Literary Reflections on the Institution of Science and COVID-19

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As soon as the first cases of COVID-19 were reported, scientific research on the virus and the disease began. In early January 2020, researchers published the first whole-genome sequences of SARS-CoV-2 (Wu et al. 2020; Zhu et al. 2020; Enserink 2023). This research became a central node for the assemblage of scientific knowledge and medical applications developed to understand, contain, and mitigate both SARS-CoV-2 and COVID-19. The pandemic triggered a collective response unprecedented in modern science, leading to the rapid development, testing, and distribution of vaccines and treatments that significantly reduced the severity and mortality of the disease. Building on decades of scientific progress in biomedicine (Dolgin 2021), it took less than a year from the first shared SARS-CoV-2 genome to the start of the vaccination campaigns. Although the collective productivity of public and private research was remarkable, the pandemic also exposed several problems in the epistemic and social organization of science and its configuration within society.

These dysfunctions included political and economic actors mishandling scientific advice (Evans 2022; Bacevic and McGoey 2024), widespread disinformation about the pandemic (Loomba et al. 2021), scientific, social, and public health inequalities (Rydland et al. 2022), the commercialization of biomedical research (Robinson 2021), and qualitative differences in peer review (Horbach 2021). Thus, COVID-19 both deconstructed and reinforced the cultural idea of science's autonomy and social responsibility as its functional imperatives. This chapter reflects on these imperatives by exploring pertinent literary fiction. Building on the strong program in cultural sociology in general and the strong program in literary sociology in particular (Alexander and Smith 2001; Váňa 2020), it uses four works of pandemic fiction–Albert Camus's *The Plague* (1947), Ashoke Mukhopadhyay's *A Ballad of Remittent Fever* (2018), Lawrence Wright's *The End of October* (2020), and Orhan Pamuk's *Nights of Plague* (2021)–as literary lenses through which to rethink aspects of the social and epistemic constraints of science that the pandemic made visible. More specifically, the thematic analysis focuses on the efforts of scientists and medical professionals to gain insight into the disease outbreaks depicted in the novels and how their interactions with other actors affect their capacity to contribute to the

societal response. The following section frames the autonomy and responsibility of science as cultural ideas and analytical concepts that guide the interpretation of the novels. The third section outlines the use of literary fiction in the context of sociological theorizing to underpin the sociological approach to literature adopted in this chapter. The main section then discusses sociological readings of the four novels, each emphasizing different aspects of science and the pandemic. The conclusion considers possible implications for cultural understandings of modern science, the pandemic, and society.

On the Autonomy and Social Responsibility of Modern Science

The public health impact of COVID-19 was not unprecedented; what made the pandemic unique was the societal response. Driven by a collective prerogative to control the course of the disease, this collective response—particularly in its early stages—involved extreme measures such as society-wide lockdowns imposed by governments in many countries. These measures aimed to contain the disease but placed immense strain on public health systems (Caduff 2020, 476–79). While infectious diseases have affected human societies throughout history (Snowden 2020), public health systems in their current form are comparatively modern institutions (Porter 1994). Medical practice, in general, is a societal mechanism for coping with the illness of its members, and modern medical practice is primarily "organized about the application of scientific knowledge to the problems of illness and health, to the control of 'disease'" (Parsons 1951, 432). In other words, modern public health systems are linked to modern research systems and depend on the latter's ability to generate and translate scientific knowledge into medical practice.

As a social institution for organizing and controlling scientific work, modern science combines continuous novelty production and high task uncertainty (Whitley 1984, 32–34). It also features collective coordination of task outcomes through the distribution of rewards, controlled primarily by reputations based on the quality of research as judged primarily by peers. Scientific disciplines are the primary units of internal differentiation within modern science. These include the specialization of scientists, communication systems, work organization, and systems of quality standards, controls, and rewards (Stichweh 2015). The social organization of science remains structured by the political, economic, and cultural contingencies of the societies and political-administrative systems in which its formal organizations are embedded. As a cultural institution, especially in terms of its epistemic organization, science tends to be relatively cosmopolitan (Beck 2006, 89). The patterns of transnational interaction in competition, collaboration, and communication within and across disciplines observed during the pandemic exemplify this cosmopolitan aspect of modern science.

Given that North American and European science systems have dominated the institutionalization of scientific knowledge production in its current form, Western understandings of modernity have profoundly shaped the culture of modern science (Münch 1986a and 1986b). This culture co-produces and presupposes an *illusio*–a sense of how and an inclination to play the game of science that is shared in various forms by most, if not all, actors within the institution of science (Bourdieu 1991, 8–9). It is expressed, for example, in the codification of the institutional goal of scientific research as the production and certification of true knowledge, defined as "empirically confirmed and logically consistent statements of regularities" (Merton [1942] 1973, 270). It also features shared technical and ethical norms; that is, disciplinary and disciplining research methods, practices, and standards. This particular self-understanding of modern science centers on scientific autonomy and social responsibility as epistemic and organizational ideals instrumental to achieving its institutional goals (Brunner and Ascher 1992; Wilholt and Glimell 2011).

From a functional perspective, scientific autonomy assumes that research is most productive when evaluated solely on intellectual criteria that transcend "extraneous group allegiances" (Merton [1972] 1973, 134). From an analytical perspective focused on individual and collective actors, autonomy refers to the degree of control an actor has over their ability to set and approach goals within constellations of interdependence that require dealing with external influences (Gläser and Schimank 2014, 44; Gläser et al. 2022, 108). As a property of individual researchers, research groups, research organizations, and scientific communities, scientific autonomy includes the free choice of research topics, theories, methods, and publication formats. In addition, actors within science systems produce knowledge objects that can diffuse into and affect their societal environment. Concerning their external impact, modern research systems are ambivalent social mechanisms that contribute to producing significant societal benefits and risks (Beck 1992, 155; Schimank 1992, 216).

The pandemic demonstrated how scientists' interactions with and in other societal domains–e.g., the role of scientific advice in COVID-19 policymaking–pose risks to their autonomy, as well as to that of the institution of science as a whole, when others hold them responsible for adverse societal consequences, regardless of their actual causal or moral involvement. At least from a consequentialist perspective, scientists share responsibility for the societal and environmental impact of the knowledge they co-produce, even if they rarely or never have binding control over how actors in other societal domains use their results (Douglas 2014, 973–75). Moreover, the manifest and latent conceptions of scientific autonomy and responsibility vary across and within societies, research systems, disciplines, and research organizations. Thus, both concepts are fuzzy, multifaceted, widespread, and, therefore, appropriate for studying the epistemic and social organization of science in general

(Panofsky 2010) and specifically in the context of COVID-19 (Gómez-Vírseda and Usanos 2021).

The above considerations on the autonomy and responsibility of science and the sociological readings in the main section employ an actor-based perspective as a general conceptual framework. It focuses on the social actions of individual and composite actors–for instance, individual researchers and research organizations–within a given actor constellation (Schimank 2013, 30–31; Schimank 2015, 415–16). Such an actor constellation is present when the intentions of at least two actors overlap, and they attempt to realize their respective intentions through interactions. Furthermore, this perspective assumes that social actions and social structures mutually constitute each other. Social action is any action by an actor that takes into account the behavior of others in a social context. Social structures are patterned sets of rules, resources, and relations that shape social life. While social structures are continually produced and reproduced by the interplay of actors and their actions, they, in turn, constrain and enable those very actors and their actions (Giddens 1984, 25–26). For the thematic analysis of the novels, adopting an actor-based perspective means emphasizing the interpretation of character actions, interactions, and constellations in the novels. In doing so, literary fiction serves as an epistemic device for theorizing the social. The following section elaborates on this methodological approach.

Literary Fiction and the Sociological Imagination

Cultural artifacts received considerable attention in various social spheres as devices for coping with and reflecting on the pandemic's social, cultural, and environmental effects. Particularly during the initial lockdowns, various forms of fiction, especially those dealing with infectious diseases, their outbreaks, and their consequences, were prominently featured in media discourses (Butler et al. 2021). More generally, referencing fiction–understood here as communicative forms that represent imaginary worlds, characters, events, and other entities–allows us to draw on our experience of engaging fiction to understand various physical, cultural, or social phenomena. Regarding literary reception, various modes of textual engagement, such as enchantment, social knowledge, shock, and recognition (Felski 2008, 14–15), can shape the reading of a literary text. Likewise, a fictional story can be an epistemic prism that frames the reader's anticipation, perception, and retrospection of social events (Felski 2008, 35).

Using literary fiction as an epistemic tool to reimagine the configuration of science and the pandemic builds on the premise that such modes of engagement with literary fiction can inform sociological theorizing. As fields and practices of social observation, literature and sociology offer different approaches to and frames of

society within their respective practices, fostering a complementary and competitive dynamic between them (Lepenies 1992). In terms of scholarly approaches to literature, literary studies and sociology have had a similarly complementary, less competitive, and more collaborative relationship. Literary studies regularly use sociological theory to interpret literary works and genres (e.g., Köppe 2011; Vogl 2014). In addition, many approaches in literary studies emphasize various aspects of the social context of literature, such as the intertextual and intermedial dimensions of literary texts and the social history of literary production and reception.

Situating literary works within broader social, cultural, or economic contexts has been the primary sociological approach to literature in recent decades (Sapiro 2014, 10–12). Particularly relevant has been the sociological analysis of literary fields as fields of social struggle in which authors and artists are endowed with different amounts of cultural and social capital and compete to improve their social position relative to other competitors within the literary field (Bourdieu 1983 and 1992). In addition to such sociologies of literature, several sociological works, especially in the subfields of sociological theory, historical sociology, and cultural sociology, have demonstrated that works of fiction can also be tools of the sociological imagination (e.g., Coser 1972; Kron and Schimank 2004; Becker 2007, 238–51). Recent perspectives have substantiated the potential of such approaches in literary sociology (e.g., Farzin 2019; Herold 2020; Longo 2020; Matthies 2016; Misztal 2016).

The potential of literary fiction as a tool of the sociological imagination rests on the methodological assumption that it can imagine the social world in ways that can be both consistent with and contrary to sociological understandings (Longo 2015, 8). Like any other cultural artifact, literary fiction is shaped by the aesthetic, cultural, and social contexts in which it is produced and, crucially, received and interpreted. It can display explicit and tacit knowledge of the social worlds in which its production and reception are embedded (Sevänen 2018, 62), offering imaginary blueprints of the social world that simultaneously reflect and differ from ordinary reality (Luhmann 2000, 142–43). For example, the narrative structure of modern novels can combine insights into different levels and sequences of social life by focusing their stories on individual actors, groups, constellations of actors, and different institutions and social spheres over a limited or extended time and space (Gaines et al. 2021, 12).

This chapter's approach to sociological theorizing through literature situates fiction within the sociological "context of discovery" (Reichenbach 1938, 6–7). It is similar, but not identical, to the strong program in the sociology of literature as a particular mode of the eponymous program in cultural sociology (Váňa 2020 and 2021). The latter emphasizes culture as a relatively autonomous variable in shaping social institutions (Alexander and Smith 2001; Côté 2023). From such a perspective on culture, fiction can illustrate theoretical and empirical issues, provide information, and offer explanatory insight (Kuzmics and Mozetič 2003, 26–35). Central to this is the component of symmetry in approaching fiction: the same sociological framework for de-

scribing and explaining actual, empirically observable manifestations of the social is helpful to understand fictional representations of the social. While fiction can also be part of the "context of justification" (Reichenbach 1938, 8) in empirically oriented theorizing, in the context of this paper, I primarily approach fiction in the context of discovery "in whatever way that is conducive to creativity" (Swedberg 2012, 8). As the next part shows, its interpretation can generate substantive reflections on actual social events and constellations.

Literary Imaginations of Science and the Pandemic

The COVID-19 pandemic has led to a surge of pandemic fiction. This trend will likely continue in the foreseeable future, as infectious diseases and epidemics have a long history in world literature (Snowden 2020, 32). What distinguishes most modern pandemic fiction—and pandemic-themed art in general—from its predecessors is the latent or manifest presence of a broad public health prerogative that assumes that diseases are not so much divine punishments but a set of problems to be addressed through individual and collective action. A second notable aspect of modern pandemic fiction is its depiction of societal efforts to control or, at least, mitigate the outbreak and spread of infectious diseases. Although the four pandemic novels examined in the following sections differ in various ways, the collective attempts and subsequent failures to adapt to the disease and mitigate its spread and effects serve as central events in their respective narratives. In addition to these general characteristics of modern pandemic fiction, three specific features guided the selection of the novels.

First, the settings of the novels cover a broad aesthetic-cultural spectrum (Octobre 2020, 280), spanning different literary traditions, regions, societies, and historical periods. These include colonial and contemporary India (Mukhopadhyay), Algeria during French colonial rule (Camus), the contemporary United States of America, Saudi Arabia, and Indonesia (Wright), and a fictional island in the Aegean Sea during the waning years of the Ottoman Empire in the early twentieth century (Pamuk). Second, the novels were published, or at least primarily written, before the emergence of COVID-19. *The Plague* was first published in 1947, *A Ballad of Remittent Fever* originally in Bengali in 2018, Lawrence Wright's novel in April 2020, and Orhan Pamuk's in March 2021. Although it is quite a jump from 1947 to the three novels published relatively recently, *The Plague* was chosen not primarily because of its status in the modern literary canon but rather because it paradigmatically describes the in-depth experience of an epidemic from its outbreak to the end of its first wave. Concerning *Nights of Plague*, Pamuk (2020) has stated that he began writing the book four years before the pandemic hit. Third, each novel contains thematic elements related to scientific knowledge production, translation, and medical application. In

sum, the novels illustrate the connection between a society's responsiveness to pandemics–that is, its ability to cope with the outbreak and spread of infectious diseases–and the epistemic and social organization of science. Therefore, the following readings of the literary texts focus on themes related to this particular configuration and serve as an epistemic lens through which to explore various aspects of science and COVID-19.

Commitment

Set in Oran, a port city in northwestern Algeria, during the 1940s, when Algeria was under French colonial rule, Albert Camus's *The Plague* revolves around an outbreak of the bubonic plague that causes widespread panic, suffering, and death. Often read as an allegory of the German occupation of France during World War II and told by an unnamed narrator not identified until the end of the story, the novel chronicles the collective and individual responses to the rapid spread of the epidemic, which isolates Oran. *The Plague* depicts various characters, such as medical professionals, political leaders, journalists, and ordinary people, facing a highly contagious, deadly disease and an overwhelming existential crisis. Similar to the initial ignorance of the potential impact of COVID-19 during the first months of 2020, at least in many European societies and the United States, political leaders and the general public of Oran initially downplay potential epidemiological signs of an impending outbreak. The presence of thousands of dead rats foreshadows an epidemic already happening. As the plague progresses, rats become carriers, spreading it among themselves and eventually to the human population.

On the same day as Oran's authorities announce a rising rat mortality, Bernard Rieux, a doctor who comes to oversee the medical response in the city, observes the concierge of his apartment block "walking painfully, his head bent forward, his arms and legs akimbo, like a puppet" (Camus [1947] 2013, 15). Although Rieux intuitively recognizes some signs of the spreading disease, the city administration is slow to confront the severity of the situation and, at first, only takes insufficient control measures. For example, the city hospital opens a special unit with limited capacity that is immediately overwhelmed. Due to the initial reluctance to implement quarantine and isolation, the number of cases and deaths steadily increases. In this situation, Rieux faces tensions between individual autonomy and social responsibility similar to those faced by medical professionals and scientists during the COVID-19 pandemic. His actions seem to be a deliberate outcome of his personal choices and his responsibility to the people of Oran, thus demonstrating an ideal-typical professional commitment to treating the sick and containing the spread of the disease.

In a conversation with Raymond Rambert, a journalist on assignment in Oran for a Parisian newspaper, who initially tries to flee the city but later supports the collective effort to mitigate the epidemic, Rieux explains his behavior: "'This whole

thing is not about heroism. It's about decency. It may seem a ridiculous idea, but the only way to fight the plague is with decency'" (Camus [1947] 2013, 125). In this situation, he insists that decency means fulfilling the expectations of his peers, patients, principals, and the broader societal community—such as performing his duties as a doctor. While Rieux consistently fulfills his duties of treating patients and advising on countermeasures against the epidemic, it is only at a certain point that he becomes aware of his commitment to the particulars of what he considers decency. Based on this interpretation of the character's actions, he seems to have made the commitment without realizing it (Becker 1960, 38). Commitment to, and not just merely compliance with, the standards, expectations, and norms that govern the medical and scientific professions, or any other profession, is crucial for their functionality, especially in situations of professional strain, that is, circumstances that create stress, tension, and difficulties for individuals in their professional roles. The Oran epidemic and its social response constitute an extraordinary strain on Rieux, and his conduct illustrates how professional roles with specific responsibilities, such as those of medical practitioners and researchers, serve general, socially integrative goals, especially during such a crisis.

However, Rieux recognizes that relying solely on mechanistic explanations within professional fields can hinder the capacity for a collaborative response. Analogous to Max Weber's concept of 'Verstehen' ([1921] 2019, 79–99), to fully comprehend the factors contributing to the epidemic in Oran or COVID-19, such as the interplay between disease, society, and the ecological environment, one must go beyond knowledge of the disease itself. These factors require understanding the subjective and collective meanings that individuals and groups associate with their experiences and actions within the social and cultural contexts that shape the course of epidemics. For example, when specific indications suggest that the epidemic might abate, Rieux stresses the need for continued caution. Anticipating statements made by many scientists before, during, and after the most severe phases of the COVID-19 pandemic, he also highlights the considerable uncertainty, limited knowledge, and lack of understanding of the situation.

At the story's midpoint, Rieux reflects on the course of the epidemic and concludes that "evil in the world comes almost always from ignorance, and goodwill can cause as much damage as ill-will if it is not enlightened" (Camus [1947] 2013, 100). His statements and actions throughout the novel mark Rieux as a classic, enlightened, yet disenchanted modernist who embraces reason as the guiding principle for action and believes in the possibility of social progress. At the same time, he is disappointed by how people in Oran deal with the plague, as their actions exacerbate its social and public health effects. The belief in social progress through utilizing reason that Rieux embodies is an essential feature of modern science. However, many people in Oran do not share this belief in social modernity and science, or, at least, other interpretative patterns and beliefs more prevalent in Oran superimpose the modern

scientific worldview represented by Rieux. This thematic aspect of the novel mirrors the gap in public understanding of the epidemic from a scientific and medical perspective evident in public discourse on COVID-19 in many societies.

Science shares, at least in part, responsibility for this lack of public understanding, as its contemporary organizational pattern can lead to unintended, habitual, structural, and strategic ignorance (Merton 1987, 6–10). While an extensive argument for this claim is beyond the scope of this paper, current reward structures prioritize the traceability of individual over collective achievement, the disciplinary alignment of research actors, and the translation of scientific knowledge into economic assets. However, research depends on epistemic and organizational collaboration, often across disciplinary boundaries and societal domains. Although scientists collaborated and succeeded in many ways in responding to COVID-19, the pandemic revealed and exacerbated structural gaps in collaboration within science and between science and society (Cohen 2023; Maher and van Noorden 2021). Both elements, especially the latter, are exemplified in *The Plague* and the novel discussed in the following section. The reading of the latter emphasizes how external social factors can contribute to the production of scientific ignorance, particularly in times of crisis.

Puzzle-Solving

Regarding research into the origins of pathogens and infectious disease outbreaks, Henry Parsons, the main character in *The End of October*, coincidentally published during the first wave of COVID-19 in April 2020, argues that scientific knowledge can be dangerous due to the societal risks it can co-produce, but ignorance is far worse (2020, 15). In the ideal scenario for addressing a public health crisis, scientists seek to identify its causes to build scientific and societal understanding of the threat and to support the development of prevention, mitigation, and adaptation measures. However, when this chapter was finished in 2024, as the COVID-19 pandemic was entering its fifth year, debates about its origins were still a heated political and scientific discussion. The two primary hypotheses revolve around a zoonotic spillover event and a laboratory incident at the Wuhan Institute of Virology (Gostin and Gronvall 2023, 2305–307). Scientific evidence supports the natural emergence variant, but political doubts and scientific uncertainties remain. In an ideal scenario, the search for the origin of SARS-CoV-2 would be strictly scientific, at least if the primary goal was to find its true origin.

However, COVID-19 also became an information disease, spreading through society as rapidly as it infected humans. These controversies persisted for several reasons, including social tensions, conflicting political and economic interests, and, above all, society's general inability to cope with the uncertainties and contingencies of the pandemic. In terms of the autonomy of science from external societal in-

fluences, the pandemic demonstrated how broader cultural, political, and economic networks affect the organization of research, thereby impacting its capacity to identify the origin of SARS-CoV-2 and COVID-19. The epistemic and social context of solving such "a considerable puzzle" (Wright 2020, 44) is a central theme of *The End of October*. Partly inspired by the 1918 influenza pandemic and resembling a detective story in its attempt to capture epidemiological reality (Boltanski 2014, 32), the story centers on a fictional viral pathogen called Kongoli, which causes a deadly hemorrhagic fever and triggers a worldwide outbreak with a lethality far more devastating than COVID-19—over 60 percent of those infected succumb to the disease.

Parsons, a deputy director for infectious diseases at the Centers for Disease Control and Prevention in Atlanta, United States, is tasked with investigating an unusual cluster of fatalities in a refugee camp in Indonesia. As the story progresses, he travels the world to trace the origin and evolution of the virus. Throughout the narrative, Parsons witnesses how inadequate responses from government institutions, emerging geopolitical tensions, and limited healthcare capacity exacerbate the impact of Kongoli. Researchers also struggle to develop vaccines and treatments for a virus with a genetic composition unlike any other known strain. As an epidemiologist and virologist, Parsons exemplifies the ideal of a scientist using his individual autonomy to fulfill both his professional duties and his broader responsibility to society. "Going into the field, alone, in an alien environment, with minimal resources, was the most perilous mission a disease detective like Henry could undertake. However, the threat of a virulent disease outbreak was so great that Henry was willing to take the risk" (Wright 2020, 20).

At first glance, Parsons's actions emphasize collectivism over self-orientation. In other words, this pattern of responsible behavior is not limited to the efficient performance of specialized tasks but "involves the coordination of a variety of factors and contingencies in the interest of collective goals" (Parsons 1951, 100). Parsons, the novel's protagonist, not the sociologist I just quoted, is compelled to confronting an immediate societal problem. He does so while ignoring the individual risks he faces in his investigations, even though he is fully aware of them. However, this behavior is not widespread among his peers. At the story's midpoint, many healthcare workers, doctors, and scientists have left their hospitals and labs due to the pathogen's lethality. This causes a breakdown of the public health and biomedical research systems because "'most of them are just scared. They're not trained for this kind of medical emergency'" (Wright 2020, 193). At this stage of the pandemic, both globally and locally, for society as a whole and its different spheres of life, "[t]he contagion had destroyed any sense of community" (Wright 2020, 195), resulting in widespread anomie of most of its institutions.

Jane Bartlett, a policy advisor not unlike the real-life Anthony Fauci to a barely functioning US government decimated by the virus, suggests that this institutional collapse was predictable, not because of a lack of plans, but because of a lack of re-

sources to support and prepare for the security of vital systems: "[W]e've had plans for years, at the CDC and NIH and Johns Hopkins and Walter Reed, we've had lots of plans. We just haven't ever been given the resources and personnel to carry them out" (Wright 2020, 147). A critical aspect of preparedness is basic and anticipatory research on pandemic-related topics within and across scientific disciplines, especially virology, epidemiology, and vaccinology. Two conceptual features of scientific autonomy mediate the direction and potential capacity of such research: first, the protected space afforded to scientists in which they have control to utilize required resources for their research; and second, the flexibility of research systems to legitimize, support, and develop novel research problems and approaches (Whitley 2014, 370–72).

The novel's illustration of Parsons's breakthrough in developing a unique variolation technique crucial to creating a vaccine against Kongoli provides an unrealistic portrayal of research practice in the biomedical sciences. However, read as a conceptual metaphor, the research situation depicted requires epistemic flexibility due to its contextual and temporal constraints. A lack of resources limits organizational flexibility, and the urgent need for a vaccine severely restricts the protected space for research to produce substantive solutions. This development occurs within the confines of a military submarine, where Parsons has to set up a makeshift laboratory. The hull of a submarine consists of two main elements, the light hull and the pressure hull, designed to maintain the submarine's structural integrity by balancing external and internal pressures at varying water depths. Thus, due to time constraints and limited equipment, the submarine may be read as an organizational metaphor for a severely confined and restricted organizational space. A second, contrastive reading alludes to perceiving Parsons's laboratory work in the submarine as a situation of significant epistemic flexibility, as the uniqueness of Kongoli necessitates curiosity-driven intuition and non-paradigmatic approaches to discover "how to turn the disease against itself" (Wright 2020, 284).

Uncontrollability

Protected space and flexibility are salient dimensions of the autonomy of scientists to conduct research and formulate scientific advice. Scientific expertise has long influenced contemporary and past forms of government (Lentsch and Weingart 2011; Eyal 2019). More than any other contemporary phenomenon, except for anthropogenic climate change, COVID-19 brought the role of scientific experts in policymaking to the forefront (Pamuk 2021, 193–210). In general, societies whose governments provided a robust organizational and political environment for scientific research and policy advice responded better to the pandemic, particularly in East Asia and the Global South. However, in many societies, whether democratic or authoritarian, politics often ignored or misused advice and politicized individ-

ual experts and scientific expertise in general. Moreover, political and economic interest groups increasingly favored normative and material criteria that trumped public health necessities and resulted in contradictory and ineffective measures (Weingart et al. 2022).

The experience of Nury Bey, an epidemiologist and a central character in Orhan Pamuk's *Nights of Plague*, is similar to that of many scientific experts during COVID-19. The main story of *Nights of Plague* is set in 1901 on the fictional Ottoman island of Mingheria in the Aegean Sea, between Crete and Rhodes. While the novel primarily engages with the twilight years of Ottoman decline and the collective identity formation of independent movements in many of its imperial dominions, the central chain of political events is triggered by and occurs during a plague epidemic that isolates the island from the rest of the Mediterranean world. Initially, political leaders and the public appear to demand and accept Bey's expertise widely. In his advisory role, he acknowledges the uncertainty and limitations of his recommendations due to the dynamics of the epidemic. He also emphasizes the need for further research. However, confidence in his expertise erodes as the epidemic progresses and its mortality rate increases. Political and religious actors are increasingly politicizing and scapegoating his advice, leading to a loss of public trust and threats against him.

To alleviate the looming public health crisis on Mingheria, Sultan Abdul Hamid II has sent "the Ottoman Empire's two foremost plague and epidemic disease expects" (Pamuk [2021] 2022, 10)—Bonkowski Pasha, a fictionalized version of the historical Inspector of Public Health and Sanitation of the same name (Çil 2023, 106–107), and Bey, a quarantine doctor and prince consort, accompanied by his wife, Princess Pakize, a daughter of a former sultan and niece of the current one. Although Mingheria's governor has not yet officially declared an outbreak of the plague and remains reluctant to do so, Bonkowski finds evidence that the disease has spread widely among the island's inhabitants. He urges the authorities to inform the public of the emerging epidemic, declaring that "the plague has definitely arrived" (Pamuk [2021] 2022, 50). In the absence of vaccines and effective treatments, he recommends traditional methods of restrictive isolation, quarantine, lockdown, and rat hunting, believing that rodents and their fleas have spread the plague-causing bacteria.

Mirroring the conspiracy narratives surrounding COVID-19, speculation that the plague was deliberately brought to the island begins to spread, undermining public and political confidence in Pasha, Bey, and their recommendations. Bonkowski is soon murdered, apparently, in the words of his unknown assassin, for having "brought disease and quarantine back here to plague us" (Pamuk [2021] 2022, 70). After Bonkowski's death, the Sultan orders Bey to oversee the epidemiological efforts on Mingheria. As the story unfolds, rumors and conspiracies proliferate, outpacing the spread of the infection. Managing the outbreak presents challenges

as complex as controlling the actions and beliefs of the islanders, who prefer the less-than-sound but more sacralized judgments of local religious leaders to Bey's more restrictive and limited advice. As the death toll on the island continues to rise and the course of the epidemic begins to resemble that of *The Plague*, a cascade of political events unfolds, and the story gradually focuses more and more on Mingheria's struggle for independence and its transformation into a nation-state (Tüfekçioğlu-Yanaşmayan 2022, 421).

In doing so, the novel alludes to how divergent social interests constantly overlay and contradict efforts to formulate and implement a coherent response to the outbreak and spread of infectious diseases. Moreover, similar to the public reaction in *The End of October*, Bey observes that it is not the contagious disease but the social response that causes an anomic state through a process of social disintegration and breakdown of solidarity. In Bey's own words, "[t]here is not trust or respect left in the state and its soldiers. People have lost all hope in the outbreak being stopped, and feel they can only rely on themselves for survival" (Pamuk [2021] 2022, 585). Nevertheless, he argues that the biopolitical response to a disease much more dangerous than COVID-19 must be comprehensive to succeed: "If we are to end the outbreak, people must remain afraid, and we must not relent" (Pamuk [2021] 2022, 596).

As in the COVID-19 pandemic (van Bavel et al. 2020), the public health measures deemed necessary to mitigate the effects of the plague outbreak require coordinated social and political efforts, demand substantial collective behavioral change, and impose significant health and economic burdens on individuals. In this sense, *Nights of Plague* alludes to the need for a form of collaborative advice that integrates the production of knowledge from diverse disciplines, aiming to align collective and individual behaviors with the epidemic patterns of infectious diseases. The novel also shows how scientific advice is not necessarily the decisive argument in political decision-making. Instead, it is often only an external element that political actors integrate into the logic of their respective political fields frame according to their individual interests—especially in situations where political interests diverge or political power is shifting. Concurrently, the fast-paced nature of the crisis, combined with the evolving political struggle, requires repeated social adjustments. This results in changing recommendations and disseminating conflicting information, leading to public confusion and undermining scientific authority.

Therefore, the plague "provokes a crisis of epistemological authority for a humanity that positions itself as the master of nature, seeing as this mastery depends predominantly on knowledge. At stake in such a crisis are the scope of claims to knowledge, the power and legitimacy of different methodologies of reasoning, and the relationship of these to conceptions of humanity's ontological supremacy" (Umman 2021, 40). The crisis pertains not primarily to internal dysfunctions of the institution of science but to the public understanding of science, or lack thereof, and a societal inability to cope with configurations of persistent uncertainty. What Bey

does is to observe, analyze, adjust, and repeat this process consistently. This practice of trial and error in formulating and testing hypotheses, here through observations, is how science pretends to work, is supposed to work, and often actually works. All Bey claims to offer through his advice are truth assumptions adjoined by the recognition that the epidemic's uncertainties limit the validity and reliability of these statements. In turn, Mingheria's institutions and society struggle to live with the uncontrollability that is a constituent feature of this uncertainty, as many societies did with COVID-19.

Attribution

Ashoke Mukhopadhyay's *A Ballad of Remittent Fever* presents the uncontrollability of infectious diseases and epidemics as a temporal continuum rather than a finite event. Set in Bengal, the book explores the personal and professional lives of four generations of the Ghosal family, three of whom were doctors, between the late nineteenth century and the early 1970s. The novel covers a period of significant biomedical advances and constant disease outbreaks in and around Bengal, including cholera, leprosy, plague, kala-azar, and malaria. Bengal as a geographic and social location demonstrates, among other things, how infectious diseases emerge and persist at the intersection of biological and social space, cluster around environmental and social inequalities, and add to and connect with the effects of health inequities and previous diseases present in different population groups. In general, the stages of an epidemic that receive considerable societal and scholarly attention are its outbreak, growth, and climax (Charters and Heitman 2021, 213). By contrast, the novel displays, in particular, the remittent dynamic of epidemics.

As the crisis phase of an epidemic passes, societal attention often wanes because the disease no longer seems to warrant large-scale intervention. However, a disease can be particularly persistent if it finds a biological niche and becomes part of the public health condition that society accepts and normalizes. In both cases, societal attention often recedes, a pattern we have experienced throughout and are still witnessing within the context of the COVID-19 pandemic. The end of an epidemic is rarely, if ever, a discrete event but "perhaps always ever an asymptote, never disappearing but rather fading to the point where its signal is lost in the noise of the new normal, and even allowed, in some imaginable future, to be forgotten" (Greene and Vargha 2020, 36). *A Ballad of Remittent Fever* juxtaposes the signals of different diseases and outbreaks lost in the noise of a lasting yet incrementally receding entanglement of epidemics with that of substantial and incremental progress in biomedical research and medical practice.

The earliest strand of the story, told in a non-linear fashion, begins at the height of the British Raj in 1884. Dwarikanath Ghoshal, who comes from a traditional, conservative, high-caste Bengali family that is wealthy by local standards, wants

to "study medicine, come what may" (Mukhopadhyay [2018] 2020, 3). His father, however, considers modern medicine a heretical idea and disowns him when Dwarikanath remains committed to becoming a medical doctor: "Dwarika had only ten rupees left after using this money for his admission fee. Uncertainty loomed large over him. A wealthy and well-known businessman called Edward John Smith had been surprised to see the handsome young man, who looked gloomy and had possibly been starving, sitting with his back propped up against the water trough for horses, near the entrance to the Medical College. The scene resembled a painting" (Mukhopadhyay [2018] 2020, 4).

Dwarikanath's coincidental encounter with Smith and his wife is a central fracture in his life course because this relationship develops into a lifelong one that, among other things, provides him with shelter and the material and financial resources to pursue his medical studies. From a literary standpoint, this situation is unexpected and surprising, "a peculiar and as yet unheard-of event" (Goethe [1850] 2014, 17) that underpins the interactions, events, and character constellations throughout the narrative. Sociologically, the convergence of Dwarika's and Smith's paths is not causally determined. Instead, the event is a coincidental intersection of two independent causal series difficult or impossible to anticipate, a so-called Cournot effect (Boudon 1986, 175). While this encounter remains the central unheard-of event throughout the story, Dwarikanath, his son, his grandson, and his great-grandson repeatedly encounter such situations in constellations of individuals and infectious agents. They experience cascades of Cournot effects as a significant feature of epidemics.

Here, a typical causal chain involves the unanticipated and random convergence of environmental and social constellations, including individual and collective human errors. Such an interactional perspective on epidemics asserts that their emergence and persistence as social facts depend, at least in part, on the continuous emergence of events that owe their existence to separate causal chains that converge only by chance. Each Ghoshal knows how these cascades limit their ability to act as medical doctors and researchers. Nevertheless, each of them exercises a different belief in their ability to act as authorized agents for various interests based on their own decisions and choices–which Meyer and Jepperson label 'actorhood' (2000, 103–106). Especially Dwarikanath, who, according to his son, is "eternally in search of knowledge" (Mukhopadhyay [2018] 2020, 177), exercises a rational, even stubborn desire and belief in his ability to learn in and heal through his work as a doctor and researcher.

Throughout the story, Dwarikanath maintains a disenchanted worldview and a particular scientific outlook on nature. He applies and develops scientific knowledge in his medical practice, rationalizing diseases, epidemics, and medical practice. In doing so, however, he displays a false sense of agency. He overestimates his autonomy to act. This false consciousness is not so much about his degree of control over

formulating his goals and choosing the approaches to achieving them; rather, it relates to the potential impact of his professional actions, which is severely limited in a web of epidemics that doubles as a cascade of disorder. Congruently, he extends his responsibility and that of his scientific and medical colleagues to effects beyond their capacity to control. Moreover, he struggles to understand the actions and practices of others that he perceives as irrational, such as the skepticism of many villagers about vaccination, in part induced by traditional medical and religious authorities (Mukhopadhyay [2018] 2020, 188–191). Within the story's context, Dwarikanath is hardly the only character who displays this false attribution of autonomy and responsibility to oneself and others.

As physicians and researchers, the Ghoshals never control the activities and mechanisms necessary to realize their professional interests. These are always partially or fully dependent on the actions of others or environmental forces. Ignoring the contingent pattern of action and its consequences can lead to mistakes, such as seeing one's medical and scientific practice and its effects only as an outcome of purposeful decisions. At the same time, the pattern of coincidental intersection of independent causal chains of social action frames a central aspect of the social dimension of epidemics as a sequence of random events. According to the proposed interpretation, *A Ballad of Remittent Fever* calls for a sincere acknowledgment of the chance encounters and broader structural forces that shape the specific choices and effects of science and medicine in general and in the context of epidemic crises in particular.

Conclusion

For COVID-19, a pattern of misattributing responsibility to particular actors was evident in the tendency to overemphasize responsibility for hardly controllable outcomes that were more likely the product of multiple Cournot effects. For example, the rapid development of mRNA vaccines is, on the one hand, a testament to the productivity of the biomedical sciences, pharmaceutical research, and translational efforts. On the other hand, "the path to mRNA vaccines drew on the work of hundreds of researchers over more than 30 years" (Dolgin 2021, 319). In this sense, the emergence of COVID-19 coincided with the timely maturation of vaccine technology, at least to some extent, as the crisis significantly accelerated its development. The misattribution of uncontrollability was also prevalent throughout the pandemic. For example, in many cases, political actors overemphasized the alleged uncontrollability of the pandemic's dynamics to avoid being held accountable for the detrimental consequences of their actions and inactions. Various forms of ignorance are a central motive for such misattributions: actors may misattribute out of genuine ignorance, lack of knowledge, or strategic ignorance (McGoey 2019). In the latter context, mis-

attributions are tools for claiming credit or avoiding blame, whether for oneself or others (Weaver 1986).

These and the other aspects of the autonomy and social responsibility of science during the pandemic reflected through the literary lens in the previous sections require further investigation. The proposed reading of *The Plague* emphasizes that tracing the interconnected elements underlying an epidemic requires more than knowledge of the disease itself. A sociology of knowledge perspective on *The End of October* explores the epistemic and organizational constraints researchers face in developing solutions to problems that transcend their research paradigms. My reflections on *Nights of Plague* show how different social perspectives and interests continually influence the formulation of scientific advice and subsequent policy implementation. These configurations are further complicated by, among other things, the influence of disciplinary patterns of science. While these characteristics can be beneficial in terms of specialization and efficiency, they can also lead to a lack of understanding when addressing complex problems across disciplinary and political boundaries. The reading of *A Ballad of Remittent Fever* underlines the idea of a false consciousness of actorhood and the misattribution of responsibility for outcomes beyond anyone's control or in control by other forces.

Each reading focuses on the scientists and doctors at the center of the novels and the constellations in which they faced disease outbreaks and their consequences. While they share many similarities, these literary characters differ in various ways. Not surprisingly, Bernard Rieux in *The Plague*, Henry Parsons in *The End of October*, Nury Bey in *Nights of Plague*, and Dwarikanath Ghoshal in *A Ballad of Remittent Fever* have almost identical scientific worldviews: they share an essential belief in their individual and collective agency through the use of reason and what they perceive as sound decision-making; they believe in basing their judgments on observation, experimentation, and evidence; they seek to explain natural phenomena through objective, testable theories, and they value skepticism, critical thinking, and constant revision in the light of new data. In short, they are scientists and act as scientists are supposed to. Yet with the exception of *The End of October*, each novel allows for an interpretation that constructs the rational scientific worldview as flawed—an idea that carries ambivalent consequences.

Of course, Rieux, Bey, Parsons, and Dwarikanath face situations in which this scientific outlook, along with the knowledge and skills it fosters, offers profound advantages. For example, Bey and Rieux base their epidemiological judgments on sound observational evidence, as they should. Accordingly, they build their recommendations on how to respond to the disease on this very evidence. At the same time, they often fail to anticipate and understand aspects of the social dynamics of disease. Especially *A Ballad of Remittent Fever* and *The Plague* can be read from a perspective that deconstructs a scientific worldview as a significant detriment to understanding the perspectives, decisions, and actions of others who do not share the

same worldview and who, from the perspective of this standard model of scientific reason, act irrationally. Among Bey, Dwarikanath, and Rieux, the latter seems to be the only one who, through the course of the plague epidemic in Oran, learns to recognize this shortcoming and succeeds in overcoming it. To understand all aspects of the epidemic, he argues, it is necessary to combine mechanistic knowledge of the disease with an understanding of the social processes that frame the disease, and vice versa–also a fitting conclusion for science's experience of COVID-19.

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