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Vectors of Thought: François Delaporte, the Cholera of 1832 and the Problem of Error

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Abstract: This paper resists the virality of contemporary paranoia by turning to "French epistemology", a philosophical ethos that embraces uncertainty and complexity by registering the transformative impact of scientific knowledge on thought. Despite its popular uses describing phenomena of communication today, the idea of virality comes from biomedicine. This paper, therefore, investigates the extent to which an epidemiological concept of viral transmission—the disease vector—can comprehend and encourage new possibilities of thought beyond paranoia. Briefly, I attempt to analyze thought as a vector. I pursue this by examining Delaporte's important, but neglected, study of the 1832 Parisian cholera epidemic. First elucidating his reconstruction of the ways tentative epistemological progress intertwined with and supported projects of working-class and colonial control. My vectorial analysis then considers how his argument infects contemporary readers with doubts that undo the bases of paranoia. I pursue this analysis further via a methodological examination of Delaporte's study as both carrier of predecessors' methods and host in which they alter, becoming newly infectious. I conclude by reflecting on this formulation of thought as disease vector and what Delaporte's singular treatment of the problem of error reveals about an ethos committed to registering the impact of knowledge on thought.

Keywords: paranoia; knowledge; health; Canguilhem; Foucault

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1. Introduction

The chaotic upheavals of our moment are surpassed only by the ceaseless outpouring of commentary upon them. Through the Internet, the shock of one disaster after another has come to affect the lives and define the experience of ever more people. Proliferating uncertainties about the future are called forth by a ceaseless stream of "discussion" in social media. Paranoia runs riot. As Pierre Cassou-Noguès puts it, we have entered *Virusland* [1]. Whatever the particular geography, virusland is not shaped first by the coronavirus and biological illness it threatens, but by the viral flow of information that now conditions our daily lives and understanding of the possible. The great COVID lockdown, he suggests, is perhaps the last instance of a power founded on "detention and visibility" [1] (p. 205). Virality promises not the power to confine but the power to orient and control movement. For people, animals, plants, and all other material things, the future will happen around questions of transit, migration, diaspora, concentration, and relocation.

Already, information streams ceaselessly over and through people. We conjure up ever more of it online while we communicate, shop, and work, or pursue friendships, sexual liaisons, or long-lost family. In the century of the newspaper, Friedrich Nietzsche worried that people had become walking encyclopedias, dyspeptic with all the bits and pieces of knowledge bloating their stomachs. Today, we feed on viral memes, providing ourselves a shared discombobulation. As the mass of scientific and public health information about COVID-19 further attests, knowledge itself has gone viral. Our apps give us more of what we know and want rather than encourage us to risk encountering and orienting ourselves in the unknown. Using our information to shape the flow of information we receive, our

apps narrow our reality. We download them and look forward to the convenience and opportunities they promise, ignoring the uses to which commercial and other enterprises put our information. We too may be dyspeptic, but our relation to knowledge leaves us feeling not only nauseated, but traumatized, anxious, and paranoid as the weight of the unknown and uncertain presses upon us from beyond our screens.

This paper resists succumbing to such feelings by looking to a group of twentieth century French philosophers, many of whom are neglected. I suggest they hang together insofar as each is carrier of a specific ethos. Together, they present a thoroughgoing endeavor to face up to the uncertainties and complexities of the present. They have done so by responding to the demands that scientific knowledge and its techniques make on, and the possibilities they open up for, contemporary thought. Their aims vary, but each shares in the effort to register the transformative impact of cutting-edge science and knowledge on thought.

Gaston Bachelard, Georges Canguilhem, and Michel Foucault are often cited as key figures. Bachelard sought a new apprenticeship of thought in the wake of physics, Canguilhem worked to transform philosophy in light of scientifically informed medical practice, and Foucault, who began from psychology and psychiatry, broadened his efforts to register the impact of knowledge's proliferating specializations on thought. While Foucault is arguably one of the most famous philosophers of the twentieth century, the very force of that argument emphasizes the singularity of his thought and leads to comparisons with other "major" figures in the history of philosophy. This paper complicates such presentations by situating Foucault among a larger host of contemporaries, what is sometimes called French epistemology. This includes Bachelardian historical epistemology and Canguilhem's epistemological history. Foucault's archeologies and genealogies are often located here too, though he sought to distance himself from epistemology.

But the situation is very complicated. There are not just three names, three sets of work to consider. The number is greatly multiplied when we consider the many other writers who, in one way or another, were host to this ethos: for example, Louis Althusser, Pierre Bourdieu, Gilles Deleuze, Jacques Derrida, or Michel Serres. Beyond these "major" figures, we must also consider the many "minor" figures, such as Evelyne Aziza-Shuster, François Dagognet, François Delaporte, Dominique Lecourt, Camille Limoges, Anne Marie Moulin, Jacques Piquemal, Roshdi Rashed, or Claire Salomon-Bayet. The very distinction between the major and minor, however, should be questioned. First, we would have to ask, for whom does this distinction exist? Is the distinction the same in different national contexts? What, in virusland, are the criteria for making such distinctions? Notoriety in the English-language? "Publication impact"? Book sales? Philosophical importance? But how would we measure this last, if not in terms of clicks and downloads? My paper, therefore, brackets the distinction because it may be dangerously amplified by, even exist because of, the very virality of information. Setting it aside, moreover, encourages new encounters with the different figures constituting this overlooked host.

We must begin by acknowledging that this is an unruly and motley bunch. How are we to understand them? We would have to consider institutional affiliations that brought many of these authors together, affiliations that supported independent, overlapping, and joint research endeavors. We would also have to consider the extent to which each embraced the quality that Foucault most admired in Bachelard: he played his own "education [*culture*]" against itself by appealing to the forgotten, the minor, and the deviant, ensnaring and transforming his knowledge [2] (p. 1250). From here, we would have to consider how this normative singularity appears in the work of each while also allowing, if not requiring, them to fashion differential connections between each other. I suspect this would show the emergence of a philosophical population defined by its differences as much as its shared spirit of inquiry. Ultimately, we might be tempted to ask whether these characteristics define philosophy as such, or concern only a particular approach to thinking, born of a place and a time.

Some might treat the existence of such a population as material for an "epidemiology of representations" and give a "naturalized" account of philosophical culture that describes and explains the deterministic propagation of ideas throughout the group [3]. My approach is different. Following the philosophical ethos of "French epistemology", I seek to register the impact of contemporary knowledge on what it means to think today. I accept the language of virality, which so readily applies to *our* experience of communication, but seek to clarify that language and experience by drawing on their conceptual sources in epidemiological science. Epidemiology has so much to tell us these days that we are called to register what this knowledge implies about who we are, what it means to think, and what we might aspire to.

I attempt this by drawing on the concept of the disease vector. A vector, generally speaking, is an organism that transmits a disease agent from one living thing to another. As Canguilhem wrote, glossing François Delaporte's study on it, the vector unites the concepts of carrier and host [4] (p. 12). As carrier, an organism conveys the infectious agent to others and may or may not suffer from it itself. As host, it is the living milieu in which the infectious agent accomplishes one or more stages of its own life cycle. In the vector these two processes are inextricably linked. The host allows for a life cycle in which a non-infectious stage is transformed and becomes transmissible, ready to be carried to another. To know a vector is also to know the alliances on which a disease depends, as well as its spatial orientation and scope. I turn this concept into an analytic method. Such a vectorial analysis considers the ways texts not only carry a particular philosophical content, but also maintain or transform this content so that it may become newly infectious. This also means reading texts to find enduring alliances between the different ideas and methods within them. I hazard that this vectorial analysis could be used to comprehend the very different projects in the unruly, motley bunch of "French epistemology".

In what follows I make an essay of this method on one text: Delaporte's *Disease and Civilization: The Cholera in Paris, 1832*, a history of the events in knowledge and society that crystallized a new world from out of this epidemic [5]. The book has been little studied by philosophers and misinterpreted by others. One historical study criticizes its lack of attention to the ways class identities were invented in response to the nineteenth century French cholera epidemics, looking instead to Foucault's analyses of class formation as a model [6]. But a careful reading shows to the contrary that Delaporte's book actually extends and elaborates this aspect of Foucault's work. Above all, *Disease and Civilization* is a paradigmatic example of "French epistemology" for the way it studies this history in an effort to register and respond to contemporary biomedical knowledge. I focus on it, in particular, for its resonance with our current need to face up to the complexities of scientific knowledge in light of the COVID-19 pandemic and all its accompanying paranoia and social unrest.

2. The History of *Disease and Civilization* and Its Effects

Completed in 1984, *Disease and Civilization* elaborates the history of an enduring transformation. This history focuses on the cholera epidemic that struck Paris in 1832, after first appearing in India in 1826 and then slowly moving through Persia, Russia, Poland, Hungary, Prussia, Germany, Austria, and England before coming to France. In Paris, it killed 18,000 people out of a population of 785,000 [5] (p. 5); [7]. While there were other, deadlier cholera epidemics in France later that century, Delaporte studies the cholera of 1832 for the transformations it initiated and which would lead to an international health code devised in 1851 and made part of French law in 1853 [5] (p. 189; pp. 232–233, note 67); [8]. His work is based primarily on the archive of medical, scientific, economic, and public administration and policy documents produced by the epidemic. The transformation tracked by *Disease and Civilization* is the complex result of the practices, conflicts, and shocks of the epidemic itself. It involves the invention of new sorts of knowledge, new areas of public intervention, and new domains of experience. In short, it traces the formation of the need for a health "apparatus" [5] (p. 196) by which a nascent liberalism could counter

resistance to the organization of societies for the sake of commercial profit. This apparatus concerned the fostering, maintenance, and protection of national and international health—the health of entire populations—and is thus the coordinated institutions and practices, both national and international, that would be set up to administer this health. The nineteenth century medical concern for the vitality of the family and its offspring was first invented by the rising bourgeoisie as a means to secure its own existence. But Delaporte focuses on this epidemic because it was the moment that diverse social practices and medical knowledge coalesced to comprehend workers and the poor as naturally tending to moral degeneration and in need of a public hygiene that would correct and improve them. Paris, 1832, was the place and time that public hygiene and health care were transformed into the moral instruction of the people's flesh. The history of scientific or bio-medicine, Delaporte shows, is intimately bound up with this transformation that concerned relations between groups within nations, but also between nations, especially between the so-called barbarous and civilized nations. In short, the 1832 cholera supported nascent French colonial projects. It did so, in large part, by fostering new biological accounts of national sub-populations on the basis of a certain knowledge of civilizations, accounts that would also then be deployed in colonial practice.

Disease and Civilization opens by considering the opinions of two men in the face of the 1832 cholera: one is Baron Jean-Dominique Larrey, a proponent of the Juste Milieu descended from nobility, a surgeon and army health service inspector, who became a member of the Supreme Health Council under Louis Philippe I's July Monarchy; the other is Michel Chevalier, an economist, liberal, and member of the Commission charged by the Minister of Commerce and Public Works with producing the *Report on the Market and the Effects of the Cholera Morbus* [6]. Delaporte quotes the noble surgeon before the epidemic arrived, certain that his country's Enlightened medicine, public health rules, and its healthy and generally perfected population would prevent the cholera's entry. He quotes the liberal economist from some months later, after the epidemic had already taken off in Paris, lamenting the corruption of the wealthy who equate civilization with their luxury and are happy to see the poor and working people suffer rather than support a social state that promotes and protects the public welfare, health above all [5] (pp. 1–3). Presented with these two different visions of liberal society, the reader might prepare themselves for an account of the imagined visions and practical failures of liberal policy [5] (p. 4). Rather, Delaporte insists on highlighting their shared, utopian vision of a social state concerned with the welfare of its citizens. What one thought had already been accomplished, the other grasped as a concrete project. As Delaporte puts it:

> *for us*, there is an even deeper kinship between the two statements, in that Larrey's sets forth, before the fact, the normative lessons to be drawn from the catastrophe that Chevalier describes. There can be no doubt that disasters like the epidemic of 1832 had to occur before the countries of the West could make Larrey's visionary ideal an actual goal of policy. [5] (p. 5)

Delaporte's study positions itself thereby as a history of its present, one in which the welfare and health of citizens continue to be debated policy goals. It is "we" who are in a position to see that Larrey and Chevalier, despite their own differences, offered a shared vision that has continued to inform policies and practices of public health. For Delaporte, the present is not a neutral lens through which to view past conflict, but a regime of particular practices whose uncertain and difficult emergence must be excavated through an impartial research into the archives. Despite the appearance of easy social-political or epistemological oppositions, Delaporte pursues a confrontation with the complexity of the transformation wrought by the epidemic.

Disease and Civilization elucidates this transformation over six central chapters: "Management", "Fear", "Investigation", "Apology", "Medicine", and "Epidemic". These offer not a linear account of a transition to the social state envisioned by Larrey and Chevalier but diverse studies of the central problems and practices of the epidemic. While the book, roughly speaking, follows the chronology of events, each chapter tracks particular trans-

formations brought about by the practices of the epidemic which, when taken together, mutually supported each other and converged on a central transformation in the state's relation to its own territory and populations, as well as to other lands and other populations. The book's central theme is the convergences between knowledge and power, exemplified by the relation between theoretical conflicts over the nature of the cholera to the events and practices of the epidemic. But to research such convergences, Delaporte insists, knowledge cannot be studied as a mirage produced in the struggle for power.

In roughly its first half, *Disease and Civilization* lays out: (1) the attempts to prevent and later manage the cholera in France; (2) then, focusing on Paris, the paranoid fears and violence this provoked in the absence of useful medical knowledge or effective therapies; (3) the investigations and new knowledge of urban living conditions to which this gave rise; and (4) the uses to which proponents of the juste milieu put this to produce a concept of social class, in which the supposedly diseased biology of the poor and workers was found to follow from their essential moral barbarism. The new statistical understanding derived from the study of urban conditions of existence supported the emergence of mesological sciences, which would study "the influence of the environment on living things and social groups" [5] (p. 91). It also underpinned the first call for a national chair in epidemiology.(Delaporte confines this observation to a note in the English translation [5] (p. 214, note 30). In the revised French edition, he emphasizes this, for example, by changing the last chapter's title to "Epidemiology" [9].) But this emerging understanding of the social causes of poverty and disease was reinterpreted by the juste milieu as evidence of the moral inferiority of the poor as a race, that is, a biological subspecies of human beings that would invariably transmit its characteristic tendencies and morality to its offspring. Mutual fears and paranoid suspicions across social groups only fed into the acceptance of such quasi-biological classifications.

The two final, long chapters—on "Medicine" and "Epidemics"—shift the focus to the role of medical theorizing in this history and the transformations it underwent and supported in the debate over whether cholera was a contagious or an infectious malady. For medical theorists struggled to understand the disease in the terms of their science, for which it must result either from contact with another sick person or infection by an environmental pollutant. Eschewing a dogmatic reading of past knowledge in light of present bacteriological science, Delaporte aims to study what each of the medical theories was able to contribute to the emergence of the bacteriological theory of disease. Finally, Delaporte shows how this theorizing, despite all its failures and confusions, supported the emergence of what he calls the "medical-political structure" that is public health [5] (p. 149).

A new health code had been promulgated in France only ten years before the 1832 cholera. But it followed long-established principles for the protection of cities and countryside along the Mediterranean coast from the advance of epidemic disease, giving local authorities free reign to do everything necessary to stop the advance of plagues [5] (p. 189). In 1853, however, a truly new code was established by the Emperor's promulgation of the 1851 International Sanitary Convention, transforming these policies by drawing on the multiple epistemological elements and concrete practices first elaborated and tested against the cholera of 1832. This code, moreover, realized a political hygiene that was both national and international: a rationalization of quarantine to minimize its duration, including by studying a disease's incubation period or counting the voyage itself as part of any quarantine. The principle of rationalization involved commerce as much as hygiene. In brief, the new code responded to the trade problems provoked by the earlier code: commercial ships were abandoning French ports in favor of other nations for fear of extensive quarantine and, thus, France was experiencing commercial losses. France embraced the new code and its hygienic policies, "to facilitate the circulation of people and wealth" [5] (p. 194). Public hygiene, with its new epistemological basis in a medical and statistical science of epidemics, and economic liberalism converged to support a new, commercial world order.

Yet this political hygiene also played a role in the call to colonize other countries, such as Algeria, which France conquered in the very same year—1832—which initiated

the transformations leading to this new health code. To clean them up and protect the health of their populations, this too was found to be a reason to colonize "barbarous" or "uncivilized" nations. Delaporte's study shows that such nineteenth century colonial practices had become possible through an internal biologizing and racializing division of urban populations beginning from the old distinction between the "civilized West" and the "barbarous East". The new understanding of the people as various living populations in need of health and improvement, accomplished through the cholera epidemic, could then be exported as both a means to justify colonization and the mechanism by which to administer colonial governments.

One of the great ironies is that Europeans brought new and, as a result, especially virulent diseases to their colonies. Thus, the introduction of smallpox in Mexico led to a persistent campaign of immunization that began in the early nineteenth century. Registering the scientific impact of such colonial campaigns, Anne Marie Moulin states, "It was intensive immunization at the periphery that prefigured immunology" [10] (p. 42). Global smallpox vaccination efforts continued until 1980, when it was declared to have been eradicated around the world. This was widely proclaimed the first time that humanity had eliminated a perennial scourge: good reason to celebrate the awesome, beneficent power of biomedicine.

For a vectorial analysis, this aspect of biomedical knowledge and the miraculous cures expected of it help orient understanding of Delaporte's study. In short, this history shows that belief in biomedicine's ability to secure health through vaccination is an error. This does not mean that Delaporte contests the value of vaccines or, we will see, the possibility of progress in scientific knowledge. Rather, *Disease & Civilization* shows that public health is historically imbricated in the formation of working-class and colonial subjectivities and the attempt to manipulate them for the sake of national and international commerce. Vaccination emerged within this context and focus on it encouraged public health professionals and others to ignore social, political, and economic inequalities. By treating disease as a biological problem with purely biomedical solutions, science can continue to maintain and celebrate its freedom from ideological contamination. Integral to the new knowledge of social classes, however, were the statistical studies on the cholera that showed the extent to which living and working conditions shaped a person's chances of falling sick. The history of epidemiology shows, therefore, the existence of knowledge that could correct this biomedical error by calling for remedies to diseases of extreme inequality and poverty. In his *Epidemics*, Delaporte cites the Alma Ata Declaration (1978) to make this suggestion explicit [11] (p. 121). That document, famously, advocates for integrating economic and social development into health care as the means to address the consequences of such inequalities between countries and within countries [12].

Delaporte finished his book in January, 1984 in Mexico City [5] ("Acknowledgments"). Following the path earlier taken by Western European nations, the Mexican state had adopted a constitutional amendment on February 3rd, 1983 guaranteeing the right to health care for all citizens. Almost exactly one year later—shortly after the date in Delaporte's "Acknowledgments"—the General Health Law was enacted, directing the National Health Service to pursue numerous objectives in public health and medicine in order to realize this right. Michel Foucault had earlier warned against the dangers of following European paths of development [13] (p. 57). So doing, he had worried that national healthcare would repeat and suffer from the same problems European nations had experienced. As national insurance schemes became burdensome, the sick would be remade into medical consumers, further perpetuating inequalities in health and care between the poor and the wealthy. This is why Foucault, speaking in Brazil, had urged critical historical studies of European healthcare systems that might identify alternative paths for non-European nations. Delaporte's book appears to answer this call by showing that the liberal, social state was not a rational development, but a new order that suddenly crystallized in a period of crisis. The crisis, as Delaporte suggested through Larrey and Chevalier, preciptated the crystallization of a vision or dream of what society might become. Delaporte's book

thus extends Foucault's diagnosis by studying the 1832 cholera in order to unearth not only the social-political fears and discords, but the missed opportunity to address diseases of poverty that have continued to inhabit experience and care. Little surprise, then, that the General Health Law's recognition of health care as a universal right, was followed by neoliberal reforms to achieve this through the privatization of care [14]. As elsewhere, such reforms increased poverty and the sickness that accompanies it.

Does this mean that Delaporte's book was a failure, a dead end? That Delaporte would revise the eventual French edition, published only in 1990, suggests he did not judge it a failure even though he sought to clarify the argument [9]. That he pursued and extended his analyses later still shows that he continued to find it important [15]. We can also understand its importance in light of global concern about a new pandemic—caused by a new and mysterious "retrovirus" that also took Foucault's life in the spring of 1984—when Delaporte was writing the book. Read in this light, it provides reasons to reject the moral scapegoating of the gay community and all the paranoid worry that "sexual deviants" would infect "normal" people. Like Delaporte showed, concerning the Parisian cholera, paranoia about HIV/AIDS only increased the suffering of people already marginalized and directed attention away from what was at stake and what was possible in that moment of crisis. Such paranoia did nothing to address either the biomedical belief in vaccination as panacea or the commercialization of care.

We also have to ask this question in light of our moment. One set of viral memes proliferating during the current pandemic promotes paranoia about the role of governments, pharmaceutical corporations, or even telecommunications companies in the pandemic. Some of these worries are unique to our own moment, such as the fear that new 5G telecommunications networks are causing a mysterious illness and talk of COVID covers it up. Other worries closely mirror those Parisians expressed in the face of new codes and policies enacted during the cholera. As in 1832, so now COVID has been presented as a poison by which the government or the rich are trying to exterminate those they oppress. But would not the argument of Delaporte's book itself also get swept up into this mimeticism? Is the history he composes not one further piece of "evidence" that public health has always been a ploy by which the people are repressed? In truth, Delaporte is careful to argue that history does not reduce to a simple dialectic of class struggle. Rather, the complex history describes the formation of antagonisms that have shaped different experiences and subaltern subjectivities in Europe and its colonies. What, then, does an encounter with this sort of complexity do to the reader?

A vectorial analysis has to ask after the sort of infection a text communicates to its readers. The complexity of *Disease and Civilization* is overwhelming; it disorients and confuses, provokes skepticism and doubt. At the same time it exposes the conditions in which the subjectivities of those colonized by European nations and those of European working classes took shape, it suggests the very manner in which they were pitted against each other. It also shows how confused progress in medical knowledge happened, how a new science of epidemiology was born, and how these events of the cholera intersected with and contributed to social and political events, from the dream of a liberal society to a new commercial colonialism. In showing the complexity and irreducibility of these events, I suggest, Delaporte emphasizes the superficiality of paranoid fears, however widespread they might be. The history shows that no group was orchestrating the cholera epidemic or inventing it in order to produce a predetermined outcome. The liberal vision of society that Delaporte cites was not the well-reasoned plan of a group of conspirators. It was a *dream* about a better, more rational and improved society based on individual work and commerce. To insist on malicious conspiracies and plots was to miss out on the real transformations. The most provocative conclusion of Delaporte's book is, then, that the desire for health—today we might say wellness—is one with the dream of preventing the moral and physical degeneration of working people for the sake of industry and commerce. Ultimately, then, the book infects the reader with doubt about the desire for health. Far from initiating a search for evil-doers, it infects the reader with a desire to share this doubt.

Does his questioning of our knowledge of health imply that he reduces epidemiological science and public health to mere subterfuge and cover for oppressive social and political projects? To the contrary, as we might already suspect, Delaporte insists on a historical understanding of the sciences that captures them in their unique ability to make progress in knowledge. Further, hosting the hallmark of his "school", he believes that such progress necessitates, in its very occurrence, the reformulation of our practice and understanding of what it means to think. To understand the sciences as human activities defined by progress over time means that moments of scientific progress demand new historical understanding of how this progress was possible. Such novel understanding is philosophical because it is tantamount to creating new ways of incorporating knowledge into life. Attributing it first to Bachelard, Delaporte called this the recursive method [16] (p. 289). Such a method is needed because the sciences are unique enterprises capable of discovering and correcting their errors.

3. On the Methods of *Disease and Civilization*

The history of *Disease and Civilization* is a tissue of errors. These errors inhabited not only the mistaken beliefs of different elements in French society, but also the competing scientific and medical attempts to understand the cholera so as to act against it. Delaporte takes special care to minutely unpack the varieties of explanations within the two scientific camps of contagionism and infectionism. But he does not argue for their coherence as logically and systematically opposed theoretical endeavors. Rather, he considers their imbrications and overlaps, producing a portrait of a confused and mismatched amalgam of ideas that were propagated throughout Paris. Yet, from this chaotic mix of errors much new was born: the discipline of epidemiology, a new public health, new subjectivities, and new reasons in support of class and colonial domination by the rising bourgeoisie.

To understand Delaporte's methodology, then, we need to examine his treatment of error.

Delaporte notes that historians and contemporaries have recognized that "medicine utterly failed to stem the tide of cholera in 1832" [5] (p. 13). Rather than ask whether this means the medical theories directing medicine were "false or absurd", he prefers to consider, "what powerful ideas these theories contained along with much that was undoubtedly conjectural or adventitious" [5] (p. 13). He then quotes the historian Jacques Piquemal, who found that, "the epidemic mobilized medical thought" and offers a "'snapshot' of medical practice, a glimpse of the physician at work" [5] (p. 13); [17] (pp. 11–12). To this, Delaporte adds that, "the cholera epidemic highlights a necessary stage in the epistemological development of scientific knowledge" [5] (p. 13). Ultimately, these events consolidated the elimination of theories of essential diseases, i.e., diseases defined solely by their symptoms [5] (p. 197). Proponents of the different medical theories also undertook the study of pathological reactions and laboratory work, the development and testing of etiological hypotheses [5] (p. 198). They thereby opened the way for a new medicine, still integral to *our* medicine, in which each disease results from its own microbe. Delaporte concludes his final epistemological reflection, writing:

> The fact that later epidemiology would have to rework some of these hypotheses and revise and in part discard some of these tactics shows that they were indeed useful. What is modified or rejected is no less valuable than what *temporarily* takes its place. [5] (p. 198)

This rebounds on current knowledge as well, forbidding its uncritical acceptance as definitive truth without depriving it of its force or value in practice. Scientific knowledge informs therapeutics, but, whatever its successes, it also stimulates further investigation and testing when its guidance fails practice.

Delaporte also insists on long-running appreciation for error's value by quoting Gouraud, a physician of the time, who wrote:

> Medicine is a science of relations, of analogy, of judgment, and of experience; it is not on that account any less positive or less useful . . . A science need not blush because it is subject to conjecture and error. [5] (p. 197); [18]

This is a key point for Delaporte and, he writes, "others" before himself. These others include everyone who recognizes, like Gouraud did, that a science based on experience and prone to proceeding by conjecture inevitably produces errors. The shock of the cholera made 1832 a "year of testing for a variety of models, hypotheses, and tactics, all of which played their part in the elaboration of a scientific medicine" [5] (p. 197). While contemporary science shows there were many errors at the time, Delaporte has, "chosen to focus on what was *positive* in these models, hypotheses, and tactics" [5] (p. 197). This is why he rejects the historian Erwin Ackerknecht's approach. By uncritically accepting what contemporary science knows and rejecting what it rejects, Ackerknecht flattened out the value of scientific work and knowledge in the past [5] (pp. 145–148). But this is also an allusion to Canguilhem and Foucault, whom Delaporte thereby puts in continuity with earlier theorists. There is a long tradition of seeking the positive in knowledge whose truth is doubtful.

As Foucault's student, Delaporte is perhaps closest to him. Published descriptions of Foucault's courses show Delaporte participated in the seminars of 1977–1978 and 1978–1979. Already in the first, Delaporte wrote a paper on the 1832 Parisian cholera epidemic and continued in the second with a paper on "the police and the politics of health" [13] (p. 723; p. 825). *Disease & Civilization* undoubtedly emerged from this work. But it also deploys and elaborates the methods of Piquemal and Canguilhem. While this methodological pluralism can be pieced together from the book itself, also helpful is Delaporte's "Foucault, epistemology and history", which appeared in a special journal issue devoted to Canguilhem [16]. The bulk of this essay is dedicated to discussion of what Foucault called "epistemography, that is, the description of discourses that have a scientific function or institution within a given society" [13] (pp. 895–897). It seems odd that Delaporte's essay devotes so much space to discussing Foucault when it was published in honor of Canguilhem. We will return to this apparent oddity.

First, however, we must treat this essay as a methodological key to *Disease and Civilization*. His essay calls to be read in this way because it uses the physician François-Joseph-Victor Broussais, a central figure in debates about the cholera in the 1832, to exemplify Foucaultian epistemography. Because Delaporte's book also discussed Broussais at length, this essay helps unfold its methods.

Delaporte follows Foucault, identifying four levels of epistemographic description as the "epistemonomic," "epistemocritical," "epistemological," and "archeological". The epistemonomic concerns the unique ways of seeing, saying, and doing by which scientific work is conditioned and regulated. The epistemocritical concerns the truth and falsity of statements that, at a time and place, functioned or were instituted as scientific. Here, though, Delaporte identifies two possible orientations. The first he exemplifies with Piquemal's study of Broussais's physiological medicine and how the 1832 cholera revealed its falsity to contemporaries. The second approach he names the "spontaneous epistemology of historians of medicine" [16] (p. 286). Erwin Ackerknecht, severely criticized in Delaporte's book, is invoked here too to exemplify historians who judge the past in terms of current knowledge while pretending to reject anachronism.

Delaporte quotes Foucault on the epistemological level, describing it as the "analysis of the theoretical structures of a scientific discourse, analysis of its conceptual building blocks, and analysis of the applicability of its concepts and of the rules governing their use" [16] (p. 286); [13] (p. 896). This was Canguilhem's approach, which aims to discover the history of scientific norms from which a particular knowledge emerged. Delaporte refers to Canguilhem's study of bacteriology's history, where Broussais figures into a movement culminating in Pasteur's work [16] (p. 286); [19]. Broussais is both present and absent in this history: present for his contribution to the possibility of a causal pathology, absent because his anti-ontological system forbade the etiological possibility of microbial entities.

Foucault situated his own work at the archeological level, "precisely because it is here that one can describe the epistemonomic functioning of science" [16] (pp. 286–287). Yet archeological description is different than epistemonomic description because it studies the transformations that happen in the epistemonomic level, not just given ways of seeing, saying, and doing at a given time and place. Archeology is transformational analysis. Piquemal's epistemocritical analysis was interested in describing how a true knowledge came to be a false one; Canguilhem sought to know the history of veridical discourse, that is, science, in its "internal normative component". By contrast, writes Delaporte:

> Foucault is not interested in whether assertions are scientifically true or false; he is not interested in how the true and the false are apportioned at any given moment, nor is he interested in the 'truth-telling' of epistemological history. What Foucault apprehends is discourse itself as practice, insofar as discourse defines the space within which one must situation oneself in order to be 'within the bounds of the truth'. [16] (p. 287)

Because Foucault seeks to understand how the very "historicity of a discipline" is constituted, he looks to the *relations* that emerged as historical conditions of a discipline's possibility. Delaporte insists that, for Canguilhem, what matters instead is grasping science as an historical object, that is, as a history of progress in some constituted knowledge. For Foucault, by contrast, transformations happen via the closing of a loop, that is, the establishment of a tight set of practical relations that discipline further discourse. While Canguilhem remained focused on discourse, finds Delaporte, Foucault considered knowledge as disciplines born from and transformed by practices.

Strikingly, each level of epistemic description addresses the problem of error in its own fashion. Delaporte focuses, however, on Canguilhem and Foucault, stating that their interest in the "non-repressive status of error" was "a shared philosophical criterion" [16] (p. 294). He then describes archeology as Foucault's response to Canguilhem's own attempt to produce a non-repressive account of error. Whereas Canguilhem studies the productive value of what is now judged false for the very history of present knowledge, Foucault studies the transformations by which diverse disciplines gain or lose their status within general regimes of possible truth. Foucault thereby treats errors primarily as possibilities specific to particular discursive regimes. But, since the description of each level can be pursued, how are we to relate them?

Delaporte finds that each approach offers support to the other insofar as the proponent of each was capable of deploying the other's methods. Canguilhem recognized the archeological field, for example, when he found that it took an epistemological transformation to bring Gregor Mendel's new knowledge 'within the bounds of the truth'. So too, Delaporte suggests, "Foucault adopted the stance of the epistemologist in order to present Mendel as a 'true monster'" [16] (p. 296). That is, Foucault also recognized the existence of truths that remain true even though they happen outside the bounds of discursive practices that condition possible knowledge.

Now we can understand why Delaporte's essay is a tribute to Canguilhem. While Foucault claimed that his archeologies were uninterested in scientific truth, Canguilhem's epistemological histories, focused on the changing norms by which the sciences seek and attain understanding of the world, came first and remained integral within epistemography. An archeology always implies, therefore, a possible, if not necessary, reference to the epistemological level that Canguilhem explored so carefully. It always implies a possible, if not necessary, reference to truth. We have now to consider how these methodological observations relate to his study of the 1832 cholera epidemic.

Reading *Disease and Civilization* in light of epistemography, we find its four levels form the basic strands of its history. Situating the reception of the cholera via the strengths of French clinical medicine, Delaporte informs his readers of the epistonomic level, the basic ways of seeing, saying, and doing that governed medical science in 1832. By examining Broussais's apotheosis and downfall, provoked by a high-profile therapeutic failure before the cholera, he relates an epistemocritical history. Then, considering the proliferation of

overlapping, but competing medical theories, Delaporte showed how diverse elements of what would become the bacteriological theory of disease were formed from the norms of clinical medicine, as they were deployed in an effort to characterize the cholera and began to converge towards a new theoretical understanding. This is the epistemological level. Finally, by considering the attempts to survey the infectious conditions in which the cholera spread, he showed how a new discipline—epidemiology—was born. Henceforth, a form of medicine based on statistical knowledge of populations and devoted to public health could be pursued. Furthermore, epidemiology offered new ways of seeing, saying, and doing that encouraged the medical gaze to shift focus away from the pathological anatomy of individuals and open a space for microscopic agents of disease, wherever they might be found. This new epidemiological knowledge also pointed towards the sanitary projects that helped bring about the decline of diseases such as cholera in European nations even before the therapeutic fruits of bacteriology and immunology, tested out on colonial subjects, were brought home.

These interwoven strands of knowledge continued to support practices meant to protect against disease. Whereas therapeutics had previously focused on individual bodies, it now converged on the body of populations, the social body. The bourgeois care for health across the generations had encouraged a medicine concerned with instituting the norms of health [5] (pp. 198–200). Now this desire could be redirected as a means of control. Now also emerged health institutions that would seek to prevent and correct the hereditary "degeneration" of the poor and working classes according to knowledge of normality.

4. On Vectors of Thought: *Disease and Civilization* and Beyond

For vectorial analysis texts are carriers of an ethos and particular manners of hosting it, that is, providing a milieu that supports its continuation and alteration. Texts, thus, have to be read in relation to the writings that inform them, but also in terms of what earlier methods become in a new milieu of thought, a new set of problems. Just as the carrier-host relation can sicken the host, so too thought's carrier and host may succumb to it. But the outcome of sickness is not known a priori. Nevertheless, in both cases, these relations are first and foremost alliances. The host provides a milieu in which the infectious agent flourishes. If infection can lead to sickness, as practices of immunization and research on "vectorological" therapies attest, it can also be protective and beneficial. This leads to situations of extreme complexity as infectious agents multiply and, potentially, alter in myriad ways within only one and the same host.

A vectorial analysis of Delaporte's text bears this out: the text itself is host to a number of different, interdependent histories, each treating the problem of error in its own way. Against the assumption that error is what we should fear and seek always to eliminate, Delaporte's book carries and hosts the approaches of Canguilhem and Foucault. Delaporte too insists on a non-repressive status for error. This vectorial analysis suggests, thereby, that the problem of error is perhaps central to the ethos of "French epistemology", and perhaps any serious consideration of the sciences and their meaning for thought. But this does not imply that the problem remains the same. In this reading, we have seen that Delaporte's book addresses the enduring problem of paranoia. Here error takes shape in the worry that others are deceiving and manipulating us. Today, we have to ask how we are to pursue a critical thought without becoming paranoid, suspicious that all proclaimed knowledge is only a manipulative ploy. A vectorial analysis of Delaporte's book suggests that we can understand the dangers of paranoia and resist them. How? By considering practices of knowledge and the role that error inevitably plays in the search for truth. This encourages the careful and considered critique of the present in light of our knowledge's history. But it also opens us to the enduring value of error in our lives.

These preliminary conclusions about the vectors of thought in "French epistemology" have been derived from the reading of one text. Perhaps it is unique as a carrier and host of different approaches to the problem of error. Perhaps it is not surprising that we have been able to elucidate this vectorial analysis in Delaporte's history of the 1832 cholera. We

would need, now, to test this method on other texts specific to this philosophical population. Perhaps it will be of limited value, helping us understand only the use that Delaporte made of his predecessors' methods. To the contrary, I think it is likely applicable across this philosophical population and, going further, any endeavor that registers and explores the implications of progress in knowledge. This does not, however, exclude the possibility that other concepts might lead us in yet other methodological directions.

Today, the disease vector is worth considering and taking up as a possible image of what it means to think. In its insistence on the unexpected alliances by which disease happens, the concept asks us to consider the ways in which configurations of thought, desire, knowledge, and other practices converge to produce and maintain particular orders. While *Disease and Civlization* studies a history that preceded scientific knowledge of vectors, it shows how social antagonisms crystallized as the means by which an enduring commercial order could be maintained. In this, it suggests that poor, working, and colonized peoples have been made allies in the exploitation of their own lives and labor through regimes of health, that is, normality and its institutions. Yet Delaporte would not have us abandon healthcare. Instead of promoting norms of health, he urges that it attend to the sickness and suffering resulting from economic, social, and political inequalities. Alliances, whether they foster exploitation or not, also always offer possibilities of transformation and reorientation.

Delaporte's study offers an enduring example of how we might work to confront our complex situation. As a vector of thought, it opens up possibilities for the new, not by fiat, but by adopting and transforming the methods that it carries. The possible and new emerge from the endeavor to grapple with history, with what it means to think, in light of a present that is ours.

Before the crush of viral information, attention to the vector reminds that we live and act, on- and offline, in ever more complex alliances, alliances in which we participate to our benefit and detriment. Attention to the scope and object of such vectors, to the place of knowledge in them, is integral to the possibilities of thought. Practices of immunization can help prevent the spread of disease, but they also shape the evolutionary path that disease takes through different populations, along different vectors. The endeavor to protect people from sickness and death can—and often should—lead us to change how we live, even while knowing this will give rise to other dangers. But none of these are reasons to inoculate ourselves against the vectors of thought.

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