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Liberté, Égalité, Santé: The Evolution of Medicine in Revolution-Era France

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Search for periods of radical upheaval in history, and undoubtedly the French Revolution, a well-recognized watershed denoting the death of the French monarchy under the guillotine of the common people, will make an appearance. Though less infamous, paralleling the turbulent government reform was another track of questioning and displacement of historical convention: reform in the field of medicine. Prior to the turn of the 19th century, humorism was the central medical philosophy that reigned supreme among professionals and laymen alike.¹ Doctors practicing humorism treated illness as an imbalance in the body's four elemental humors—blood, phlegm, yellow bile, and black bile—hence the use of misguided treatments such as bloodletting. However, the eve of the French Revolution stirred concern and dissension regarding the fundamental elements of medical practice in France, including professional organization, education, and the very theory upon which it was founded.

Over the following three decades, institutions that had previously overseen the healing arts, such as the Paris Medical Faculty, were razed or reborn, alongside the demise of the traditional separation of physicians and surgeons into two strictly distinct professions. Modern scientific knowledge furnished by pioneering scholars allowed for new methods of medical education, rooted in observation rather than acceptance of past hypothetical theories. One such contributor to the evolution of medical teachings was Marie-François Xavier Bichat, an anatomist and pathologist regarded as the founder of the science of histology. Yet the development of medicine's structure and principles during the French Revolution was not a process without pitfalls; the originally slackened, laissez-faire regulation of medical practice soon warranted some degree of structure to be reincorporated. Guidelines, such as those set by

¹ Humorism is alternatively known as humoralism or Galenism.

Fourcroy's Report of 1794, would be crucial as an enduring system of medical organization and education was cemented throughout the second half of the French Revolution and the following decade. Catalyzed and driven by the political wave of upheaval championing liberty, reason, and equality, medicine in France underwent a fusion of professions and reform of educational theory that ultimately challenged and discarded the traditional humoral system.

18th century France witnessed a succession of hardships that stemmed from leadership failures, natural phenomena, and intellectual movements alike, all contributing to the discontent, disloyalty, and disobedience of French citizens. In the *ancien régime*, France's political and social system before the French Revolution, the monarchy governed three *états-généraux* (Estates General): the First Estate consisting of the clergy, the Second Estate consisting of the nobility, and the remainder of the population lumped into the Third Estate, wherein the dominating voice was that of the educated bourgeoisie. Though the Third Estate was dwarfed by the First and Second Estates in terms of wealth and land owned, its constituents were subjected to a disproportionately heavy tax burden. Yet another instance in which the Third Estate bore the most hardship was during the 1788-89 agrarian crisis, after the food deficit created by a rapidly growing population was compounded by a severe winter.² While the countryside was swept by starvation, food prices in cities were driven up, leading to working class riots in Paris.³ King Louis XVI's inept attempts at governing did little to prevent the monarchy's financial crisis from reaching a deadlock by 1789.⁴

Accordingly, a centerpiece of the French Revolution was the tearing down of institutions that had fostered a disadvantageous society for lower classes. In the first year of the revolution,

² "The French Revolution," PBS.

³ Ibid.

⁴ Ibid.

the Third Estate seceded from the *états-généraux* to form the National Assembly, a representative government that proclaimed equality before the law and freedom of speech, press, and religion. The following summer, the traditional feudal system was abolished in favor of declaring France a republic and writing a national constitution. Alongside a single stroke of the guillotine upon Louis XVI's neck, France's centuries of institutionalized monarchy were thus effectively overturned. A second institution being challenged in the early stages of the French revolution was the Church. Spurred by Enlightenment principles encouraging the use of human reason, philosophers such as Immanuel Kant disputed the supremacy of religion: in "What is Enlightenment?", published 1784, Kant wrote that a pastor "is bound to preach ... in accord with the doctrines of the church ... But as a scholar he has full freedom."⁵ This line of thought corresponded to revolutionary calls for *liberté* and *égalité*, sovereignty and capacity for achievement without status requisites.

A number of institutions also existed in France's pre-revolution sphere of medicine.⁶ Among the most prominent of the time was the Paris Medical Faculty, the cohort of professors teaching medicine at the distinguished University of Paris. Beginning in the mid 14th century, the faculty maintained "effective surveillance over apothecaries, herbalists, and surgeons," issued "regulations and statutes," and prosecuted "those who had engaged in illicit practices."⁷ One framework that the faculty of medicine actively sought to preserve in 18th century France was the partition of physicians and surgeons into discretely operated, separately educated

⁵ "Kant. What is Enlightenment?" Columbia University, Mary C. Smith.

⁶ For the purpose of background I only establish the structure of the medical field going into 1789. The development of these institutions during the French Revolution is addressed in detail further on.

⁷ Pearl Kibre, "The Faculty of Medicine at Paris, Charlatanism, and Unlicensed Medical Practices in the Later Middle Ages," *Bulletin of the History of Medicine* 27, no. 1 (1953): 2.

professions.⁸ This rift can be traced back to the 13th century, when physicianship began to be considered a learned profession superior to the mechanical art of surgery and its roots in barber-surgeon apprenticeship.⁹

18th century European physicians and surgeons did have in common the practice of humorism. Humorist philosophy operated through the four elemental humors of blood, phlegm, yellow bile, and black bile, each of which had two ascribed natures: hot or cold, dry or moist. In health, the humors were thought to rest at equilibrium and in doing so maintain the individual's temperament; sickness was attributed to imbalance, therefore patients were treated by removing excess humor. It is notable that humorism is the first known instance of attempting to explain disease through the natural world rather than solely crediting the supernatural.^{10,11} However, it is by no means a modern scientific theory. Humorism clearly retained a strong sense of the mystical by understanding the human body in terms of "elements", which were often linked to the four seasons or air, water, earth, and fire.¹² The backbone of humorist ideas himself, Galen, composed his scientific works with the intention of demonstrating divine design.¹³ The outdated assumptions of humorism were progressively overthrown as France's social disparity, economic distress, and government inability proved to be the perfect backdrop for a revolutionary maelstrom.

⁸ John Lesch, *Science and Medicine in France* (Cambridge: Harvard University Press, 1984), 32.

⁹ Lesch, 27.

¹⁰ For instance, the association of phlegm with a "cold" nature originated from the observation that patients suffering winter colds had excess amounts of phlegm.

¹¹ "Humoralism," *Encyclopædia Iranica*, March 23, 2012.

¹² *Ibid.*

¹³ Charles Singer and E. Ashworth Underwood, *A Short History of Medicine* (New York: Oxford University Press, 1962), 60.

Evidence of dissent in hospitals and between scholars in medicine was already apparent in the 1780s. In late 1788, physician and philosopher Pierre Cabanis penned an essay titled “*Du degré de la certitude de la médecine*” (“On the degree of medicine’s certainty”), the object of which was to probe the veracity of medical principles by confronting arguments against medicine’s worth and effectiveness.¹⁴ The title of the essay itself reflects broad doubt in the entire basis of the medical field. Likewise, in the essay’s preface Cabanis notes that “in order to study and to practise medicine as it ought, we must ... believe that it is founded in nature and truth.”^{15,16} Provided the tumultuous atmosphere of France in 1788, clear parallels can be drawn to the brewing insurgency of the Third Estate: just as years of subjugation on multiple fronts had convinced revolutionaries that France’s political and social system was flawed on a foundational level, Cabanis was concerned with the solidity of medicine’s very underpinnings. Debating particulars of the “study” or “practise” of medicine could and should come after the establishment of sound premises. Though unjust taxes and starvation were certainly catalysts for the revolution, the monarchy was the true target and the root of the revolutionaries’ complaints. Similarly, in “*Du degré de la certitude de la médecine*” Cabanis takes stock of six specific objections to the study of medicine but responds with a treatment for the medical field as a whole: empiricism and movement away from hypothetical theory to “the true method of observation.”^{17,18} Cabanis’s proposal of a pivotal change in the medical field—from speculation

¹⁴ “Du Degré De Certitude De La Médecine.” *Edinburgh Medical and Surgical Journal* 4, no. 14 (1808): 200.

¹⁵ Ibid.

¹⁶ Translated and paraphrased from Pierre Cabanis’s original text by *Edinburgh Medical and Surgical Journal*.

¹⁷ Lesch, 34.

¹⁸ P. J. G. Cabanis, *An Essay on the Certainty of Medicine*, trans. R. La Roche (Philadelphia: R. Desilver, 1823), 110.

to “observation,” pure thought versus tangibles—is indicative of the diffusion of revolutionary reformism into medicine.

As the French Revolution erupted in earnest, challenges to the medical status quo like Cabanis’s were propelled to institutional change. Once the radical faction of revolutionaries assumed power in 1792, all university faculties, learned societies, and teaching corporations were abolished by law.¹⁹ The Paris medical faculty, long considered an esteemed gatekeeper of the field of physiology’s integrity, now found itself betrayed by its own prized authority and tradition.²⁰ In keeping with the sentiments that in 1792 also heralded the demise of the *ancien régime*’s absolute monarchy, the breakdown of the medical faculty was reflective of general animosity towards hierarchical organization. Members of the faculty acted as both teachers of established principles and judges of new material, therefore its very nature was restrictive and exclusive—two qualities that did not harmonize with demands for *liberté* and *égalité*.

The razing of the Paris medical faculty did indeed open the field for a wider range of medical thought. It also eliminated the need for a legally-issued certification in order to practice medicine.²¹ At first, the public looked favorably upon these changes, believing them to be yet another extension of revolutionary commitment to leveling the playing field. Medicine was no longer a profession exclusive to those with wealth, status, and education. However, the abrupt release of control fostered a near de facto tolerance of unlicensed medicine and invited hazardous quackery and charlatanism.^{22,23} The laissez-faire medical policies that had risen in tandem with

¹⁹ Robert Heller, “Officiers de Santé: The Second-Class Doctors of Nineteenth-Century France,” *Medical History* 22, (1978): 25.

²⁰ Lesch, 36.

²¹ Lesch, 37.

²² Ibid.

the early zeal of the French Revolution would now backtrack alongside the de-escalation of madness during Thermidor in 1794. To be certain, there was no returning from the last five years of pandemonium, which had so drastically altered the state of France, for either the government or the medical field. But many reformers did come to the realization that free reign could be dangerous and ineffective, leading them to re-implement basic regulations.²⁴ One such revival of structure originated at the University of Montpellier, which began staging unsanctioned physicianship examinations and issuing provisional licenses—albeit illegal by revolutionary decree—to those who passed, a trend that quickly spread to other French medical faculties.²⁵ Because these registrations were unofficial, acquiring one would have been neither forcible nor publicly advertised; those that came to the examination boards—and evidently there were enough to merit the legalization of the licenses in 1797—did so of their own accord.²⁶ The success of the University of Montpellier and other teaching institutions even in covert action points to a decided shift in the medical community mirroring the caution of post-Reign-of-Terror public opinion.

Opposing views of France’s revolution-era medical transformation posit that the progress was powered not by the revolution itself, but by the Enlightenment and similar medical reformations across Europe—for instance, the “pockets of research” that emerged across London.²⁷ Though the influence of the Enlightenment on academics of this time period was paramount, one cannot separate Enlightenment philosophy from the French Revolution. Indeed,

²³ Quackery commonly took form in the sale of sham remedies, peddled as panaceas but often poisonous in reality. Without vetting of health personnel, serious injuries or even death inflicted by charlatans on their patients were frequent.

²⁴ “6 The Thermidorian Settlement and the end of the Revolution,” OpenLearn.

²⁵ Heller, 25.

²⁶ Ibid.

²⁷ Dora B. Weiner and Michael J. Sauter, 23.

in his work *The Social Contract*, Enlightenment author Jean-Jacques Rousseau brought prominence to the very concept of popular sovereignty, an indispensable feature of revolutionary objectives.²⁸ The medical advancements of other European cities were innovative, but did not serve as a particular model for France; comparing Paris with the case of London, the latter city lacked the centralized medical school that Paris developed.²⁹ By comparing the trajectory of the French Revolution with simultaneous events in the medical field, one can observe that the Revolution cultivated an ideal environment for friction concerning medicine's foundations to be played out in radical fashion.

Another pivotal change in French medicine during the end of the 18th century was the synthesis of physicians and surgeons into subdivisions of the same field of study.³⁰ This, too, can be connected to the mindset of the Revolution, since it favored a more equal, integrated path of educating the two professions rather than status stratification of physiology over surgery. However, perhaps the most important impact of the interchange between physicians and surgeons was the facilitation of an emphasis on observational science.³¹ Pierre Desault, a renowned surgeon of the *Hôtel-Dieu* in Paris, was one such proponent of anatomical rather than theoretical medicine.³² He is recorded by his student Marie-François Xavier Bichat as reasoning that “surgery seems to have checked the extravagancies to which medicine was blindly conducted by the spirit of system and hypotheses.”³³ Desault attacks the “system” aspect of

²⁸ “History 151 The French Revolution: Causes, Outcomes, Conflicting Interpretations,” Mt. Holyoke, Robert Schwartz.

²⁹ Dora B. Weiner and Michael J. Sauter, 24.

³⁰ Lesch, 31.

³¹ Lesch, 27.

³² L’Hôtel Dieu de Paris is one of Europe’s oldest hospitals.

³³ Xavier Bichat, *The surgical works, or, Statement of the doctrine and practice of P.J. Desault: surgeon in chief of the great Hospital of Humanity at Paris*, trans. Edward Darrell Smith (Philadelphia: Thomas Dobson, 1814), 292.

non-surgical medicine in order to disparage over-reliance on one orthodox procedure or theory; the inclusion of the “hypotheses” facet indicates Desault’s critique of the unproven and obscure nature of said theories. His portrayal of surgery as a moderating force on the traditional practices of physicians communicates a need for the intermixture of the two in order to achieve a balanced and precise medical field.

In fact, as the values of surgeons like Desault proliferated alongside the growing academic acceptance of surgery as an equal, collateral study to physicianship, medical reformers turned the tables and questioned whether physiology was even a valid science without the supporting framework of anatomy.³⁴ Such dialogue critiquing non-observational medicine dealt a heavy blow to the validity of humorism: humorist principles regarding “temperaments,” a combination of an individual’s complexion and disposition, were nearly entirely based upon generalizations and a superficial, quite literally skin-deep inspection of patients.³⁵ The reversal of conventional physicianship’s once-solid dominance and the newfound doubt cast upon humorism uncannily parallel the French monarchy’s fall from grace and the ensuing political vacillation between factions.

The adoption of surgical norms into canonized medicine was complemented by a wealth of newfound knowledge contributed by biological scholars. Pierre Cabanis’s aforementioned essay “*Du degré de la certitude de la médecine*” was an early call for the experiential discovery that scientists gradually began engaging in: addressing the need for scientific improvement, he asks “who does not know the presumptuous assurance with which one advises a remedy, although he does not understand the disease or the remedy itself?”³⁶ The characterization of

³⁴ Lesch, 34.

³⁵ “Four Humors,” U.S. National Library of Medicine.

³⁶ Cabanis, 107.

doctors who function without thorough patient examination as “presumptuous” reveals a disdain towards medical doctrines that offer broad, oversimplified prescriptions. Cabanis goes on to decry situations in which patients “have had their diseases rendered mortal . . . merely because they have not possessed sufficient strength of mind to resist entreaties, threats, promises, but more especially the recital of those wonderful cures by which the proposed remedy is in all cases enveloped.”³⁷ His description of some treatments as “entreaties, threats, [and] promises” degrades the status of the pre-revolutionary medical field, suggesting that it is far more subjective and fraudulent than it is evidence-based. Cabanis’s word choice of “recital of those wonderful cures” seems to sarcastically liken medical professionals to no better than folk doctors hawking their remedies via fabricated success stories. Ultimately, Cabanis makes the point that medicine at the dawn of the French Revolution lacked depth of knowledge and empirical analysis. He specifically believed that this deficiency could be met by the younger generation of medical scholars during the revolution.³⁸

Cabanis’s 1788 criticisms and hopes were in many ways fulfilled by the progressive studies of Marie-François Xavier Bichat, Desault’s student who eventually eclipsed his mentor as an anatomist and pathologist. Bichat’s most groundbreaking contribution to the evolving medical field was a fundamental redefining of the units of the body. Prior to the publication of Bichat’s “*Anatomie Générale*” in 1801, the body was thought to be “a collection of organs or instruments widely different from one another, and seemingly independent.”³⁹ However, Bichat drew the conclusion that organs could be broken down into a complex “folding” of component

³⁷ Cabanis, 107.

³⁸ Lesch, 44.

³⁹ The Fortnightly Review, “Bichat,” *New York Times*, Jul. 3, 1881.

tissues, with every organ in the body connected in some manner.⁴⁰ This stands in sharp contrast to humorism, which not only treated humans as a function of the four humors—four bodily secretions—but also failed to delve any further into the importance of internal organs beyond their relation to the humors. In Bichat’s 1809 work “*Recherches physiologiques sur la vie et la mort*” (“Physiological researches on life and death”) he introduces his explanation of the phenomena of black blood with the outline:

General process of my experiments.—Their results in the interpretation of the red colouration of black blood.—Other results relative to the return of the red colour.—Consequences deduced from these experiments.—Considerations on the inflation of air into the trachea-arteria, to recover persons from asphyxia.—Experiment on the colouration of the blood, by breathing the different gases.—Colouration takes place only at the bronchial extremity.^{41,42}

Bichat’s exploration of black blood is heavily reliant on logical experimentation and analysis of the collected data, as evidenced by the first four topics in the introduction pertaining to “experiments,” interpretation of “results,” and deduced “consequences.” Furthermore, the inclusion of “considerations on the inflation of air into the trachea-arteria” exemplifies Bichat’s key conceptualization of tissues comprising an organ. His understanding of biological phenomena achieves the depth and complexity of the “trachea-arteria,” whereas a humorist analysis would have ceased at a general mention of the lung. Towards the end of the outline Bichat returns to a tangential experiment, demonstrating a new process of inquiry with the capacity for continual review and re-evaluation, as opposed to stagnant acceptance of past theories such as humorism.

⁴⁰ Ibid.

⁴¹ Xavier Bichat, *Physiological researches upon life and death*, trans. Tobias Watkins (Philadelphia: Smith & Maxwell, 1809), 27-28.

⁴² Bichat goes on to describe in further detail each element of the introduction.

The influx of pioneering knowledge in the late 18th century and early 19th century was in part made possible by a unique circumstance of the French Revolution: an increased number of cadavers available for experimentation. Not only did the revolution produce a large number of casualties, but under revolutionary administration new policies sanctioned the use of patient cadavers from hospitals including Paris' *Hôtel-Dieu* for necropsy.⁴³ By the early 19th century, Paris facilities alone were consuming roughly 2,500 bodies per year.⁴⁴ Perhaps as a result of the newfound acceptance of surgery into the mainstream medical profession, the dissection of unclaimed corpses for the purpose of studying anatomy went broadly unquestioned; indeed, in 1797 a Parisian court justice released Bichat and accomplices, apprehended for mining corpses in graveyards, without a sentence, demonstrating an increased esteem for medical research expected in the context of revolutionary and Enlightenment accentuation of empiricism.⁴⁵ As such, medical students during the Revolution had the opportunity to learn and research the human body in a far more hands-on manner than the Paris medical faculty had once permitted. The accessibility of cadavers promoted anatomical understanding and fed into the evolution away from humorism, as dissections allowed for physical inspection and tangible evidence in contrast to speculations from patients' complexions and other purely external symptoms. Cadavers also allowed scholars like Bichat to build a more authoritative and legitimate basis for their ideas.

The rejection of humorism and progressive turn towards principles of observation was consolidated and preserved through the reconstruction of medical teaching. A few weeks preceding July 27, 1794, the initiation date of the Thermidorian Reaction, chemist and physician

⁴³ Dora B. Weiner and Michael J. Sauter, 25.

⁴⁴ Dora B. Weiner and Michael J. Sauter, 34.

⁴⁵ Dora B. Weiner and Michael J. Sauter, 27.

Antoine Fourcroy and professor of chemistry and anatomy François Chaussier were tasked by the Committee of Public Safety with reorganizing the structure of French medical schools; this was an undertaking befitting the weariness of chaos that pervaded the time.⁴⁶ The proposals of Fourcroy and Chaussier, known as the Fourcroy Report of 1794, were passed as the Law of 1794 by the National Convention in December of the same year.⁴⁷

Article I decreed the institution of three *écoles de santé* (schools of health) in Paris, Montpellier, and Strasbourg for the purpose of producing medical personnel for hospitals.⁴⁸ The Law of 1794 also established a novel curriculum to be applied in the new schools; Article 4 proclaimed that “students shall practice anatomical, surgical and chemical operations; they shall observe the nature of diseases at the bedside of patients, and shall follow their treatment in the hospitals near the schools.”^{49,50} The opportunity to engage in “bedside” learning “in the hospitals” indicates a definitive movement away from the Paris medical faculty’s pre-Revolution schooling, which focused on lectures and commenting on medical texts—an appropriate methodology for humorism and its basis on the historical works of Hippocrates and Galen, but not nearly as suitable for teaching empirical medicine. Moreover, the Law of 1794 made available the necessary resources—libraries, museums of anatomy, and laboratories among them—for the *écoles de santé* to maintain an environment of experiential learning.⁵¹ By virtue of government’s inherent authority, such public and well-funded backing of research-based medicine would have only pushed an already weakened humorism further towards obsolescence.

⁴⁶ Lesch, 37.

⁴⁷ Heller, 25.

⁴⁸ Ibid.

⁴⁹ Lesch, 37.

⁵⁰ Translated from original text by John Lesch.

⁵¹ Heller, 26.

However, some academics argue that humorism would remain a major influence in post-revolution France “well into the 1800s”, carried on through individual practice and folk medicine.⁵² Unlike the guillotine’s quick dispatch of French royals, by no means did humorism die a clean and abrupt death during the revolution. Lingering influence can be expected of any theory as entrenched as humorism was. Furthermore, folk doctors and unlicensed individuals would have easily been left behind the wave of progress—either by choice, or by necessity as humorism required far less formal knowledge and professional equipment than post-revolution medical theory. However, folk and individual practitioners represent a minuscule percentage of medical professionals, and the consensus of the scientific community as a whole shifted conclusively towards microscopic observation during the French Revolution and the following decade.⁵³ Since institutionalized medicine had transitioned to a new perspective, the affiliated *écoles de santé* of Paris, Montpellier, and Strasbourg also taught these novel principles to the next generation of physicians, continuing to reinforce the movement away from humorism. The extensive sway of the *écoles de santé* and the empirical observation they fostered is further evidenced by the “large numbers” of foreigners who would, by the 1820s, flock to Paris to study anatomy.⁵⁴

The transformation of French medicine around the turn of the 18th century was galvanized, matured, and found resolution in tandem with the Revolution’s chaotic reform. As famine and poverty laid waste to the stability of society, scholars grew increasingly cynical and disillusioned with the medical rationale they had long held as truth. Their doubts found expression in the collapse of formerly dominant, stratified institutions—on one hand, the ossified

⁵² “Humours,” Brought to Life, Wellcome Trust.

⁵³ Lesch, 31.

⁵⁴ Dora B. Weiner and Michael J. Sauter, 34.

tradition of the Paris medical faculty, on the other hand, the elitist separation of physicians and surgeons. Meanwhile, medical intellectuals delved far beyond the four humors to realize new intricacies of the human body, and empiricism was adopted as the primary tool of medicine in lieu of heedless confidence in unproven theories. When it came time for educational structure to be revisited, the Law of 1794 set up a curriculum of practical training for posterity. At the conclusion of this medical metamorphosis France had shedded the chrysalis of humorism.

Thus medicine proved to be an unlikely sign of the times for the French Revolution. Indeed, the medical field from the 1780s to the 1800s upended the expected in more ways than one. Who would have believed in centuries past that the common barber-surgeon was not crude but highly scientific in principle? Who could have predicted that the illustrious Galen was largely false in his humoral hypotheses? Perhaps it was this unpredictability that made the revolutionary environment so conducive to rapid and radical change; one might now ask how the transition from theoretical to evidence-based medicine transpired in other European countries, in the absence of triggering upheaval as extreme and violent as the French Revolution. In the present day, outright rebellion may not be necessary to engender self-questioning and reconsideration, but always the growth of society demands parallel progress in science—for all one knows, the convictions of the medical field today may be challenged and overturned tomorrow.

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