas, Essays in Memory of Harold J. Grimm*. ed. Kyle C. Sessions and Philipp N. Beb, (Kirksville, 1985), 11-21.

<sup>5</sup> Siraisi, Girolamo Cardano, p. 3.

these problems. In other cases, they found themselves the victims, their work made difficult and dangerous by the vicissitudes of fortune or fate. It behooves us to take seriously the diligent municipal medicine they practiced. It was a duty for which the physicians endured tedium, hard work, ridicule, competition, imprisonment and even danger. Palma slaved in his library and Camerarius in his garden, Wolff remained steadfastly Paracelsian, Coiter dug up bodies and suffered imprisonment. But, always, it was at the bedsides of their patients that the stakes were highest. In steadfast attendance during epidemics and plague, Heinrich Wolff, Justin Mueller and Johann Vogt, among others of the Nuremberg physicians gave their lives to the service of medical practice.

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## Appendix I: Nuremberg municipal physicians in the sixteenth century<sup>1</sup>

Name	Date of Employment	Date of death or departure
D. Sebald Wagner	1475	1510
D. Hartman Schedel	1480	1514
D. Heinirch Gradtwol	1486	1488
D Hieronymus Muentner	1490	1520
D. Ulrich Buntner (also Binder)	1493	1518
D. Johann Werner	1493	1500
D. Ulrich Ulmer	1494	1511
D. Henrich Rosenzweig	1494	1530
D. Sebald Mueller (also Mulner)	1495	1528
D Theodor Ulsenig, (also Ullen or Ulfueling)	1495	1498
D. Jodoc Riegheimer (also Brugheimer)	1498	1548
D. Henrich Klingensporn	1499	1539
D. Johann Cramer	1501	1538
D. Johann Lochner	1502	1524
D. Sebald Busch	1512	1536
D. Peter Burckhard	1514	1539 <sup>2</sup>
D. Johann Zacharias	<i>1515/1516</i>	1546
D. Wolfgang Kern	1522	1528
D. Johann Schutz (also <i>Conrad Schuetze</i> )	1524	1547
D. Johann Magenbuch (also <i>Magenbach, Magnbuch</i> )	1524	1546
D. Anton Schedel	1528	1535

<sup>1</sup> This is an amalgamation of two lists, one: StadtA N, B 19/ 120 *Verzeichnis der Nuernberger Aerzte 1410-1735* The other is a late seventeenth century transcription, with additions in the *Collegium medicum* files: StA N Coll Med. Names in italics appear only in the second list, but appear elsewhere in the literature (Amptsbuecher, collections of remedies or Ratsverlasse) Where there are disagreements, I have erred on the side of caution and left out names for which there are no other sources. There are some odd omissions in the latter list, most notably Joachim Camerarius!

<sup>2</sup> (?) *Petr. Burcard, Burckhard bis 1518 and then Prof at Wittenberg and Ingolstadt, d. 1526*

D. Hieronymus Schaller	1534	1543
<i>Jeremias Schedel</i>		<i>1543</i>
D Marcq Dheins wird von atl: mit D. Feringer gefundenist muss aber wol unterpfind worumb(?)	1536	1554
D. Marcq Fering, al: de Veer		1542
D. Stephan Hulier al: Huliou (see above)		1537
D. Otto Puttner <i>Floesser</i>	1537	
<i>Georg Palma, Palm der Vater</i>	1537	
<i>Sebastian Schedel</i>	1537	
<i>Peter Khian</i>	1540	
D__ Flosser, auf ... soll Puttner gerisch gebrun ist aber unterpfind	1537	1555
<i>Hieronymus Schrieber</i>	15Dr. 42	<i>1547</i>
D. Ambrosius ab Augspurg	1543	
D. Iacobus Milonig al" Lebonius	1544	<i>1546</i>
D. Ioh. Schoener		1547
D Damian Behem		<i>1549</i>
D. Valentin Flock, ... wollen in Erasmus Frisnem; Arzt aber o. unter f. Portrait	1545 <i>1544</i>	1560
<i>Sebastian Flock veorer Schullerher inm Kloster Heilsbronn</i>	1544	
D. Iacobus Leuinig		1564
D. Melchior Ayrer	1546	1579
Conrad Zeilhart, also Zittart or Dryander		1550
D Georg Foerster		<i>1568</i>
D. Gabriel Ehinger		1580
D Joh Berth Heupel, al Heupoltq <i>Gempel,</i> <i>Hempel, Heupolt</i>	1549	<i>1564</i>
D. Joh Prunsterer	1551	1554
D. Henrycy Preuning	1553	1560 <i>1570</i>
D Henr. Wolff		<i>1562 1581</i>

D Christoph Dursig (also Durschig)		1561
D. Joh Loew, (also Leo)	1554	<i>d. 1557</i>
D. Joh Hessus		1564
D. Hieron. Herold <i>der Vater</i>	1555	1566
D. Stephan Heldmann ( <i>Holdman, Hollmann</i> )	1560	<i>d. 1564.</i>
D. Paul Weller	1563	1601
D. Georg Mayer al Mair <i>gieng 1565 als Professor nach Marburg, wuerde nachher Leibarzt in Cassel, kehrte nach Nuernberg zuruck, wurde aber von da nach Heidelberg als Hofmedicus beruffen, gest. 1606.</i>	Dr	1579
D Martin Alberty <i>Alberti</i>		1564
D. Bernh Mylius	1564	1565
D. Joachim Camerarius (also Kammermeister, Camermeister)		1598
D Paul Pfann		1567
D Joh Vogt	1565	1580
D Paul Kellner (also Clarner )	1566	1584
D. Justinus Muellner	1567	1582
D. Johann Schenck		1588
D. Georg Palma	1568	1591
D. Georg Rucker f. Ruckartg		1588 <i>gest. 1589</i>
D. Volcker Coiter (also Koeyter)	1569	1576.
D. Johann Richthausen	1574	1585
D. Anton Fuchs	1575	1598
D. Hieronymus Vischer	1583	1596
D. Hieronymus. Herold		1600
D. Hieronymus. Braunskorn ( <i>Johann Praunskorn</i> )		1599 <i>1589</i>
D. Latary (?) Mayenseheim	1585	1602 <sup>3</sup>

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<sup>3</sup> *gieng schon 1584 wieder weg nach Culmbach, 1588 nach Shelakenwalde, 1589 nach Hoff, 1617 nach Coburg, wo er in eben diesem Jahr Starb.*

D. Johann Cuno	1584	1510
D. Nicolaus Reinesius	1587	1511
D. Andreas Langnery, (also. Laugner)	1591	1604
D. Johann Egen	1593	1609
D. Hieronymus. Besler		1532
D. Joachim. Camerarius (also Kammermeister)	1594	1542
D. Leonhard Soldig	1595	1511
D. Balthas van Heerden	1596	1519
D. Michael Roetenbeck (also Rothenbach)		1523
D. Johann Ingolscetter		1519
D. Vit Gertner		1547
D. Johann Faber (also Schmidt)	1597	1519
D. Johann Neudorffer	1597	1539
D. Etech(?) Baier (also Bayer)	1597	1539

## Appendix II: Georg Palma's Library<sup>1</sup>

- de Abano, Petrus. *Opus Joannis Francisci Armae... De venenis in dialogus, ab opere Petri de Abano extractum*. Turin, 1557.
- \_\_\_\_\_. *Clariss Philosophi et medici petri de abano de venenis eroum remediis: Guid Grataroli consilium de praeservatione a venenir Herm a Nuenare, de judatoriae febir - curatio udoris anglici - Joach Schiller. De peste Britannica commentariolus*. Marburg, 1531.
- Actuarius, Johannes. *Actuarii Joannis Zachariae filii, medici praestantissimi. Libri VII. de Urinis, Ambrosio Leone Nolano interprete*. Paris, 1548.
- \_\_\_\_\_. *Methodi Medendi Libri VI Henri Mathisir vertis*. Venice, 1554.
- Aegineta Paul & Johann Guenther von Andernach. *Opus de re medica*. Venice, 1542.
- Aeginata, Paul. *Pauli Aeginetae Medici Optimi, Libri Septem. In Principio Singulorum Librorum Omnia Indicantur, Quae in eo Continentur Libro*. Basel, 1588.
- Agricola, Georg. *De ortu & causis subterraneourum, Librum V*. Basel, 1546.
- \_\_\_\_\_. *Libri qvinque de mensuris & ponderibus: in quibus plreaque a Bvdaeo & Portio parum animaduersa diligenter excuntuntur*. Basel, 1533.
- \_\_\_\_\_. *Epistola ad Plateanum, cui sunt adiecta aliquot loca castiga in libris de mensuris & ponderibus, nuper editis*. Basel, 1534.
- Agricola, Joannes. *Medicinae herbariae Iibri duo*. Basel, 1539.
- Akakia Galen, Martin. *Galen de ratione curandi ad Glauconem libri II*. London, 1551.
- Alberto, Salomone. *Historia plerarunqque partium humani corporis, in usum tyronum edita a Salomone Alberto*. Wittenberg, 1583.
- \_\_\_\_\_. *Orationes D. Salomonis Alberti. I. De studio doctrinae physicae*. Wittenberg, 1590.
- \_\_\_\_\_. *Historia plerarumque partium humani corporis*. Wittenberg, 1585.
- \_\_\_\_\_. *Tres orationes*. Nuremberg: Gerlach, 1585.
- Albertus, Johannes. *De concordia Hippocraticorum et Paracelsistarum libri magni excursiones defensivae*. Munich, 1569.
- degli Allesandri, Francesco. *Apollo Francisci Alexandri omnem compositorum et simplicium normam suo fulgere irradians*. Venice, 1565.
- Alofresant of Rhodes, *Alle alten Prophecien von Keyserlicher Maiestat. Keyserliche Practica unnd prognostication/ auss allen alten Weissagungen...* Strasbourg, 1535.
- Altomare, Donato Antonio. *De medendis humani corporis malis: ars medica*. Venice, 1565.
- \_\_\_\_\_. *De medendis humani corporis malis: ars medica: habentur in secunda parte omnes ii morbi, qui in prima deerant*. London, 1563.
- \_\_\_\_\_. *De mendendis humani corporis malis: Ars medica*. Venice, 1562.

<sup>1</sup> The early printed works in Nuremberg's Stadtbibliothek have not yet been catalogued online. Although printed catalogues exist for the entirety of the library's holding's, Palma's library is not identified as a collection. This account of Palma's library was constructed by comparing König's list of shelfmarks against a nineteenth century handwritten catalogue of the collection, and a separate archival account of exlibris. The contents of the shelfmarked volumes were verified, and checked to acquire the book titles and authors. For the sake of clarity, I have chosen to list these in a bibliographic style rather than according to which volumes were bound together.



- \_\_\_\_\_. *De vinaceorum facultate ac usu...* Venice, 1563.
- Amato, Lusitano. *Curationum medicanaliu. I et II.* Venice, 1566.
- von Andernach, Guinther Johann. *Kurtzer Auszug des Buechlins vonn der Pestilenz.* Strasbourg: Josias Rihel, 1564.
- \_\_\_\_\_. *Commentarius de balnei & atquis medicatis in tres dialogus distinctus..* Strasbourg, 1565.
- \_\_\_\_\_. *Ioannis Guintherii Andernaci Medici Commentarius De balneis et Aquis Medicatis in Tres Dialogos Distinctus.* Strasbourg, 1565.
- \_\_\_\_\_. *Bericht, Regiment unnd Ordnung der Pestilenz zu erkennen..* Strasbourg: 1566.
- \_\_\_\_\_. *De Compositione medicamentorum per genera libri septem, Joanne [Guinterio], Andernaco, interprete, nunc denuo ad antiquissimorum graecorum exemplarium fidem castigati capitibusque distincti ac argumentis et annotationibus illustrati..* London, 1552.
- Anonymous. *Ain nutzliche trostliche Unnderrichtung etc.* Augsburg, 1589.
- \_\_\_\_\_. *Apotecken tax der stadt Dresden..* Dresden, 1558.
- \_\_\_\_\_. 'Apotecken Tax der stadt Augspurg.' 1564. (Handwritten notes, bound in printed manuscript.)
- \_\_\_\_\_. *Anzaig und bericht der Statt Nurmberg verordneten unnd geschwornen Doctorn der Artzney..* Nuremberg: Dietrich Gerlach, 1572.
- \_\_\_\_\_. *Anzaig und bericht der statt Nurmberg verordenten unnd geschwornen Doctorn der Artzney, die jetzregierende geuerliche Haubtkranckheit belangend, woher die selbig vemutlich entsprignt, und wie sich darinnen, auch sonst zuverkomung derselben zuhalten sey, auss Bevelch eines Erbern Raths daselbst, irer Burgerschafft und Unterthanen zu gutem gestellt.* Nuremberg: Dietrich Gerlatz, 1572.
- \_\_\_\_\_. *Ars chemica, quod sit licita recte exercentibus, probationes doctißimorum Iurisconsultorum : septem tractatus seu capitula Hermetis Trismegistii aurei... studium consilii coniugij de massa solis et lune..* Strasbourg: Samuel Emmel, 1566.
- \_\_\_\_\_. *Bedeutung und offenbarung warer himlicher Influxion/ namlich der finsternussen/ so die folgenden siben Jar nach einander geschehen...* Muellhausen: Peter Schmid, 1565
- \_\_\_\_\_. *Das ist/Die Edleste Gab Gottes/ oder der Werde unnd Heilsamme Stein der Weisen/ mit welchem die alten Philosophi/auch Theophrastus Paracelus, die unvollkommene Metallen/durch gewalt des Fewrs verbessert: sampt allerley schaedliche und unheilsame Kranckheiten/ innerlich und eusserlich haben vertrieben.* Basel, 1582.
- \_\_\_\_\_. *Ein berumpte vnd seer offft bewerte Artzneyn damit man sich vor der grausamen Pestilenz natuerlich beschutzen kan.* Nuremberg: Friderich Peypus, 1531.
- \_\_\_\_\_. *Ein Erbern Raths der Statt Nuernberg vernewte Gesetz und Ordnung von wegen besorgender einreissender Sterbsleufft.* Nuremberg: 1575.
- \_\_\_\_\_. *Ein kurtz Regiment, wie sich zu Zeiten der Pestilenz zu halten sey.* Nuremberg: Johannes Petreius, 1543.

- \_\_\_\_\_ . *Ein kurtz Regiment, wie man sich zu Zeiten regierender Pestilentz halten soll. Durch die Hochgelerten und erfahren der Ertzney Doctores etc.* Nuremberg: Valentin Geysler, 1562.
- \_\_\_\_\_ . *Ein kurtz Regiment wie man sich in zeit Regierender Pestilentz halten sol. Durch der hochgelerten und erfahren der Ertzney Doctores zusammen gefast und gebessert, Anno. 1574.* Nuremberg: Dietrich Gerlatz, 1574.
- \_\_\_\_\_ . *Ein Regiment der jungen Kinder. Wie man sy halten und erziehen sol von irer gepurt bis sy zu iren tagen komen.* Augsburg, 1497.
- \_\_\_\_\_ . *Ein troestlich Aertzeney gegen die Engelson Schwayssucht.* Nuremberg: Hanns Stuechs, 1529
- \_\_\_\_\_ . *Eins Erbarth Raths der Stadt Nuermberg verneute Gesetz und Ordnung inn gegenwertigen sterbsleufften.* Nuremberg, 1585.
- \_\_\_\_\_ . *Ein Prophecy und weyssagung von den vier erben hertzog Johansen von Burgundi/ der von dem Tuercken gefange des jars. 1395 wie es in ired regiments ergehen solte kyss auff Kunig Karol in hispanien/ so nun regierender Roemischer Kayser der funfft rc welche wunderliche Prophecey zum teyl geschehen und noch geschehen sol.* Nuremberg: Georg Wachter, 1530.
- \_\_\_\_\_ . *Epigramata aliquot.* Wittenberg, 1541.
- \_\_\_\_\_ . *Erklerung des newen Instruments der Sunnen anch allen seinen Scheyben und Lirckeln. Item eyn vermanung Sebastiani Munnster an alle liebhaber der Kunsten/ im hilff zu thun zu wasrer und rechter beschreybung Teutscher Nation.* Oppenheim: Jacob Kobel, 1528.
- \_\_\_\_\_ . *Furstliche Sachsische Apoteken Ordnung und Taxa/ Anno 1573 zu Coburgk ernewart und vermehret.* Coburg: Michel Kroner, 1573.
- \_\_\_\_\_ . *Gynaeciorum sive de mulierum affectibus commentarii.* Basel, 1586.
- \_\_\_\_\_ . *Herbarium imagines vivae. Der krauter Lebliche contrafaytung.* Frankfurt: Egenolph, 1535.
- \_\_\_\_\_ . *Kunstbuechlin, gerechten gruendlichen gebrauchs aller kunstbaren Werckleut.* Frankfurt: Egenolph, 1549.
- \_\_\_\_\_ . *Mangmeistery. Von macherlei farben auff garn/ leinwad/ holtz/ beyn/ leder. Auch wie man en jegliche gewandt sein verloren farb wider bringen soll.* Strasbourg: Jacob Cammerlander, 1539.
- \_\_\_\_\_ . *Newe heilsame unnd nutzliche Baden... in allerhandt schweren kranckheiten.* Nuremberg, 1551.
- \_\_\_\_\_ . *Ordnung zwischen den herzen Doctorn Medicinae zu Augspurg/ mit eines Ersamen Rahts daselbsten wissen und bewilligung auffgericht.* Augsburg: Valentin Schoenigt, 1582.
- \_\_\_\_\_ . *Rathschlag wie der jetzigen Pestilentzen Seucht zu begegnen.* Frankfurt, 1582.
- \_\_\_\_\_ . *Reformatio und Ordnung einer Lateinischen Schul. Durch Sophoniam Paminger P. Auff desselben Orts Obrigkeit begeben Deutsch gestellet.* Regensburg: Hans Burger, 1576.
- \_\_\_\_\_ . *Reformation und ernewart Ordnung der Apoteken unnd wei es mit den ordinariis Physicis oder Stadtarzten/ jhres Verdiensts halben/ in des heiligen Reichs Freystadt Worms/ hinfuerter gehalten werden soll.* Frankfurt, 1582.
- \_\_\_\_\_ . *Regiment in die zeit der pestilenz.*
- \_\_\_\_\_ . *Regimen sanitatis.* Nuremberg: Höltzel, 1508.

- \_\_\_\_\_. *Wunder artzney/ von allerley leibs gebruechen/ unnd zufallende kranckheit/ ohn sondere beschwerung/ unlift un verdruss/ kurtzlich zu heilen.... alles mit fleiss beschrieben/ und auff die Theophrastisch Medicin gestellt: Vor etlich hundert jaren beschreiben....* Basel, 1573.
- \_\_\_\_\_. *Zeen Artzney Dieselbigen gut unnd gesundt zubehalten/ Auch allerhande gebrechen/ maengel unnd weetagen der Zeen on allen schaden und schmerzen/ zubenemn und heilen....* Frankfurt: Egenolph, 1569.
- d' Aphrodisias, Alexandre. *Alexandri Aphrodisei Medici et Philosophi praecellentis, de Febrium causis et differentiis opusculum a Georgio Valla Placentino latinitate donatum.* Basel, 1542.
- Arantius, Julius Caesar. *De humano foetu libellus.* Bologna, 1564.
- de Arce, Francisco. *De recta curandorum vulnerum ratione : et aliis ejus atis praeceptis libri 2. Eiusdem de febrium curandarum ratione.* Antwerp, 1574.
- Arcolani Giovanni. (Arculanus). *Practica Ioannis Arculani Veronensis particularium morborum omnium.* Venice, 1560.
- \_\_\_\_\_. *Joannis Herculani In Avicennae quarti canonis fen primam, in qua de febribus agitur, perspicua atque optima explicatio, nunc diligentius, quàm antea unquam recognita, ac mendis innumeris expurgata.* Venice, 1560.
- Aretius, Benedictus. *De medicamentorum simplicium gradibus et compositionibus, opus novum... in quinque libros digestum, authoris incerti. Accesserunt ex Euchopoedij collectaneis in singulos libros argumenta.* Zurich, 1572.
- Aubert, Jacques. *Duae apologeticae responsiones ad Josephum Quercetanus : in priore de Paracelsicorum ladano et calcinatis cancrorum oculis disseritur, in posteriore chemiam esse vanam ostenditur.* London, 1576.
- \_\_\_\_\_. *Progymnasmata, in Ioan. Fernellii med. Librum de abditis rerum naturalium et medicamentorum causis : quibus adduntur quorundam grauissimorum morborum curationes.* Basel, 1579.
- Aubery, Claude. *De concordia medicorum diputatio exoterica.* 1585.
- Aureli, Philippi Paracelsus. *Centum quindecim curationes experimentaque, e Germinico idiomate in Latinum versa. Accesserunt quaedam praeclara atque utilissima a B.G a Portu Aquitano annexa. Item abdita quaedem Isaaci Hollandi de opere vegetabili et animali adiercimur, Adiuncta est denuo Practica operis magni Philippi a Rovillasco Pedemontano.* London, 1582.
- Aurifaber, Andreas. *Ein kurtzer, gründlicher Bericht, woher der Agtstein oder Börnstein vrsprünglich komme, das er kein Baumhartz sey, sonder ein Geschlecht des Bergwachs, vnd wie man jnen manigfaltiglich in Artzneien möge gebrauchen.* Königsberg: 1572.
- Austrius, Sebastianus. *De secunda valetudine tuenda... explanatio.* Strasbourg: 1538.
- \_\_\_\_\_. *De infantium sive puerorum morborum & symptomatum dignotione, tum curatione liber: ex Graecorum, Latinorum & Arabum placitis atque scitis diligenter erutus, concinnatus & in publicam utilitatem editus ... Adjecti sunt in frontispicio Hippocratis aphorismi noviter natorum adfectus enumerantes. In calco verò hujus libri aphoristici sensus alii ex authoribus hincindè citati. Eorundem de bona valetudine tuenda praescribentes praecepta.* Basel, 1540.
- Avicenna. *Avicenna canonis, explan Jacobi de Partibus.* London, 1498.

- \_\_\_\_\_. *Avicennae Arabis Medicorum ob succinctam breuitatis copia, facile principis Quarta sen, primi. de universali roe mededi nunc primu M. Iacob Matini medici hebrae, latinate donatu.* Ettlingen, 1531.
- Bagellardo, Paolo. *Opusculum recens natum de morbis puerorum : cum appendicibus magistri Petri Toleti, ... Sunt etiam nonnulli additi libelli perutiles hactenus desiderati, quos sequens pagina demonstrabit...* London, 1538.
- Bapst, Michael. *Ein newes und nutzliches ertzney/ kunst/ und Wunderbuch/ desgleichen heisueorun nicht gesehen/ darinnen neben allerley Allchymistischen und andern kunsten/ wunderbarlichen sachen/ und historien vornemlichen angezeigt wird.* Leipzig, 1590.
- Bartisch, Georg. *Ophthalmoduleia, Das ist, Augdendienst: Newer und wolgegruendter Bericht von ursachen und erkenntnus aller Gebrechen, Schaeden u. Maengel der Augen u. des Gesichtes... wie man alle solche Gebresten.. durch Artzney.. curirern sol..* Dresden, 1583.
- Barzizza, Christoph. *Christofori Barzizii, medici pertissima Introductorium in medicinam legenti cuilibet perutile.* Augsburg, 1518.
- Basse, Nikolaus. *Catalogvs Oder Register, aller Apoteckischen Simplicien und Compositen so in den beyden Messen zu Frankfrut am Mayn....* Frankfurt, 1582.
- Battista da Monte, Giovanni. *Sumaria declaratio eorum, quae ad urinarum cognitionem maxime faciunt.* Venice, 1552.
- \_\_\_\_\_. *Ioannis Bachianelli Regiensis, De consensu Medicorum in curandis morbis : libri quatuor. Eivsdem Praeterea Accessit de consensu Medicorum in cognoscendis simplicibus: liber vnus.* London, 1572.
- \_\_\_\_\_. *Io Baptistae Montani Consultationum medicinalium centuria prima, a Valentino Lublino quam accurate collecta.* Venice, 1556.
- \_\_\_\_\_. *Petri Pauli Peredae Setabensis, doctoris medici, et apud Valentinus publici medicinae professoris, In Michaelis Ioannis Paschalij methodum curandi, scholia: exercentibus medicinam maximè vtilia. Ad illustrissimum & reuerendissimum dominum Gasparem à Chiroga, archiepiscopum Toletanum, Hispaniarum primatem, & sacrosanctae fidei Catholicae primum cognitorem.* Venice, 1558.
- \_\_\_\_\_. *Opuscula varia ac praeclara: in quibus fere tota medicina explicata II, Operum ad medici longe praestantissimi tomus secundus.* Basel, 1558.
- \_\_\_\_\_. *Opuscula varia ac praeclara: in quibus fere tota medicina explicata II, Operum ad medici longe praestantissimi tomus secundus.* Basel, 1558.
- \_\_\_\_\_. *Expectatissimae in primam et secundam partem Aphorismorum Hippocratis lectiones, summa cura collectae: Exactissimaque diligentia recognitae, ad medicinae studiosorum usum.* Venice, 1565.
- Bauhin, Caspar. *De Corporis humani partibus externis tractatis.* Basel, 1588.
- Bayrus, Petrus. *Veni mecum et tractatus de peste.* London, 1565.
- \_\_\_\_\_. *De medendis humani corporis malis enchiridion: ejusdem tractatus de peste.* Basel, 1563.
- \_\_\_\_\_. *De medendis humani corporis malis enchiridion: adjunx ejusdem authoris tractatum de peste.* Basel, 1563.
- Belon, Pierre. *Plurimarum singularium et memorabilium rerum in Graecia, Asia, Aegypto, Judaea, Arabia, aliisque exteris provinciis ab ipso conspectarum observationes, tribus libris expressae.* Antwerp, 1589.

- \_\_\_\_\_. *De Arboribus Coniferis, Resiniferis, Aliis quoque nonnullis sempiterna fronde virentibus, cum earundem iconibus ad viuum expresiss. Item de melle cedrino, Cedria, Agarico Resinis & iis quae ex coniferis profisciscuntur.* Paris, 1553.
- Benedictus, Alexander. *De Pestilenti febre liber.* Basel: Henric Pteri, 1531.
- Bertinus, Georgius. *De consultationibus medicorum et methodica febrium curatione commentarius.* Basel, 1586.
- Besson, Jacques. *Iacobi Bessoni de absoluta ratione extrahendi olea et aquas e medicamentis simplicibus.* Zurich, 1559.
- von Bodenstein, Adam. *Des hocherfarhnesten Medici Aureoli Theophrasti Paracelsi schreyben, von den kranckheyten, so die vernunfft berauben, durch Adam von Bodenstein.* Basel, 1567.
- \_\_\_\_\_. *Liber vexationum. D Phi Theophrasti Paracelsi Kunst und Natur der Alchimia und was darauf zu halten sey, Publiciert durch Adam von Bodenstein.* 1567.
- \_\_\_\_\_. *Wie sich meniglich vor dem Cyperlin, Podagra genennet, waffnen solle. Und Bericht diser Kreuter.* Basel, 1557.
- \_\_\_\_\_. *Doctoris Aureoli Theophrasti schreiben von warmen oder Wildbaedern, Hrsq Adam von Bodenstein.* Basel, 1576.
- \_\_\_\_\_. *Onomasticon Theophr Paracelsi aigne ausslegung etlicher siener woerter und preparierung, Zusammen gebracht durch Doct Adam von Bodenstein.* Basel, Peter Perna, 1575.
- \_\_\_\_\_. *Das Buch Paramirum Aureoli Theophrasti Paracelsi: Darinn tractirt wirdt von kranckheiten unnd herkommen Corporis spermatis, unnd auch Corporis misericordiae.* Frankfurt: Christian Egenolphs, 1565
- \_\_\_\_\_. *Das Buch Paragranum Aureoli Theophrasti Paracelsi: Darinn die Vier Columnae, als da ist Philosophia Astronomia Alchimia und Virtus, auff welche Theophrasti Medicin fundirt ist, tractirt werden. Item von Aderlassens, Schrepffens und Purgirens rechtem gebrauch. Alles new publicirt, Durch Doctorem Adamum von Bodenstein.* Frankfurt: Christian. Egenolphs, 1565.
- \_\_\_\_\_. *Des hocherfarhnesten Medici Aureoli Theophrasti Paracelsi schreyben, von den kranckheyten, so die vernunfft berauben, durch Adam von Bodenstein.* Basel, 1567.
- Bokelius, Johannes. *Anatome vel Descriptio Partium Humani Corporis ut ea in Academia Iulia, quae est Lemsteti singulis annis publice praelegi, ac administrari solet.* Helmstadt, 1585.
- \_\_\_\_\_. *Novi morbi, quem plerique medicorum catrrhum febrilem...vocant..* Helmstadt: Jacobus Lucius, 1580.
- Bonacciuoli, Luigi. *Lug Bernacioli de conceptionis indiciis,.* Strasbourg: Sybold, 1530.
- de Bonagentibus, Victor. *Decem problemata de peste.* Venice, 1556.
- Borcht, Peter van der. *Sancti Patris nostri Epiphani episcopi Cypri ad Physiologum.* Antwerp: Plantin, 1588.
- Bracesco, Giovanni. *De alchemiae Dialogi, II.* Nuremberg, 1548.
- Brasavola, Antonio Musa. *Antonii Musae Brasauoli Examen omniu syruporum, quorum publicum usus est...* London, 1540.
- \_\_\_\_\_. *Examen omnium Syruporum, quorum publicus usus est. Omnia ab autore recognita...* London, 1555.

- \_\_\_\_\_. *Antonii Musae Brasauoli, Examen omnium catapotiorum vel pilularum, quarum apud pharmacopolas usus est..* Venice, 1543.
- \_\_\_\_\_. *Medici Ferrariensis Examen omnium Catapotiorum, vel pilularum, quarum apud Pharmacopolas usus est...* Venice, 1543.
- \_\_\_\_\_. *Ad magnificam & Illustrem Dianam Estensem cotariam. De hominum aqualitate, & quare alter alterum excellat.* Venice, 1537.
- \_\_\_\_\_. *Examen omnium syruporum, quorum publicum usus est.* Venice, 1545.
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- \_\_\_\_\_. *Disputatio de auro potabili, in qua accurate admodum disquiritur, num ex metallis, opera Chemiae, concinnata pharmaca tute utiliterque bibi possint ... Adiectum est ... Iudicium eiusdem Authoris de indicatione Cometarum, ex veris fundamentis & naturae principijs erutum.* Basel: 1578.
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- \_\_\_\_\_. *Gabrielis Falloppii Mutinensis medici excellentissimi opuscula: quorum numeram atque ordinem uersa pagina indicabit. Accedit Gulielmi Rondeletii tractatus De fucis. Item Arcanorum liber primus..* Padua: Lucam Bertellus, 1566.
- \_\_\_\_\_. *Fallopii Observationes Anatomicae*. Cologne, 1562.
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- Feyens, Johannes. *Ioannis Fienj Andouerpianj De flatibvs humanum corpus molestantibus, commentarius nouus ac singularis : in quo flatuum natura, causae, et symptomata describuntur, eorumque remedia facili & expedita methodo indicantur*. Antwerp, 1582.
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