

## NOTES

### INTRODUCTION

1. Roger Cooter and Claudia Stein, “Visual imagery and epidemics in the twentieth century,” in *Imagining Illness: Public Health and Visual Culture*, ed. David Harley Serlin, 169–192 (Minneapolis, MN: University of Minnesota Press, 2010).
2. Christos Lynteris, “The prophetic faculty of epidemic photography: Chinese wet markets and the imagination of the next pandemic,” *Visual Anthropology* 29, no. 2 (February 2016): 118–132.
3. Heide Fehrenbach and Davide Rodogno, eds., *Humanitarian Photography. A History* (Cambridge, UK: Cambridge University Press, 2015); Adia Benton, “Risky business: Race, nonequivalence and the humanitarian politics of life,” *Visual Anthropology* 29, no. 2 (February 2016): 187–203; Christina Twomey, “Framing atrocity: Photography and humanitarianism,” *History of Photography* 36, no. 3 (2012): 255–264.
4. Christos Lynteris, “Plague masks: The visual emergence of anti-epidemic personal protection equipment,” *Medical Anthropology* 36, no. 6 (2018): 442–457.
5. David Harley Serlin, “Introduction. Towards a visual culture of public health,” in *Imagining Illness: Public Health and Visual Culture*, ed. David Harley Serlin, xi–xxxvii (Minneapolis, MN: University of Minnesota Press, 2010). For a study of this operation in relation to HIV/AIDS, see Lukas Engelmann, *Mapping Aids, Visual Histories of an Enduring Epidemic* (Cambridge, UK: Cambridge University Press, 2018).
6. World Health Organization chronology is followed here for the third plague pandemic’s time span, although, as recent outbreaks in Madagascar, Bolivia, and Peru demonstrate, in biological terms the pandemic is ongoing.
7. Carlo Caduff, “Sick weather ahead: On data-mining, crowd-sourcing, and white noise,” *Cambridge Journal of Anthropology* 32, no. 1 (June 2014): 32–46; Nicholas B. King, “The scale politics of emerging diseases,” *Osiris* 19 (2004): 62–76, 65; Frédéric Keck, “Une sentinelle sanitaire aux frontières du vivant: Les experts de la grippe aviaire à Hong Kong,” *Terrain* 54 (2010): 26–41; Andrew Lakoff, *Unprepared: Global Health in a Time of Emergency* (Berkeley, CA: University of California Press, 2017); Limor Samimian Darash, “Governing future potential biothreats: Toward an anthropology of uncertainty,” *Current Anthropology* 54, no. 1 (2013): 1–22.

8. Carlo Caduff, *The Pandemic Perhaps: Dramatic Events in a Public Culture of Danger* (Berkeley, CA: University of California Press, 2015); Christos Lynteris, *Human Extinction and the Pandemic Imaginary* (London, UK: Routledge, 2019); Dahlia Schweitzer, *Going Viral: Zombies, Viruses, and the End of the World* (New Brunswick, NJ: Rutgers University Press, 2018).
9. For examinations of how different analytical frameworks of epidemics (as drama, narrative, etc.) may help us understand the social life of the COVID-19 pandemic, or have indeed become challenged by it, see the Winter 2020 special issue of the *Bulletin of the History of Medicine* on “Reimagining Epidemics,” edited by Mary E. Fissell, Jeremy A. Greene, Randall M. Packard, and James A. Schafer Jr.
10. On the analytical limitations of the illustration/evidence dichotomy as regards photographs, see Nicolas Peterson, “Early 20th century photography of Australian Aboriginal families: Illustration or evidence?” *Visual Anthropology Review* 21, no. 1–2 (2006): 11–26.
11. Robert Peckham, “Panic encabled: Epidemics and the telegraphic world,” in *Empires of Panic: Epidemics and Colonial Anxieties*, ed. Robert Peckham, 131–154 (Hong Kong: Hong Kong University Press, 2015).
12. Charles Rosenberg, “Disease in history: Frames and framers,” *Milbank Quarterly* 67, Supplement 1, Framing Disease: The Creation and Negotiation of Explanatory Schemes (1989), 1.
13. Indicatively, Carol A. Benedict, *Bubonic Plague in Nineteenth-Century China* (Redwood City, CA: Stanford University Press, 1996); Marilyn Chase, *The Barbary Plague: The Black Death in Victorian San Francisco* (London, UK: Random House, 2004); Myron J. Echenberg, *Plague Ports: The Global Urban Impact of Bubonic Plague, 1894–1901* (New York, NY: New York University Press, 2007); Myron J. Echenberg, *Black Death, White Medicine: Bubonic Plague and the Politics of Public Health in Colonial Senegal, 1914–1945* (Oxford, UK: James Curry, 2002); Christos Lynteris, *Ethnographic Plague: Configuring Disease on the Chinese–Russian Frontier* (London, UK: Palgrave Macmillan 2016); James C. Mohr, *Plague and Fire: Battling Black Death and the 1900 Burning of Honolulu’s Chinatown* (Oxford, UK: Oxford University Press, 2004); Carl F. Nathan, *Plague Prevention and Politics in Manchuria 1910–1931* (Cambridge, MA: Harvard East Asian Monographs, 1967); Gunther B. Risse, *Plague, Fear, and Politics in San Francisco’s Chinatown* (Baltimore, MD: Johns Hopkins University Press, 2012); William C. Summers, *The Great Manchurian Plague of 1910–1911: The Geopolitics of an Epidemic Disease* (New Haven, CT: Yale University Press, 2012).
14. For a critical study of the periodization and serialization of the three pandemics, see Merle Eisenberg and Lee Mordechai, “The Justinianic plague and global pandemics: The making of the plague concept,” *Historical American Review* 125, no. 5 (December 2020): 1632–1667.

15. Benedict, *Bubonic Plague*.
16. Echenberg, *Plague Ports*.
17. Florence Bretelle-Establet, "Les épidémies en Chine à la croisée des savoirs et des imaginaires: Le Grand Sud aux xviii<sup>e</sup> et xix<sup>e</sup> siècles," *Extrême-orient extrême-occident* 34 (2014): 21–60; Robert Peckham, "Matshed laboratory: Colonies, cultures, and bacteriology," in *Imperial Contagions: Medicine, Hygiene, and Cultures of Planning in Asia*, ed. Robert Peckham and David M. Pomfret, 123–147 (Hong Kong: Hong Kong University Press, 2013).
18. Echenberg, *Plague Ports*.
19. Monika Pietrzak-Franger, *Syphilis in Victorian Literature and Culture: Medicine, Knowledge and the Spectacle of Victorian Invisibility* (London, UK: Palgrave Macmillan, 2017). On how yellow fever epidemics up to the 1890s were visually represented through illustrations but not photography, see Ingrid Gessner, "Epidemic iconographies: Toward a disease aesthetics of the destructive sublime," in "Iconographies of the Calamitous in American Visual Culture," ed. Ingrid Gessner and Susanne Leikam, special issue, *Amerikastudien/American Studies* 58, no. 4 (2013): 559–582.
20. Erin O'Connor, "Pictures of health: Medical photography and the emergence of anorexia nervosa," *Journal of the History of Sexuality* 5 (1995), 546.
21. Kirsten Ostherr, *Medical Visions: Producing the Patient through Film, Television, and Imaging Technologies* (Oxford, UK: Oxford University Press, 2013), 14.
22. Pietrzak-Franger, *Syphilis in Victorian Literature*.
23. Pietrzak-Franger, *Syphilis in Victorian Literature*.
24. Philippe Calain, "Ethics and images of suffering bodies in humanitarian medicine," *Social Science and Medicine* 98 (December 2013): 278–285.
25. Indicatively, 178 of the 2,281 photographs (that is, about 8 percent) contained in the Visual Representations of the Third Plague Pandemic Photographic Database show patients or their symptoms. Though this database is not a complete record of plague photography, the project's unpublished research database, containing over 11,000 photographs of the pandemic, presents a similar picture.
26. Erin O'Connor, "Camera medica: Towards a morbid history of photography," *History of Photography* 23, no. 3 (1999), 234.
27. Deborah Poole, *Vision, Race, and Modernity: A Visual Economy of the Andean Image World* (Princeton, NJ: Princeton University Press, 1997).
28. Nathan, *Plague Prevention and Politics*; Summers, *Great Manchurian Plague*; Mark Gamsa, "The epidemic of pneumonic plague in Manchuria 1910–1911," *Past and Present* 90 (2006): 147–184; Cheng Hu, "Quarantine sovereignty during the pneumonic plague in Northeast China (November 1910–April 1911)," *Frontier History of China* 5, no. 2 (2010): 294–295.

29. Temporary Epidemic Prevention Department of the Governor's Office of Kwantung, *An Account of the Plague in South Manchuria 1910–11 Illustrated with Photographs Taken on the Spot* (Kwantung Metropolitan Government, 1912); NYAML, RBS74, Anon., *Chuma v Manchzhurii, v. 1910–11 g.g* (1911); NRI, 808.24za WLD:1 (RBR), Wu Lien-teh, *Views of Harbin, Fuchiatien, Taken during the Plague Epidemic, December 1910–March 1911* (Shanghai, China: Commercial Press, [1911]).
30. For instance, Roger Baron Budberg, *Bilder aus der Zeit der Lungenpest-Epidemien in der Mandchurei 1910/1911 und 1921* (Hamburg, Germany: C. Behre, 1923); for Richard P. Strong's lantern show slides, see the Countway Library, University of Harvard, Strong, Richard P. (Richard Pearson), 1872–1948, Papers, 1911–2004. For a collection of missionary sources, see the Dugald Christie and Arthur Jackson holdings of the Centre for the Study of World Christianity archives, University of Edinburgh.
31. Robert Peckham, "Plague views: Epidemics, photography and the ruined city," in *Plague and the City*, ed. Lukas Engelmann, John Henderson, and Christos Lynteris, 91–115 (London, UK: Routledge, 2018), 93.
32. Christine M. Boeckl, *Images of Plague and Pestilence: Iconography and Iconology* (University Park, PA: Pennsylvania State University Press, 2001); Franco Mormando and Thomas Worcester, eds., *Piety and Plague from Byzantium to the Baroque* (Kirksville, MO: Truman State University Press, 2007); Gauvin Alexander Bailey, *Hope and Healing: Painting in Italy in a Time of Plague, 1500–1800* (Chicago, IL: University of Chicago Press, 2005).
33. I. F. C. Hecker, *The Black Death in the Fourteenth Century*, trans. B. G. Babington (London, UK: A. Schloss, 1833 [1832]), ix.
34. Faye Marie Getz, "Black Death and the silver lining: Meaning, continuity, and revolutionary change in histories of medieval plague," *Journal of the History of Biology* 24, no. 2 (1991): 265–289.
35. See especially Monica H. Green, "Taking 'pandemic' seriously: Making the Black Death global," *Medieval Globe* 1, no. 1 (2014): 4, <https://scholarworks.wmich.edu/tmg/vol1/iss1/4>.
36. Kenneth L. Gage and Michael Y. Kosoy, "Natural history of plague: Perspectives from more than a century of research," *Annual Review of Entomology* 50 (2005): 505–528; S. Ayyadurai, L. Houhamdi, H. Lepidi, C. Nappes, D. Raoult, and M. Drancourt, "Long-term persistence of virulent *Yersinia pestis* in soil," *Microbiology* 154 (2008): 2865–2871.
37. Michael Y. Kosoy, "Deepening the conception of functional information in the description of zoonotic infectious diseases," *Entropy* 15 (2013): 1929–1962.
38. Priscilla Wald, *Contagious: Cultures, Carriers, and the Outbreak Narrative* (Durham, NC: Duke University Press, 2008).
39. Poole, *Vision, Race, and Modernity*.

40. Lukas Engelmann, "Picturing the unusual: Uncertainty in the historiography of medical photography," *Social History of Medicine* 34, no. 2 (2021): 375–398.
41. Paradoxically Mark Honigsbaum has claimed in relation to the "Russian influenza" that "whereas prior to 1890 *The Times* had used the term 'pandemic' just twice (and more or less as a synonym for an epidemic), after 1890 it became increasingly linked to the increasing speed of global communications and other tropes of modernity." In fact, a search for the word in *The Times* reveals three appearances before 1890 (in 1877, 1879, and 1883) and just two in relation to the Russian influenza of 1889–1890; Mark Honigsbaum, "Defining pandemics: The coronavirus conundrum," *Hurst*, February 10, 2020, <https://www.hurstpublishers.com/defining-pandemics-the-coronavirus-conundrum/>.
42. Elizabeth Edwards, "Photographic uncertainties: Between evidence and reassurance," *History and Anthropology* 25, no. 2 (2014), 172.
43. Mark Harrison, "Pandemic," in *The Routledge History of Disease*, ed. Mark Jackson, 129–146 (London, UK: Routledge, 2017), 133.
44. Lynteris, "Plague masks."
45. Christos Lynteris, "Photography, zoonosis and epistemic suspension after the end of epidemics," in *The Anthropology of Epidemics*, ed. Ann H. Kelly, Frédéric Keck and Christos Lynteris, 84–101 (London, UK: Routledge, 2019); Maurits Bastiaan Meerwijk, "Bamboo dwellers: Plague, photography, and the house in colonial Java," in *Plague Image and Imagination from Medieval to Modern Times*, ed. Christos Lynteris, 205–234 (London, UK: Palgrave Macmillan, 2021); David Arnold, "Picturing plague: Photography, pestilence, and cremation in late nineteenth- and early twentieth-century India," in *Plague Image and Imagination from Medieval to Modern Times*, ed. Christos Lynteris, 111–139 (London, UK: Palgrave Macmillan, 2021).
46. University of Cambridge Repository—Apollo, Visual Representations of the Third Plague Pandemic Photographic Database (Apollo/VR3PP), <https://www.repository.cam.ac.uk/handle/1810/280684>.
47. For a reflexive look at the construction of the database, see Branwyn Poleykett, Nicholas H. A. Evans, and Lukas Engelmann, "Fragments of plague," in "The Total Archive," ed. Boris Jardine and Christopher M. Kelty, special issue, *Limn* 6 (2016), <https://limn.it/articles/fragments-of-plague/>.
48. Daniel R. Headrick, *The Tools of Empire: Technology and European Imperialism in the Nineteenth Century* (Oxford, UK: Oxford University Press, 1981).
49. See especially Ostherr, *Medical Visions*, and the collection of essays in Serlin, *Imagining Illness*.
50. BL, Captain Moss, photographer, *Plague Visitation, Bombay, 1896–97* (Photo 311/1: 1896–1897); Wu, *Views of Harbin*.

## CHAPTER 1

1. Beatriz Pichel, "From facial expressions to bodily gesture: Passions, photography and movement in French 19th-century sciences," *History of the Human Sciences* 29, no. 1 (1016), 30.
2. Shawn Michelle Smith, *At the Edge of Sight: Photography and the Unseen* (Durham, NC: Duke University Press, 2013).
3. Smith, *Edge of Sight*, 4.
4. Monika Pietrzak-Franger, *Syphilis in Victorian Literature and Culture: Medicine, Knowledge and the Spectacle of Victorian Invisibility* (London, UK: Palgrave Macmillan, 2017).
5. David Serlin, "Introduction: Towards a visual culture of public health," in *Imagining Illness: Public Health and Visual Culture*, ed. David Harley Serlin, xi–xxxvii (Minneapolis, MN: University of Minnesota Press, 2010), xxxiii; Carlos Mondragón, "Concealment, revelation and cosmological dualism: Visibility, materiality and the spiritscape of the Torres Islands, Vanuatu," in "Montrer/Occulter," ed. Jacques Galinier, special issue, *Cahiers d'anthropologie sociale* 11 (2015): 38–50.
6. Sander L. Gilman, *Disease and Representation: Images of Illness from Madness to AIDS* (Ithaca, NY: Cornell University Press, 1988), 4, 7.
7. Sander L. Gilman, *Picturing Health and Illness: Images of Identity and Difference* (Baltimore, MD: Johns Hopkins University Press, 1995), 34.
8. I am borrowing here from Giorgio Agamben, who has pointed to the existence of two distinct but interlinked ontologies in classical thinking—what he calls "the ontology of apophantic assertion" (or "the ontology of *esti*," from the Greek "to be") and "the ontology of command" (or "the ontology of *esto*," from the Greek "must be"). If, Agamben argues, the originary statement of apophantic ontology is to be found in Parmenides's single surviving work, the poem "Peri Phuseōs" (On Being), in the form "*esti gar einai*: 'there is actually being,'" the equivalent imperative ontological form is "*esto gar einai*, 'let there actually be being'"; Giorgio Agamben, *Creation and Anarchy: The Work of Art and the Religion of Capitalism*, trans. Adam Kotsko (Redwood City, CA: Stanford University Press, 2019), 59.
9. The truism approach is adopted in Merle Eisenberg and Lee Mordechai, "The Justinianic plague and global pandemics: The making of the plague concept," *Historical American Review* 125, no. 5 (December 2020): 1632–1667. I would like to thank Merle Eisenberg for a frank discussion on this point of disagreement.
10. Erin O'Connor, "Pictures of health: Medical photography and the emergence of anorexia nervosa," *Journal of the History of Sexuality* 5 (1995), 546. These semiotics were augmented by the fact that turn-of-the-century photographers' discourse had internalized medical tropes, as shown in Tanya Sheehan, *Doctored: The Medicine of Photography in Nineteenth-Century America* (University Park, PA: Pennsylvania State University Press, 2011).

11. See the Introduction for a discussion of the Database.
12. Jeffrey Mifflin, "Visual archives in perspective: Enlarging on historical medical photographs," *American Archivist* 70 (Spring/Summer 2007), 56.
13. Christine M. Boeckl, *Images of Plague and Pestilence: Iconography and Iconology* (University Park, PA: Pennsylvania State University Press, 2001).
14. Boeckl, *Images of Plague*. On continuities in the clinical description of plague between the Middle Ages and modern times, see Lars Walløe, "Medieval and modern bubonic plague: Some clinical continuities," supplement, *Medical History* 27 (2008): 59–73.
15. D. G. Grigsby, "Rumour, contagion and colonization in Gros's plague-stricken of Jaffa (1804)," *Representations* 51 (1995): 1–46.
16. Chris Amirault, "Posing the subject of early medical photography," in "Expanded Photography," special issue, *Discourse* 16, no. 2 (Winter 1993–1994), 73. On the photography of fibromas and tumors in colonial contexts, see Larissa N. Heinrich, "The pathological empire: Early medical photography in China," *History of Photography* 30, no. 1 (2006): 25–38; Gilman, *Disease and Representation*, chapter 9; Nancy Leys Stepan, *Picturing Tropical Nature* (London, UK: Reaktion Books, 2001); Annick Opinel, "Corps sommeilleux, déformés, interrompus: Les tableaux cliniques des maladies parasitaires (début XX<sup>e</sup> siècle)," *Corps* 2, no. 5 (2008): 49–56; Kirsten Ostherr, "Empathy and objectivity: Health education through corporate publicity films," in *Imagining Illness: Public Health and Visual Culture*, ed. David Harley Serlin, 62–82 (Minneapolis, MN: University of Minnesota Press, 2010). For examples of such posing for photographing buboes, see E. Tardif, *La peste á Quang-Tchéou-Wan* (Paris, France: Ballière et fils, 1902); L. N. Malinovsky, D. K. Zabolotny, and P. N. Bulatov, *Chuma v Odesse v 1910 g. Epidemiologiya, patologiya, klinika, bakteriologiya i meropriyatiya* (Saint Petersburg, Russia: Tip. A. S. Suvorna "novoye vremya," 1912); Alejandro del Río, Ramon Zegers, Ricardo D. Boza, and Louis Montero, *Informe sobre la epidemia de peste bubónica en Iquique en 1903: Presentado al Supremo Gobierno por la comisión encargada de reconocer la naturaleza de la enfermedad* (Santiago, Chile: Impr. Cervantes, 1904); Heinrich Albrecht, Hermann Franz Müller, and Anton Ghon, *Kaiserlichen Akademie der Wissenschaften in Wien, Über die Beulenpest in Bombay, im Jahre 1897*, vol. 1–3 (Vienna, Austria: K. K. Hof- und Staatsdruckerei, in Commission bei Carl Gerold 1898–1900). Poleykett has also argued that, in Pasteurian North African contexts, "Subjects of [medical] photographs contort their bodies uncomfortably to 'present' and 'frame' one part of their body to the camera while still making their whole body visible"; Branwyn Poleykett, "Pasteurian tropical medicine and colonial scientific vision," *Subjectivity* 10 (2017), 199–200.
17. Wellcome Collection's holding notes that the photograph was "originally collected by British anthropologist Edwin Nichol Fallaize (1877–1957). Purchased by Capt. L.W.G. Malcolm in 1934, on behalf of Sir Henry Solomon Wellcome, for the

price of £25. From a letter in the Wellcome archives dated 16th December 1934,” [https://search.wellcomelibrary.org/iii/encore/record/C\\_\\_Rb1539279?lang=eng](https://search.wellcomelibrary.org/iii/encore/record/C__Rb1539279?lang=eng).

18. Albrecht et al., *Über die Beulenpest*. The image was consequently reproduced in several works on plague across the globe, including W. G. Savage and D. A. Fitzgerald, “A case of the plague from a clinical and pathological point of view,” *British Medical Journal* 2, no. 2078 (1900): 1232–1236; IEM, 11836, Vasily Pavlovich Kashkadamov, *Al’bom snimkov c chumnuikh bol’nuikh* (Saint Petersburg, Russia: Severnaya Fototipiya, 1902).

19. Lukas Engelmann, “Making a model plague: Paper technologies and epidemiological casuistry in the early twentieth century,” in *Plague Image and Imagination from Medieval to Modern Times*, ed. Christos Lynteris, 235–266 (London, UK: Palgrave Macmillan, 2021). For a discussion of the significance of buboes and their location, see William Hunter, “Buboes and their significance in plague,” *The Lancet* 168, no. 4324 (July 14, 1906): 83–86. In a small number of publications, photographs of infected organs were also reproduced, with this being more prevalent and systematic in the case of pneumonic plague. See, for example, Wu Lien-teh, *Treatise on Pneumonic Plague* (Geneva, Switzerland: League of Nations, 1926).

20. Erin O’Connor, “Camera medica: Towards a morbid history of photography,” *History of Photography* 23, no. 3 (1999), 234. See also Adria L. Imada, “Promiscuous signification: Leprosy suspects in a photographic archive of skin,” *Representations* 138, no. 1 (Spring 2017): 1–36; Katherine Ott, “Contagion, public health and visual culture of nineteenth-century skin,” in *Imagining Illness: Public Health and Visual Culture*, ed. David Harley Serlin, 85–107 (Minneapolis, MN: University of Minnesota Press, 2010). On the dramaturgical aspect of diseases and epidemics, see Charles E. Rosenberg, “What is an epidemic? AIDS in historical perspective,” in “Living with AIDS,” special issue, *Daedalus* 118, no. 2 (Spring 1989): 1–17.

21. I am here borrowing on the double function of sense and sense-making of photographs from Zahid R. Chaudhary, *Afterimage of Empire: Photography in Nineteenth-Century India* (Minneapolis, MN: University of Minnesota Press, 2012). There is an extensive corpus of historical, anthropological, and visual studies works and collections on colonial photography and the production of “racial types” and exotic pathology; for example, see James R. Ryan, *Picturing Empire: Photography and the Visualization of the British Empire* (London, UK: Reaktion Books, 1997); Chaudhary, *Afterimage of Empire*; Eleanor M. Hight, and Gary D. Sampson, eds., *Colonialist Photography: Imag(in)ing Race and Place* (London, UK: Routledge, 2002); Elizabeth Edwards, ed., *Anthropology and Photography, 1860–1920* (New Haven, CT: Yale University Press, 1992); Paul S. Landau, “Empires of the visual: Photography and colonial administration in Africa,” in *Images and Empires: Visuality in Colonial and Postcolonial Africa*, ed. Paul S. Landau and Deborah D. Kaspin, 141–171 (Berkeley, CA: University of California Press, 2002); Poleykett, “Pasteurian tropical medicine.”



22. Ryan, *Picturing Empire*, 145. Ryan borrowed the term from Mary Louise Pratt, *Imperial Eyes: Travel Writing and Transculturation* (London, UK: Routledge, 1992).

23. On the production of regularity in colonial photography, see Chaudhary, *Afterimage of Empire*, 8. For a photograph of a European patient, from Porto, regularly used to this effect, see PIP, MP31294, *Malade de la peste à Porto en 1899*.

24. Ryan, *Picturing Empire*, 165.

25. Abhijit Sarkar, “Reflexive gaze and the construction of meanings: Photographing plague hospitals in colonial Bombay,” in *Plague Image and Imagination from Medieval to Modern Times*, ed. Christos Lynteris, 141–189 (London, UK: Palgrave 2021); Christopher Pinney, “The prosthetic eye: Photography as cure and poison,” in “The Objects of Evidence: Anthropological Approaches to the Production of Knowledge,” special issue, *Journal of the Royal Anthropological Institute* 14, no. 1 (2008): 33–46. On the gendered aspect of missionary clinical photographs of plague in British India, see also Malavika Karlekar, “Postcards from Home,” in *Visual Histories: Photography in the Popular Imagination* (New Delhi, India: Oxford University Press, 2013).

26. Sarkar, “Reflexive Gaze.”

27. Paul Gilroy, *Against Race: Imagining Political Culture beyond the Colour Line* (Cambridge, MA: Belknap Press of Harvard University Press, 2000).

28. On the epidemiological reality of colonial plague hospitals and on indigenous perceptions of these institutions, see Carol A. Benedict, *Bubonic Plague in Nineteenth-Century China* (Redwood City, CA: Stanford University Press, 1996); Samuel K. Cohn Jr, *Epidemics: Hate and Compassion from the Plague of Athens to AIDS* (Oxford, UK: Oxford University Press, 2018).

29. Apollo/VR3PP, PhotoID\_4032, <https://www.repository.cam.ac.uk/handle/1810/282692>. The photograph in the Database is from WL, .b32162698, Karachi Plague Committee in 1897, where Simond is misidentified as “Dr Simmonds.”

30. On the imagery of languid patients, see Jean-Jacques Lefrère and Bruno Danic, “Pictorial representation of transfusion over the years,” *Transfusion* 49, no. 5 (2009): 1007–1017. What is not, however, present in vaccination or serotherapy images is the transgressive element present in images of transfusion. The gesture we see here seems to be rhyming with Pasteurian photographs of quinine delivery from North Africa at the time; Claire Fredj, “Le laboratoire et le bled: L’Institut Pasteur d’Alger et les médecins de colonisation dans la lutte contre le paludisme (1904–1939),” *Dynamis* 36, no. 2 (2016): 293–316. On gesture in colonial photography, see also Karlekar, *Visual Histories*, chapter 2.

31. For a discussion of medical photography’s contribution to this dichotomy and the way in which it more broadly fits within John Tagg’s reading of photography and power, see Mifflin, “Visual archives in perspective.”

32. Ann Perez Hattori, “Re-membling the past: Photography, leprosy and the Chamorros of Guam, 1898–1924,” *Journal of Pacific History* 46, no. 3 (December 2011), 310.

33. Matheus Alves Duarte da Silva, “Quand la peste connectait le monde: Production et circulation de savoirs microbiologiques entre Brésil, Inde et France (1894–1922).” PhD diss., École des Hautes Études en Sciences Sociales, 2020.

34. Pratik Chakrabarti, *Bacteriology in British India: Laboratory Medicine and the Tropics* (Rochester, NY: University of Rochester Press, 2012), 49. For a discussion of plague postcards in India, including the one of inoculation, see Zinnia Ray Chaudhury, “How the British used postcards as a propaganda tool during the Bombay plague of 1896,” *Scroll.in*, September 22, 2018, <https://scroll.in/magazine/891745/how-the-british-used-postcards-as-a-propaganda-tool-during-the-bombay-plague-of-1896>. For a discussion of the colonial politics and aesthetics of selecting photographs for postcards, see Richard Vokes, “Reflections on a complex (and cosmopolitan) archive: Postcards and photography in early colonial Uganda, c.1904–1928,” *History and Anthropology* 21, no. 4 (2010): 375–409. For a discussion of postcards of leprosy in Guam, see Hattori, “Re-membling the Past,” 293–318.

35. Silva, “Quand la peste connectait le monde.”

36. Figure 1.3 was, for example, included in Anon., “Plague pandemic,” *British Medical Journal* 2, no. 2078 (1900): 1255; William Burney Bannerman, *Plague in India, Past and Present* (London, UK: Research Defence Society, 1910); Anon., “A microbe manufactory,” *Hickman Courier* 50, no. 34 (February 4, 1909): 1. For examples of photographs of Pasteurian serum production, see Apollo/VR3PP, PhotoID\_9803, <https://www.repository.cam.ac.uk/handle/1810/284823>, and PhotoID\_9805, <https://www.repository.cam.ac.uk/handle/1810/284825>. For examples another photograph of producing Haffkine’s plague vaccine, see Apollo/VR3PP, PhotoID\_9806, <https://www.repository.cam.ac.uk/handle/1810/284826>.

37. For a critique of this idea of photography as “merely a ‘screen onto which more powerful primary ideologies are projected,’” see Christopher Pinney, “Civil contract of photography in India,” *Comparative Studies of South Asia, Africa and the Middle East* 35, no. 1 (2015): 21–34, 29.

38. Walløe, “Medieval and modern bubonic plague.”

39. AIP, SIM.5, Lieu: A3/81–84. I would like to thank Matheus Alves Duarte da Silva for bringing these letters to my attention and sharing transcripts of them. The exchange seems to have been elicited by Simond, although the letter asking Choksy for photographs is missing from the archives.

40. Here, as in the majority of clinical photographs of plague, what Ingrid Gessner has identified in the case of 1890s yellow fever photography in the United States as a reluctance to show “heavily distorted victims” is not present; Ingrid Gessner,

“Epidemic iconographies: Toward a disease aesthetics of the destructive sublime,” in “Iconographies of the Calamitous in American Visual Culture,” ed. Ingrid Gessner and Susanne Leikam, special issue, *Amerikastudien/American Studies* 58, no. 4 (2013), 579.

41. AIP, SIM.5, Lieu: A3/81–84, Choksy to Simond, January 11, 1908.

42. IEM, 11836, Kashkadamov, *Al’bom snimkov c chumnuikh bol’nuikh*. For a summary of Kashkadamov’s itinerary in India, see L. I. Mirchanov et al., *Fort “Imperator Aleksandr I”* (Ostrov, Russia, 2008). That Choksy’s work was well known to Russian plague researchers is evident in frequent references (sometimes spelled Choksey or Choxey, in Roman characters) found in Kashkadamov’s letters from India, as well as in Russian publications on plague in India; IEM, 10561, Vasily Pavlovich Kashkadamov, *Pis’ma iz Indii* (1898), especially the letter dated Bombay, February 7/19, 1898; IEM, 11043, N. N. Vestenrik, *Chuma v Bombeye* (Saint Petersburg, Russia: Tipografiya Morskogo Ministerstva, 1900).

43. IEM, 11836, Kashkadamov, *Al’bom snimkov c chumnuikh bol’nuikh*, 1. Three of the photographs in this album, of which two also appearing in Choksy’s letter to Simond, had previously appeared a year earlier in another publication by Kashkadamov: IEM, 14065, Vasily Pavlovich Kashkadamov, *O chume soglasno noveyshim dannuim* (Saint Petersburg, Russia: Tipografiya M. M. Stasyulevicha, 1901).

44. As already noted, figure 1.1 is also included in Kashkadamov’s album. Of the nine photographs coinciding between those in Choksy’s letter and the Kashkadamov album, five appear in more complete form in Choksy and four in Kashkadamov; in both cases, copies were cropped so as to focus more directly on the symptoms to the exclusion of the larger body of the patient.

45. AIP, SIM.5, Lieu: A3/81–84, Simond to Choksy, December 6, 1910.

46. Paul-Louis Simond, “Peste,” in *Traité de pathologie exotique, clinique et thérapeutique. 6, Maladies parasitaires, peste*, ed. Lecompte et al., 455–648 (Paris, France: J.-B. Baillièere et fils, 1913). By contrast Choksy was later recognized as the author of these photographs in German works by Reinhold Friedrich Ruge: Reinhold Friedrich Ruge and Max Zur Verth, *Tropenkrankheiten und Tropenhygiene* (Leipzig, Germany: Klinkhardt, 1912); Reinhold Friedrich Ruge, *Krankheiten und Hygiene der warmen Länder: Ein Lehrbuch für die Praxis*, 4th ed. (Leipzig, Germany: Georg Thieme, 1938).

47. Previously, in his 1898 work demonstrating fleas as plague vectors, Simond had associated necrosis with fleabites; Paul-Louis Simond, “La propagation de la peste,” *Annales de l’Institut Pasteur* 12 (1898): 625–687.

48. N. H. Choksy, “An unrecognized type of plague,” in *Transactions of the Seventh Congress Held in British India, December 1927, Far Eastern Association of Tropical Medicine*, ed. J. Cunningham, 40–43 (Calcutta, India: Thacker’s Press & Directories, 1927), 40.

49. Choksy, “Unrecognized type of plague,” facing 42, 43.
50. David J. Bibel and T. E. Chen, “Diagnosis of plague: An analysis of the Yersin-Kitasato controversy,” *Bacteriological Reviews* 40, no. 3 (September 1976): 633–651.
51. AIP, YER.6, Lieu: A1/13. For a discussion of the matshed and its history, see Robert Peckham, “Matshed laboratory: Colonies, cultures, and bacteriology,” in *Imperial Contagions: Medicine, Hygiene, and Cultures of Planning in Asia*, ed. Robert Peckham and David M. Pomfret, 123–147 (Hong Kong: Hong Kong University Press, 2013).
52. The most commonly used portrait at the time was: PIP, MP24789, Portrait d’Alexandre Yersin (1863–1943) à l’âge de 30 ans en 1893, Photo Pierre Petit. On masculinity and colonial Pasteurianism, see Aro Velmet, *Pasteur’s Empire: Bacteriology and Politics in France, Its Colonies, and the World* (Oxford, UK: Oxford University Press, 2020).
53. Matheus Alves Duarte da Silva, “From Bombay to Rio de Janeiro: The circulation of knowledge and the establishment of the Manguinhos Laboratory, 1894–1902,” *História, Ciências, Saúde—Manguinhos, Rio de Janeiro* 25, no. 3 (July–September 2018), [https://www.scielo.br/pdf/hcsm/v25n3/en\\_0104-5970-hcsm-25-03-0639.pdf](https://www.scielo.br/pdf/hcsm/v25n3/en_0104-5970-hcsm-25-03-0639.pdf). The Institut Pasteur was very conscious of its image in the press and sought to control it, often systematically; Velmet, *Pasteur’s Empire*.
54. In India alone, during the first years of the pandemic, in addition to the British research teams and commissions, at least four foreign commissions (Austrian, German, Italian, and Russian), as well as a group of the Institut Pasteur from French Indochina, competed for data and “discoveries.”
55. On Alexandre Yersin’s famous photograph of his matshed laboratory in 1894 Hong Kong, see Peckham, “Matshed laboratory.”
56. See, for example, the plague laboratory accident in Vienna, 1898: Anon., “The plague at Vienna; Dr. Mueller, who attended Barisch, succumbs to the disease—his devotion to science,” *New York Times*, October 24, 1898, <https://www.nytimes.com/1898/10/24/archives/the-plague-at-vienna-dr-mueller-who-attended-barisch-succumbs-to.html>.
57. Christos Lynteris, “Vagabond microbes, leaky laboratories and epidemic mapping: Alexandre Yersin and the 1898 plague epidemic in Nha Trang,” *Social History of Medicine* 34, no 1 (2021): 190–213.
58. Some examples include: WL, b29146318, *The Plague Expedition to Anzob in Russian Turkestan*. Photograph album by A. M. Levin, 1899, <https://wellcomelibrary.org/item/b29146318>; IEM, 11836, Kashkadamov, *Al’bom snimkov c chumnuiikh bol’nuikh*. For an examination of photographs of the Anzob plague expedition, see Gian Pietro Basello and Paolo Ognibene, “A black dog from Marzic: Legends and facts about Anzob plague,” in *Yaghnobi Studies I: Papers from the Italian Missions in Tajikistan*, ed. Antonio Panaino, Andrea Gariboldi, and Paolo Ognibene, 87–115 (Milan, Italy: Mimesis, 2013).

59. Mirchanov et al., *Fort "Imperator Aleksandr I."*
60. I. M. Eyzhen, "Bor'ba chumoy," *Niva* 48 (1900): 952–959, 974–975, my translation.
61. Apollo/VR3PP, PhotoID\_8588, <https://www.w.repository.cam.ac.uk/handle/1810/281378>.
62. Jennifer Mary Keating, "Space, Image and Display in Russian Central Asia, 1881–1914," PhD diss. (University College London, 2016), 67.
63. For the image discussed by Keating, see V&A Museum, NAL pressmark PP.400.R, N. N. Karazin, "Zakaspiiskaia zheleznaia doroga," *Vsemirnaia illiustratsiia* 1888 (II), p. 181.
64. Valeria Sobol, *Haunted Empire: Gothic and the Russian Imperial Uncanny* (Ithaca, NY: Cornell University Press, 2020). For a discussion of plague in the South-East Russian frontier and Russian Central Asia, see Christos Lynteris, *Ethnographic Plague: Configuring Disease on the Chinese–Russian Frontier* (London, UK: Palgrave Macmillan, 2019); Dmitry Mikhel, "Chuma i epidemiologicheskaya revolyutsiya v Rossii, 1897–1914," *Vestnik Evrazii* 3 (2008): 142–164; Anna E. Afanasyeva, "Explaining and Managing Epidemics in Imperial Contexts: Russian Responses to Plague in the Kazakh Steppe in the Late 19th and Early 20th Centuries," Higher School of Economics Research Paper No. WP BRP 145/HUM/2017 (2017), <http://dx.doi.org/10.2139/ssrn.2949792>.
65. Martyrology was prevalent in Russian narratives of plague research. Schreiber was not the first doctor to perish in Plague Fort; before him, in 1904 the laboratory's director Vladislav Ivanovich Turchinovich-Vuizhnikovich (1865–1904) had died after becoming infected with the disease. Schreiber's death led to Danilo Kirilovich Zabolotny, a doctor with extensive experience on plague research, being appointed as the director of Plague Fort; Russian Academy of Sciences/North-West Branch of RAMS, *Institute of Experimental Medicine* (Saint Petersburg, Russia: Khromis, 2005). Martyrological images are also contained in NYAML, RBS74, Anon., *Chuma v Manchzhurii, v. 1910–11 g.g* (n.p., 1911).
66. Moscow Economic and Law Institute, "Geroi dolga. Na Forte 'Imperator Aleksandr I.' (ocherk I. M. Eyzena, 1907 god)," *Problemui mectonogo samoupravleniya*, n.d., <http://www.samoupravlenie.infobox.ru/38-11.php>. See also the facsimile of the *Niva* article at <http://www.samoupravlenie.ru/18-03.htm>.
67. Moscow Economic and Law Institute, "Geroi dolga."
68. Moscow Economic and Law Institute, "Geroi dolga."
69. Moscow Economic and Law Institute, "Geroi dolga."
70. Figure 1.6 source: [https://commons.wikimedia.org/wiki/File:Шрейбер\\_М\\_Ф.\\_—\\_жертва\\_чумной\\_пневмонии\\_\(1907\).png](https://commons.wikimedia.org/wiki/File:Шрейбер_М_Ф._—_жертва_чумной_пневмонии_(1907).png)
71. The original image of the bottle containing the ashes can be accessed at Apollo/VR3PP, PhotoID\_8592, <https://www.repository.cam.ac.uk/handle/1810/281382>.

The portrait of the dead doctor is a cropped image from Apollo/VR3PP, PhotoID\_8645 <https://www.repository.cam.ac.uk/handle/1810/281440>.

72. Moscow Economic and Law Institute, “Geroi dolga”; Apollo/VR3PP, PhotoID\_8593, <https://www.repository.cam.ac.uk/handle/1810/281384>.

73. Apollo/VR3PP, PhotoID\_8685, <https://www.repository.cam.ac.uk/handle/1810/281482>.

74. Jennifer Tucker, “The historian, the picture, and the archive,” *Isis* 97, no. 1 (March 2006): 111–120, 118; Vokes, “Reflections on a complex (and cosmopolitan) archive,” 397.

75. Vokes, “Reflections on a complex (and cosmopolitan) archive,” 405. I am borrowing the term “elided past” from Joshua A. Bell, “Out of the mouths of crocodiles: Eliciting histories in photographs and string-figures,” *History and Anthropology* 21, no. 4 (December 2010), 351.

76. Jennifer Tucker, *Nature Exposed: Photography as Eyewitness in Victorian Science* (Baltimore, MD: Johns Hopkins University Press, 2013), 182.

77. For an excellent example of radical uncertainty on the identity of the causative agent, see Anon., “The plague panic in Calcutta and government,” *Calcutta Journal of Medicine* 17, no. 4 (April 1898): 134–141. On Hankin’s doubts, see HCPP, Cd. 140, Indian Plague Commission, 1898–99. Minutes of Evidence Taken by the Indian Plague Commission with Appendices. Vol. II. Evidence taken from 11th January 1899 to 8th February 1899; Session: 1900, CH Microfiche number: 106.269–274.

78. Bruno Latour, *The Pasteurization of France* (Cambridge, MA: Harvard University Press, 1988); Andrew Cunningham, “Transforming plague, the laboratory and the identity of infectious disease,” in *The Laboratory Revolution in Medicine*, ed. Andrew Cunningham and Perry Williams, 209–244 (Cambridge, UK: Cambridge University Press, 1992); Sean Hsiang-lin Lei, “Sovereignty and the microscope: Constituting notifiable infectious disease and containing the Manchurian plague (1910–11),” in *Health and Hygiene in Chinese East Asia: Policies and Publics in the Long Twentieth Century*, ed. Angela Ki Che Leung and Charlotte Furth, 73–106 (Durham, NC: Duke University Press, 2011); Lynteris, *Ethnographic Plague*.

79. Myron J. Echenberg, *Plague Ports: The Global Urban Impact of Bubonic Plague, 1894–1901* (New York, NY: New York University Press, 2007). At the same time, the absence of the microorganism could not be accepted as proof of the absence of the disease. In the words of the first Indian Plague Commission, “the non-discovery of such bacteria will not in any way rebut a diagnosis of plague based on clinical symptoms”; HCCP, Cd. 810, Indian Plague Commission, 1898–99. Report of the Indian Plague Commission with Appendices and Summary. Vol. V; Session: 1902, CH Microfiche number: 108.637, p. 61. On how this fostered many years of epidemiological debate over the category of *pestis minor*, see Christos

Lynteris, “*Pestis minor*: The history of a contested plague pathology,” *Bulletin of the History of Medicine* 93, no. 1 (Spring 2019): 55–58.

80. Tucker, *Nature Exposed*, 187.

81. Lukas Engelmann, *Mapping AIDS: Visual Histories of an Enduring Epidemic* (Cambridge, UK: Cambridge University Press, 2017), 177. See also Thomas Schlich, “Linking cause and disease in the laboratory: Robert Koch’s method of superimposing visual and ‘functional’ representations of bacteria,” *History and Philosophy of the Life Sciences* 22, no. 1 (2000): 43–58. On the use of diagrams in configuring plague, see Christos Lynteris, “Zoonotic diagrams: Mastering and unsettling human-animal relations,” *Journal of the Royal Anthropological Institute* 23, no. 3 (2017): 463–485; Lukas Engelmann, “Configurations of plague: Spatial diagrams in early epidemiology,” in “Working with Diagrams,” ed. Lukas Engelmann, Caroline Humphrey, and Christos Lynteris, special issue, *Social Analysis* 63, no. 4 (2019): 89–109; Lukas Engelmann, Caroline Humphrey, and Christos Lynteris, “Introduction: Diagrams beyond mere tools,” in “Working with Diagrams,” ed. Lukas Engelmann, Caroline Humphrey, and Christos Lynteris, special issue, *Social Analysis* 63, no. 4 (2019): 1–19. For an interesting use of a plague diagram in public health communication in French West Africa, see Pauline Kusiak, “Instrumentalizing rationality, cross-cultural mediators, and civil epistemologies of late colonialism,” *Social Studies of Science* 40, no. 6 (2010): 871–902, p. 885, figure 4.

82. William J. R. Simpson, “The Croonian lectures on plague. Delivered before the Royal College of Physicians of London on June 18th, 20th, 25th, and 27th, 1907. Lecture 1,” *The Lancet* 169, no. 4374 (June 29, 1907), 1757.

83. Nicholas H. Evans, “Blaming the rat? Accounting for plague in colonial Indian medicine,” *Medicine, Anthropology, Theory* 5, no. 3 (2018): 15–42.

84. Mark Honigsbaum, “‘Tipping the balance’: Karl Friedrich Meyer, latent infections, and the birth of modern ideas of disease ecology,” *Journal of the History of Biology* 49 (2016): 261–309.

85. “Pestigenic” was a term used during the pandemic. See, for example, Sir Philip H. Manson-Bahr, *Manson’s Tropical Diseases: A Manual of the Diseases of Warm Climates* (London, UK: Cassell & Company, 1898); Ricardo Jorge, *La peste africaine: Rapport présenté au Comité permanent de l’Office International d’Hygiène Publique dans sa session d’avril–mai 1935* (Paris, France: Office International d’Hygiène Publique, 1935); Karl F. Meyer, “The sylvatic plague committee,” *American Journal of Public Health and the Nation’s Health* 26, no. 10 (October 1936): 961–969. For the notion of pathogenic/pestigenic interrelations my work is indebted to conversations with Lukas Engelmann, who has developed this notion from his own analytical angle in Lukas Engelmann, “Picturing the unusual: Uncertainty in the historiography of medical photography,” *Social History of Medicine* 34, no. 2 (November 2019): 375–398, <https://doi.org/10.1093/shm/hkz108>.

86. These expeditions predated the formation of the notion of natural ecology or disease ecology by several decades, with the transition from reservoir-focus to ecology-focus approaches taking place in the 1930s and 1940s; for a discussion of the epistemological turn in the context of the United States, see Honigsbaum, “Tipping the balance.”

87. William J. R. Simpson *A Treatise on Plague: Dealing with the Historical, Epidemiological, Clinical, Therapeutic and Preventive Aspects of the Disease* (Cambridge, UK: Cambridge University Press, 1905); Simond, “Peste.” *The Conquest of Plague*, published at the proclaimed conclusion of the pandemic, makes only passing references to tropical medicine; L. Fabian Hirst, *The Conquest of Plague: A Study of the Evolution of Epidemiology* (New York, NY: Oxford University Press, 1953).

88. Pratik Chakrabarti has recently unsettled historical analytical frameworks of tropical medicine “as an invented tradition”; Chakrabarti, *Bacteriology in British India*, 7.

89. Ryan, *Picturing Empire*, 40; Pratik Chakrabarti, *Medicine and Empire 1600–1960* (London, UK: Palgrave Macmillan, 2014), 146.

90. David Arnold, *The Problem of Nature: Environment, Culture and European Expansion* (Oxford, UK: Blackwell, 1997). It is tempting here to think of plague as being part of diseases discussed by historians of Pasteurian medicine in North Africa as associated with a lag in time; see Poleykett, “Pasteurian tropical medicine”; and Anne-Marie Moulin, “Tropical without tropics: The turning point of Pastorian medicine in North Africa,” in *Warm Climates and Western Medicine: The Emergence of Tropical Medicine*, ed. David Arnold (Amsterdam, Netherlands: Rodopi, 1996). I would like to thank Matheus Alves Duarte da Silva for his advice on the tropicality of plague. At the conference “Reframing Disease Reservoirs: Histories and Ethnographies of Pathogens and Pestilence” (St Andrews, May 26–28, 2021), Matheus Alves Duarte da Silva argued that the notion of sylvatic plague emerged in relation to plague as a disease of desertic or arid natural environments.

91. Ryan, *Picturing Empire*; Stepan, *Picturing Tropical Nature*; Opinel, “Corps sommeilleux”; Annick Opinel, “La photographie et la Clinique des maladies parasitaires sans le premier tier du XX<sup>e</sup> siècle,” in “Actes du Congrès d’histoire des sciences et techniques organisé à Poitiers du 20 au 22 mai 2004 par la Société française d’histoire des sciences et techniques,” ed. Anne Bonnefoy and Bernard Joly, *Cahiers d’histoire et de philosophie des sciences*, hors-série, 2006: 166–167; Sílvio Marcus de Souza Correa, “O ‘combate’ às doenças tropicais na imprensa colonial alemã,” *História, Ciências, Saúde—Manguinhos* 20, no. 1 (2013): 69–91.

92. Chakrabarti, *Bacteriology in British India*, 13.

93. Lynteris, *Ethnographic Plague*.

94. HKUL, U 614.49518 W9, Views of Chinese plague epidemic expedition in west Manchuria, 1911/ headed by W.L.T.



95. Christos Lynteris, “Photography, zoonosis and epistemic suspension after the end of epidemics,” in *The Anthropology of Epidemics*, ed. Ann H. Kelly, Frédéric Keck, and Christos Lynteris, 84–101 (London, UK: Routledge, 2019); Christos Lynteris, “Tarbagan’s winter lair: Framing drivers of plague persistence in Inner Asia,” in *Framing Animals as Epidemic Villains: Histories of Non-Human Disease Vectors*, ed. Christos Lynteris, 65–90 (London, UK: Palgrave Macmillan, 2019).

96. It is not known when these were excavated, but it is probable that this had taken place soon after the thaw (around April) rather than in the course of the expedition.

97. Lynteris, “Tarbagan’s winter lair.”

98. Figure 1.8 is contained in HKUL, U 614.49518 W9.

99. Lynteris, “Photography, zoonosis and epistemic suspension,” 95.

100. For an example see Wu Lien-teh (G. L. Tuck) and The Hulun Taotai, “First report of the North Manchurian Plague Prevention Service,” *Journal of Hygiene* 13, no. 3 (October 1913): 237–290.

101. Ryan, *Picturing Empire*, 67. In the case of the Sino-Russian expedition, the photographs taken and published by the Chinese side of the expedition lionized the efficiency and rigor of the Chinese side of the expedition by comparison to what they portrayed as the dated if respectable science of the Russians; Lynteris, “Photography, zoonosis and epistemic suspension.”

102. Elizabeth Edwards, “Performing science: Still photography and the Torren Strait expedition,” in *Cambridge and the Torres Strait: Centenary Essays on the 1898 Anthropological Expedition*, ed. Anita Herle and Sandra Rouse, 106–135 (Cambridge, UK: Cambridge University Press, 1998), 106. See also Morris Low, “The Japanese eye: Science, exploration and empire,” in *Photography’s Other Histories*, ed. Christopher Pinney, Nicolas Peterson, and Nicholas Thomas, 100–188 (Durham, NC: Duke University Press, 2003); Lorraine Daston and Peter Galison, *Objectivity* (New York, NY: Zone Books, 2007).

103. Walter Benjamin, “Little history of photography,” in *Selected Writings*, vol. 2: 1927–1934, 507–530 (Cambridge, MA: Belknap Press of Harvard University Press, 1991), 511–512.

104. Eadweard J. Muybridge, *The Attitudes of Animals in Motion: A Series of Photographs Illustrating the Consecutive Positions Assumed by Animals in Performing Various Movements; Executed at Palo Alto, California, in 1878 and 1879* ([San Francisco, CA], 1881), <https://exhibits.stanford.edu/muybridge/catalog/qd999gm5772>.

105. Lisa Cartwright, “‘Experiments of destruction’: Cinematic inscriptions of physiology,” in “Seeing Science,” special issue, *Representations* 40 (Autumn 1992): 129–152, 131; Phillip Prodger, *Time Stands Still: Muybridge and the Instantaneous Photography Movement with an Essay by Tom Gunning* (Oxford, UK: Oxford University Press, 2003); Jimena Canales, *A Tenth of a Second: A History* (Chicago, IL: University of Chicago Press, 2009).

106. Rosalind E. Krauss, *The Optical Unconscious* (Cambridge, MA: MIT Press, 1993); Smith, *Edge of Sight*. It should be noted that Zahid Chaudhary has integrated Benjamin's "optical unconscious" in his approach to British colonial photography in India from a perspective that maintains its psychoanalytical value; unfortunately, this effort overlooks Krauss's critique, which shows Benjamin's term as wanting in coherence within the rubric of psychoanalysis; Chaudhary, *Afterimage of Empire*, see pp. 9–10.
107. Smith, *Edge of Sight*, 6.
108. Ryan, *Picturing Empire*, 36.
109. Smith, *Edge of Sight*, 6.
110. Smith, *Edge of Sight*, 8.
111. Kirsten Ostherr, *Cinematic Prophylaxis: Globalization and Contagion in the Dis-course of World Health* (Durham, NC: Duke University Press, 2005).
112. Karl Friedrich Meyer, "The known and unknown in plague," *American Journal of Tropical Medicine and Hygiene* 1–22, no. 1 (January 1, 1942), 9.
113. Meyer, "Known and unknown," 9.
114. Meyer, "Known and unknown," 9.
115. Malek Alloula, *The Colonial Harem* (Minneapolis, MN: University of Minnesota Press, 1988). See also: George R. Trumbull IV, *An Empire of Facts: Colonial Power, Cultural Knowledge, and Islam in Algeria, 1870–1914* (Cambridge, UK: Cambridge University Press, 2009).
116. Simpson, *Treatise on Plague*, vii.
117. Pierre Apéry, "Bulletin épidémiologique. L'utilité des quarantaines," *Revue médico-pharmaceutique* 14, no. 21 (November 1, 1901): 241–242, 241, my translation. Apéry was the founder and editor of the *Revue médico-pharmaceutique* and the *Gazette médicale d'orient*, the Ottoman Empire's most influential medical journals at the time; Michele Nicolas, "Pierre Apéry et ses publications scientifiques," *Revue d'histoire de la pharmacie* 94, no. 350 (2006): 237–247.
118. Simpson, *Treatise on Plague*, 144–145.
119. D. Stekoulis, "Bulletin épidémiologique," *Gazette médicale d'orient* 43, no. 24 (February 15, 1899), 353, my translation.
120. Thomas Colvin, "Is bubonic plague still lurking in the city of Glasgow?" *The Lancet* 170, no. 4396 (November 30, 1907), 1522. On the absence of plague-infected rats in the city, see Corporation of Glasgow, *Report on Certain Cases of Plague Occurring in Glasgow in 1900 by the Medical Officer of Health* (Glasgow, UK: Robert Anderson, 1900). For a recent study where the question of this absence appears to still trouble epidemiological reasoning about the disease, see Katharine R. Dean, Fabienne Krauer, and Boris V. Schmid, "Epidemiology of a bubonic plague outbreak

in Glasgow, Scotland in 1900,” *Royal Society Open Science* 6, no. 1 (2019):6181695, <https://doi.org/10.1098/rsos.181695>.

121. Simpson, “Croonian lectures on plague,” 1759. Elsewhere I have discussed two of these mechanisms, as understood and problematized at the time, in detail. The first concerned the idea, first defended by Alexandre Yersin, that plague’s true locus of attenuation and recrudescence was the soil; the second concerned the idea of “pestitis minor” or ambulatory plague—a form of the disease that could supposedly escape clinical and bacteriological observation inside the human body; Lynteris, “*Pestis Minor*”; Christos Lynteris, “A ‘suitable soil’: Plague’s urban breeding grounds at the dawn of the third pandemic,” *Medical History* 61, no. 3 (2017): 343–357.

122. Emily Eastgate Brink, “Ordering the invisible,” *Antennae: The Journal of Nature in Visual Culture* 49 (2019), 145.

123. These can be accessed via the photographic collection of the Hawaii State Archives, <http://gallery.hawaii.gov/gallery2/main.php>.

124. James C. Mohr, *Plague and Fire: Battling Black Death and the 1900 Burning of Honolulu’s Chinatown* (Oxford, UK: Oxford University Press, 2004).

125. Mohr, *Plague and Fire*.

126. Lukas Engelmann, “‘A source of sickness’. Photographic mapping of the plague in Honolulu in 1900,” in *Plague and the City*, ed. Lukas Engelmann, John Henderson, and Christos Lynteris, 139–158 (London, UK: Routledge, 2018), 140. By contrast, at the same time significant attention by the Board of Health was placed on creating a photographic “medico-juridical archive” of “leprosy suspects” and their symptoms in Hawaii; Imada, “Promiscuous signification,” 5.

127. Engelmann, “Source of sickness,” 140.

128. On plague, the urban environment, and filth, see chapters in Lukas Engelmann, John Henderson, and Christos Lynteris, eds., *Plague and the City* (London, UK: Routledge, 2019). On the Yellow Peril and plague, see Marilyn Chase, *The Barbary Plague: The Black Death in Victorian San Francisco* (London, UK: Random House, 2004); Susan Craddock, *City of Plagues: Disease, Poverty, and Deviance in San Francisco* (Minneapolis, MN: University of Minnesota Press, 2000); Christos Lynteris, “Yellow Peril epidemics: The political ontology of degeneration and emergence,” in *Yellow Perils: China Narratives in the Contemporary World*, ed. Frank Billé and Sören Urbansky, 35–59 (Honolulu, HI: Hawaii University Press, 2018); Guenter B. Risse, *Plague, Fear, and Politics in San Francisco’s Chinatown* (Baltimore, MD: Johns Hopkins University Press, 2012); Nayan Shah, *Contagious Divides: Epidemics and Race in San Francisco’s Chinatown* (Berkeley, CA: University of California Press, 2001).

129. Prashant Kidambi, “‘An infection of locality’: Plague, pythogenesis and the poor in Bombay, c. 1896–1905,” *Urban History* 31, no. 2 (August 2004): 249–267; Craddock, *City of Plagues*, 10.

130. Engelmann, “Source of sickness,” 149.
131. Engelmann, “Source of sickness,” 153; Engelmann, “Picturing the unusual,” 16; Elizabeth Edwards, “Photographic uncertainties: Between evidence and reassurance,” *History and Anthropology* 25, no. 2 (2014): 171–188, 174.
132. Elizabeth Edwards, *The Camera as Historian: Amateur Photographers and Historical Imagination, 1885–1918* (Durham, NC: Duke University Press, 2012), 81–82.
133. Daston and Galison, *Objectivity*; Tucker, *Nature Exposed*; Christos Lynteris and Rupert Stasch, “Photography and the unseen,” *Visual Anthropology Review* 35, no. 1 (2019): 5–9, 6.
134. Poleykett, “Pasteurian tropical medicine,” 192.
135. Susan Sontag, *On Photography* (1977; repr., New York, NY: Picador, 2001).
136. Christos Lynteris and Ruth J. Prince, “Introduction: medical photography,” *Visual Anthropology* 29, no. 2 (2016): 101–117, 107.
137. Nükhet Varlık, “Why is Black Death *black*? European gothic imaginaries of ‘Oriental’ plague,” in *Plague Image and Imagination from Medieval to Modern Times*, ed. Christos Lynteris, 11–35 (London, UK: Palgrave Macmillan, 2021).
138. For a discussion of earlier uses of the term in the works of August Ludwig von Schlözer and Kurt Polycarp Joachim Sprengel, as well as in the historical work of Mrs. Markham (pseudonym of Elizabeth Penrose), see Varlık, “Why is Black Death *black*?”
139. I. F. C. Hecker, *The Black Death in the Fourteenth Century*, trans. B. G. Babington (London, UK: A. Schloss, 1833 [1832]), ix. On variants of “Black Death” in different languages, and on why “black” is of importance, see Varlık, “Why is Black Death *black*?”
140. Varlık, “Why is Black Death *black*?,” 20
141. Varlık, “Why is Black Death *black*?”
142. Varlık, “Why is Black Death *black*?”; Faye Marie Getz, “Black Death and the silver lining: Meaning, continuity, and revolutionary change in histories of medieval plague,” *Journal of the History of Biology* 24, no. 2 (1991): 265–289. For a study of the German ideological roots of the connections between Romanticism, death, and contagion, see David Farrell Krell, *Contagion: Sexuality, Disease, and Death in German Idealism and Romanticism* (Bloomington, IN: Indiana University Press, 1998).
143. On contagion and the first half of the nineteenth century, see Andrew Robert Aisenberg, *Disease, Government, and the “Social Question” in Nineteenth-Century France* (Redwood City, CA: Stanford University Press, 1999); Peter Baldwin, *Contagion and the State in Europe, 1830–1930* (Cambridge, UK: Cambridge University Press, 1994); Allan Conrad Christensen, *Nineteenth-Century Narratives of Contagion: “Our Feverish Contact”* (London, UK: Routledge, 2005); Mark Harrison, *Contagion: How Commerce Has Spread Disease* (New Haven, CT: Yale University Press,

2012); Melvin Santer, *Confronting Contagion: Our Evolving Understanding of Disease* (Oxford, UK: Oxford University Press, 2015), chapter 12. An indication of the connection between the interest in Hecker's book and the cholera pandemics is, however, evident in Adrien Philippe's introduction to his 1853 book on the "black plague," which incorporated translated sections of Hecker's book; Adrien Philippe, *Histoire de la peste noire (1346–1350) d'après des documents inédits* (Paris, France: À la Direction de Publicité Médicale, 1853).

144. Getz, "Black Death and the silver lining," 276.

145. Getz, "Black Death and the silver lining," 281.

146. Rachel Bruzzone, "Polemos, pathemata, and plague: Thucydides' narrative and the tradition of upheaval," *Greek, Roman, and Byzantine Studies* 57 (2017): 882–909, 889, 894.

147. However, for Hecker this was not a synchronous disaster but a chain reaction, which proceeded from China to Europe and which, depending on different scenarios developed in the book, eventually led to the pollution of the atmosphere with "foreign, and sensibly perceptible, admixtures"—a "poison" that inflamed the lungs and lymphatic glands, resulting in what we would today classify as the pneumonic and bubonic symptoms of the disease, respectively (Hecker, *Black Death*, 36, 37). The apocalyptic affinities of this narrative are made clear once they are compared with the place of plague in end of the world narratives of the Middle Ages; Laura A. Smoller, "Of earthquakes, hail, frogs, and geography: Plague and the investigation of the apocalypse in the later Middle Ages," in *Last Things: Death and the Apocalypse in the Middle Ages*, ed. Caroline Walker Bynum and Paul Freedman, 156–186 (Philadelphia, PA: University of Pennsylvania Press, 2000).

148. Hecker, *Black Death*, 82.

149. Alexandre Yersin, "La peste bubonique à Hong Kong," *Annales de l'Institut Pasteur* 8 (1894): 662–667, 662–663, my translation.

150. Clement Scott, "The Black Death in China," *The Illustrated London News* 2880, no. 104 (June 30, 1894): 823, 823. The fact that "Black Death" was used as early as May 1894 to talk about the outbreak in Hong Kong is attested in various news clips attached to National Archives, United Kingdom, CO 129/263, 10928 Bubonic Plague; James Lowson, Government Civil Hospital Hong Kong, 16th May 1894, enclosed in William Robinson to the Marquess of Ripon, May 17, 1895, 48–69, 51.

151. Anon., "The scourge of the century," *Lincoln County Leader* 8, no. 10 (May 11, 1900): 2.

152. Robert Peckham, *Epidemics in Modern Asia* (Cambridge, UK: Cambridge University Press, 2016), 127.

153. On the common "Tartar" origin, see, for example, Anon., "The plague at Hong Kong," *The Lancet* 143, no. 3695 (June 23, 1894): 1581–1582. "Revival" was a common trope to talk about the pandemic at the time; see, for example, Anon.,

“The present pandemic of plague,” *The Lancet* 172, no. 4440 (October 3, 1908): 1024–1025.

154. See, for example, Anon., “Pandemic plague,” *British Medical Journal* 2, no. 2078 (October 27, 1900): 1247–1258.

155. William J. R. Simpson, “Plague viewed from several aspects,” *The Lancet* 155, no. 3998 (April 14, 1900), 1063.

156. Simpson, “Plague viewed.”

157. Simpson, “Plague viewed,” 1065.

158. Anon., “The plague,” *Truth* (Brisbane) 604 (March 2, 1902): 7.

159. Burton J. Hendrick, “Fighting the ‘Black Death’ in Manchuria,” *The World’s Work* 27 (1914): 210–222.

160. Mark Gamsa, “The epidemic of pneumonic plague in Manchuria 1910–1911,” *Past and Present* 90 (2006): 147–184.

161. See, for example, the preface to the second edition of Francis Aidan Gasquet’s popular book on the Black Death: Francis Aidan Gasquet, *The Black Death of 1348 and 1349*, 2nd ed. (London, UK: George Bell and Sons, 1908), vii.

162. Anon., “A real Yellow Peril: The astonishingly virulent outbreak of pneumonic plague in the Far East,” supplement, *The Sphere* (February 18, 1911): i–iii.

163. Jules Courmont, “La peste,” *Le monde médical, revue internationale de médecine et de thérapeutique* 21, no. 408 (February 25, 1911): 161–175, 161, my translation. See also Hendrick, “Fighting the ‘Black Death.’” The notion of *peste foudroyante* was employed by Yersin during the Hong Kong 1894 outbreak to refer to cases reportedly resulting in death within less than twelve hours of the initial symptoms; AIP, IND.A1, Lieu: 4/151–153. Readers may be familiar with the term from Arthur Conan Doyle’s 1913 story “The Poison Belt”: “All night delirious excitement throughout Provence. Tumult of vine growers at Nimes. Socialistic upheaval at Toulon. Sudden illness attended by coma attacked the population this morning. *Peste foudroyante*. Great number of dead in the streets. Paralysis of business and universal chaos”; Arthur Conan Doyle, *The Poison Belt* (New York, NY: Hodder and Stoughton, 1913), Project Gutenberg, <http://www.gutenberg.org/ebooks/126>.

164. Courmont, “La peste,” 161. The origin of the third pandemic itself had been woven together with an image of anarchy as its spread was attributed to the Panthay Rebellion (1856–1873) in Yunnan. See, for example, William J. R. Simpson, “The Croonian lectures on plague—Lecture II,” *The Lancet* 170, no. 4376 (July 13, 1907): 73–78.

165. Bienvenue, “Les semeurs de peste,” *La médecine internationale illustrée* 19, no. 2 (March 1911): 75–81, 75, my translation.

166. For a detailed examination of this, see Christos Lynteris, “Yellow Peril epidemics.”

167. Lynteris, “Yellow Peril epidemics.”
168. Lynteris, “Yellow Peril epidemics.”
169. Scott, “Black Death in China,” 823.
170. Anon., “La peste en Mandchourie,” in “Supplément du Dimanche,” *Le petit journal* 22, no. 1057 (February 19, 1911): 1, 1.
171. Anon., “La peste en Mandchourie,” *Journal des voyages et des aventures de terre et de mer* 747 (March 26, 1911): 1. The first work to briefly examine the illustration of corpses as regards the Manchurian plague was Dominique Chev e and Michel Signoli, “Corps dans la tournante epidemique de peste en Madchourie,” *Corps* 1, no. 2 (2007): 75–92.
172. Courmont, “La peste,” 164.
173. For example, in 1910–1911, the *Illustrated London News* used the caption “bring out your dead” for a three-photo full-page composite on plague in Manchuria (March 1911) and for a page carrying an illustration of the Black Death by Caton Woodville (November 1910); Anon., “In the plague-ridden country: Pest scenes in Manchuria,” *Illustrated London News* 3750 (March 4, 1911): 310; Anon., “When first the plague came to our land: The Black Death,” *Illustrated London News* 3733 (November 5, 1910): 710.
174. Anon., “Le cauchemar de Mandchourie,” supplement, *L’illustration* 3551 (March 18, 1911): 190–195.
175. Apollo/VR3PP, PhotoID\_10060, <https://www.repository.cam.ac.uk/handle/1810/284839>.
176. A cropped version of this photograph is contained in: NYAML, RBS74, Anon., *Chuma v Manchzhurii*; Apollo/VR3PP, PhotoID\_1219, <https://www.repository.cam.ac.uk/handle/1810/281908>. Full as well as cropped versions of the photograph appeared in several publications across the globe; see, for example, Antonino Marc  del Pont, *Historia de la peste bub nica* (Buenos Aires, Argentina: Antonino Flaiban, 1917); Dr. A. de M., “La peste de la Mandchuria,” *España m dica* 1, no. 9 (April 20, 1911), 7.
177. David Arnold, “Picturing plague: Photography, pestilence, and cremation in late nineteenth- and early twentieth-century India,” in *Plague Image and Imagination from Medieval to Modern Times*, ed. Christos Lynteris, 111–139 (London, UK: Palgrave Macmillan, 2021).
178. Christos Lynteris and Nicholas H. Evans, “Introduction: The challenge of the epidemic corpse,” In *Histories of Post-Mortem Contagion: Infectious Corpses and Contested Burials*, ed. Christos Lynteris and Nicholas H. Evans, 1–25 (London, UK: Palgrave Macmillan, 2018).
179. See chapters in Christos Lynteris and Nicholas H. Evans, eds., *Histories of Post-Mortem Contagion: Infectious Corpses and Contested Burials* (London, UK: Palgrave Macmillan, 2018); Scott J. Juengel, “Writing decomposition: Defoe and the corpse,” *Journal of Narrative Technique* 25, no. 2 (Spring 1995): 139–153; M. Signoli,

“Reflections on crisis burials related to past plague epidemics,” *Clinical Microbiology and Infection* 18, no. 3 (2012): 218–223.

180. On the emergence of the human corpse in modern medical evidential contexts, see Zoe Crossland, “Of clues and signs: The dead body and its evidential traces,” *American Anthropologist* 111, no. 1 (2009), 71. On corpses in prebacteriological contexts of epidemics and abjection, see Juengel, “Writing decomposition.”

181. Lynteris and Evans, “Challenge of the epidemic corpse,” 16.

182. Lynteris and Evans, “Challenge of the epidemic corpse,” 3. For other examples from the third plague pandemic, particularly from Madagascar, see Branwyn Poleykett, “Ethnohistory and the dead: Cultures of colonial epidemiology,” *Medical Anthropology* 37, no. 6 (2018): 472–485; Genese Marie Sodikoff, “The multispecies infrastructure of zoonosis,” in *Anthropology and Epidemics*, ed. Ann H. Kelly, Frédéric Keck, and Christos Lynteris, 102–120 (London, UK: Routledge, 2019).

183. Anon., “The plague,” *North-China Herald* 2269 (February 3, 1911): 245–248.

184. Anon., “Conditions in Harbin,” *North-China Herald* 2271 (February 17, 1911): 357–358.

185. The international press relied on several sources, such as NYAML, RBS74, Anon., *Chuma v Manchzhurii*.

186. See in particular the illustrations by S. Davenport in 1835 or by Frederic James Shields in the 1860s; Getty Images, “Illustration from History of the Plague Defoe 18,” <https://www.gettyimages.co.uk/detail/news-photo/illustration-from-history-of-the-plague-frederic-james-news-photo/924230888>; Wikimedia Commons, “Illustration of D Defoe by Frederic Shields ‘The Plague Cart,’” [https://commons.wikimedia.org/wiki/File:Shields\\_the\\_Plague\\_Cart.jpg](https://commons.wikimedia.org/wiki/File:Shields_the_Plague_Cart.jpg). For Davenport’s illustration of Defoe’s plague pit, see Wellcome Collection, “Men burying the bodies of plague victims in a pit. Engraving by S. Davenport, 1835, after G. Cruikshank,” 6921i, <https://wellcomecollection.org/works/bw8peyrr>.

187. Yael Shapira, *Inventing the Gothic Corpse: The Thrill of Human Remains in the Eighteenth-Century Novel* (London, UK: Palgrave Macmillan, 2018); Hunter H. Gardner, *Pestilence and the Body in Latin Literature* (Oxford, UK: Oxford University Press, 2019).

188. Courmont, “La peste,” 161.

189. Edwards, *Camera as Historian*.

190. Edwards, *Camera as Historian*, 7.

191. Robert Peckham, “Plague views: Epidemics, photography, and the ruined city,” in *Plague and the City*, ed. Lukas Engelmann, John Henderson, and Christos Lynteris, 91–105 (London, UK: Routledge, 2018), 101.



## CHAPTER 2

1. See, for example, New China TV, “Coronavirus fight: Hundreds of trucks spray disinfectants in Luoyang,” *YouTube*, February 11, 2020, <https://www.youtube.com/watch?v=3-RqckJAulM>.
2. See, for example, Reed Johnson and Rogerio Jelmayer, “Brazil to allow aircraft to spray for mosquitoes to combat Zika,” *Wall Street Journal*, July 1, 2016, <https://www.wsj.com/articles/brazil-to-allow-aircraft-to-spray-for-mosquitoes-to-combat-zika-1467382925>.
3. Prashant Kidambi, “‘An infection of locality’: Plague, pythogenesis and the poor in Bombay, c. 1896–1905,” *Urban History* 31 (2004): 249–267.
4. Mark Harrison, “Towards a sanitary utopia? Professional visions and public health in India, 1880–1914,” *South Asia Research* 10 (1990): 19–41.
5. For a discussion of this from a diachronic perspective, see Lukas Engelmann, John Henderson, and Christos Lynteris, “Introduction: The plague and the city in history,” in *Plague and the City*, ed. Lukas Engelmann, John Henderson, and Christos Lynteris, 1–17 (London, UK: Routledge, 2018). Also see the collection of essays in the same volume. On the notion of the “pathogenic city,” see Lenore Manderson, *Sickness and the State: Health and Illness in Colonial Malaya, 1870–1940* (Cambridge, UK: Cambridge University Press, 1996).
6. Susan Craddock, *City of Plagues: Disease, Poverty, and Deviance in San Francisco* (Minneapolis, MN: University of Minnesota Press, 2004); Engelmann et al., “Introduction: The Plague,” 2.
7. Engelmann et al., “Introduction: The Plague,” 6; Graham Mooney, *Intrusive Interventions: Public Health, Domestic Space, and Infectious Disease Surveillance in England, 1840–1914* (Rochester, NY: University of Rochester Press, 2015).
8. David S. Barnes, *The Great Stink of Paris and the Nineteenth-Century Struggle against Filth and Germs* (Baltimore, MD: Johns Hopkins University Press, 2006). On plague and “filth” before the nineteenth century, see Carole Rawcliffe, “‘Great stench, horrible sights, and deadly abominations’: Butchery and the battle against plague in late medieval English towns,” in *Plague and the City*, ed. Lukas Engelmann, John Henderson, and Christos Lynteris, 18–39 (London, UK: Routledge, 2018); John Henderson, “‘Filth is the mother of corruption’: Plague, the poor, and the environment in early modern Florence,” in *Plague and the City*, ed. Lukas Engelmann, John Henderson, and Christos Lynteris, 69–90 (London, UK: Routledge, 2018); Martha Bayless, *Sin and Filth in Medieval Culture* (London, UK: Routledge, 2012); David Gentilcore, “Purging filth: Plague and responses to it in Rome, 1656–1657,” in *Rome, Pollution and Propriety: Dirt, Disease and Hygiene in the Eternal City from Antiquity to Modernity*, ed. Mark Bradley and Kenneth Stow, 153–168 (Cambridge, UK: Cambridge University Press, 2012).

9. Maynard W. Swanson, "The sanitation syndrome: Bubonic plague and urban native policy in the Cape Colony, 1900–1909," *Journal of African History* 18, no. 3 (1977): 387–410.
10. Mary Sutphen, "Not what, but where: Bubonic plague and the reception of germ theories in Hong Kong and Calcutta, 1894–1897," *Journal of History of Medicine and Allied Sciences* 52, no. 1 (January 1997), 84.
11. Kidambi, "Infection of locality," 254.
12. Christos Lynteris, "A 'suitable soil': Plague's breeding grounds at the dawn of the third pandemic," *Medical History* 61, no. 3 (June 2017): 343–357.
13. For discussion, see Lynteris, "A 'suitable soil.'"
14. Lynteris, "A 'suitable soil.'" For sources on these practices, see HCPP, Cd. 139, Session 1900, "Indian Plague Commission, 1898–99. Minutes of evidence taken by the Indian Plague Commission with appendices., vol. I. Evidence taken from 29th November 1898 to 5th January 1899, 57"; BL, IOR/V/27856/58, *Punjab Plague Handbook, 1905* (Lahore, Pakistan: Punjab Government Press, 1905); Anon., "The plague in Hyderabad State: A report by Lieutenant-Colonel Lawrie I.M.S.," *The Lancet* 1, no. 3935 (January 28, 1899): 249–350. For an example of the photography of deroofting in India, see Apollo/VR3PP, PhotoID\_3644, <https://www.repository.cam.ac.uk/handle/1810/282472>.
15. Susan Craddock, "Sewers and scapegoats: Spatial metaphors of smallpox in nineteenth century San Francisco," *Social Science and Medicine* 41, no. 7 (1995), 961.
16. I am borrowing here Hans-Jörg Rheinberger's theory of experimental systems; Hans-Jörg Rheinberger, *Toward a History of Epistemic Things: Synthesizing Proteins in the Test Tube* (Redwood City, CA: Stanford University Press, 1997).
17. Sutphen, "Not what, but where."
18. Nicholas Evans, "The disease map and the city: Desire and imitation in the Bombay plague, 1896–1914," in *Plague and the City*, ed. Lukas Engelmann, John Henderson and Christos Lynteris, 116–138 (London, UK: Routledge, 2018), 127.
19. Frank Morton Todd, *Eradicating Plague from San Francisco: Report of the Citizens' Health Committee and an Account of Its Work* (San Francisco, CA: Press of C. A. Muddock & Co., 1909).
20. Rupert Blue, "Anti-plague measures in San Francisco, California, U.S.A.," *Journal of Hygiene* 9, no. 1 (April 1909): 1–8; Todd, *Eradicating Plague*, 7.
21. Todd, *Eradicating Plague*, 35. These conditions were, according to the Committee, further compounded by the makeshift nature of "wooden tents" and other shelters for the homeless, as well as of the equally rat-prone bunk houses of thousands of workers brought into the city for reconstruction. Several works discuss the photographic coverage of the 1906 earthquake and fire: Mark Klett and Michael Lundgren, *After the Ruins, 1906 and 2006: Rephotographing the San Francisco*

*Earthquake and Fire* (Berkeley, CA: University of California Press, 2006); Alan E. Leviton, Michele L. Aldrich, and Karren Elsbernd, “The California Academy of Sciences, Grove Karl Gilbert, and photographs of the 1906 earthquake, mostly from the archives of the Academy,” *Proceedings of the California Academy of Sciences* 57, no. 1 (2006): 1–34.

22. Todd, *Eradicating Plague*, 50, 51. The Committee paid 10 cents per rat, the same price as established in September 1907 by the Board of Health, leading to the capture of 1,237,550 rats; San Francisco Public Library, San Francisco History Center, San Francisco Department of Public Health Records (SFH 63), September 12, 1907, 321; Lavern Mau Dicker, “The San Francisco earthquake and fire: Photographs and manuscripts from the California Historical Society Library,” *California History* 59, no. 1 (1980): 33–65.

23. Joanna L. Dyl, *Seismic City: An Environmental History of San Francisco’s 1906 Earthquake* (Seattle, WA: University of Washington Press, 2017), 208.

24. Todd, *Eradicating Plague*, 12.

25. On the question of vectors being seen as “vermin,” see Christos Lynteris, “Introduction: Infectious animals and epidemic blame,” in *Framing Animals as Epidemic Villains: Histories of Non-Human Disease Vectors*, ed. Christos Lynteris, 1–25 (London, UK: Palgrave Macmillan, 2019); Karen Sayer, “Vermin landscapes: Suffolk, England, shaped by plague, rat and flea (1906–1920),” in *Framing Animals as Epidemic Villains: Histories of Non-Human Disease Vectors*, ed. Christos Lynteris, 27–64 (London, UK: Palgrave Macmillan, 2019).

26. Todd, *Eradicating Plague*, 95, 135.

27. On infrastructure as key to hygienic “improvement” ideologies and practices in colonial and post-colonial contexts, see Martin Beattie, “Colonial space: Health and modernity in Barabazaar, Kolkata,” *Traditional Dwellings and Settlements Review* 14, no. 2 (Spring 2003): 7–19; Aditya Ramesh and Vidhya Raveendranathan, “Infrastructure and public works in colonial India: Towards a conceptual history,” *History Compass* 13 (2020): e12614; Macarena Ibarra, “Hygiene and public health in Santiago de Chile’s urban agenda, 1892–1927,” *Planning Perspectives* 31, no. 2 (2016): 181–203.

28. Todd, *Eradicating Plague*, 146.

29. Todd, *Eradicating Plague*, 157

30. Anon., “Commission men show the city what cleaning-up really means,” *Merchant’s Association Review* 12, no. 140 (April 1908): 1.

31. Anon., “Commission men,” 1.

32. Anon., “Commission men,” 1.

33. Igor Krstić, *Slums on Screen: World Cinema and the Planet of Slums* (Edinburgh, UK: Edinburgh University Press, 2016).

34. Krstić, *Slums on Screen*, 44; Peter Stallybrass and Allon White, *The Politics and Poetics of Transgression* (London, UK: Methuen, 1986).

35. For examples of marked houses in India, see Apollo/VR3PP, PhotoID\_246, <https://www.repository.cam.ac.uk/handle/1810/282423>; Apollo/VR3PP, PhotoID\_3695, <https://www.repository.cam.ac.uk/handle/1810/282525>. For a discussion of this practice, see Jacob Steere-Williams, “‘Coolie’ control: State surveillance and the labour of disinfection across the late Victorian British Empire,” in *Making Surveillance States: Transnational Histories*, ed. Robert Heynen and Emily van der Meulen, 35–57 (Toronto, Ontario: University of Toronto Press, 2019).

36. NRI, 808.24za WLD:1 (RBR), Wu Lien-teh, *Views of Harbin (Fuchiatien) Taken during the Plague Epidemic (December 1910–March 1911)* (Shanghai, China: Commercial Press, [1911]).

37. Richard Pearson Strong, G. F. Petrie, and Arthur Stanley, eds., *Report of the International Plague Conference (Held at Mukden in April 1911)* (Manila, Philippines: Bureau of Printing, 1912).

38. Mark Gamsa, “The epidemic of pneumonic plague in Manchuria 1910–1911,” *Past Present* 190 (2006): 147–184. The conference’s minutes are available in Strong et al., *International Plague Conference*.

39. On the implication of migrant coolies in epidemic blame during the Manchurian plague epidemic of 1910–1911, see Christos Lynteris, *Ethnographic Plague: Configuring Disease on the Chinese-Russian Frontier* (London, UK: Palgrave Macmillan, 2016).

40. Lynteris, *Ethnographic Plague*.

41. Jonathan Schlesinger, *A World Trimmed with Fur: Wild Things, Pristine Places, and the Natural Fringes of Qing Rule* (Redwood City, CA: Stanford University Press, 2017).

42. Lynteris, *Ethnographic Plague*; Sujit Sivasundaram, “Towards a critical history of connection: The port of Colombo, the geographical ‘circuit,’ and the visual politics of new imperialism, ca. 1880–1914,” *Comparative Studies in Society and History* 59, no. 2 (2017): 346–384; Robert Peckham, *Epidemics in Modern Asia* (Cambridge, UK: Cambridge University Press, 2016).

43. Kidambi, “Infection of locality”; Timothy Barnard, *Imperial Creatures: Humans and Other Animals in Colonial Singapore, 1819–1942* (Singapore: National University of Singapore Press, 2019).

44. Apollo/VR3PP, PhotoID\_2, <https://www.repository.cam.ac.uk/handle/1810/280770>; Apollo/VR3PP, PhotoID\_3, <https://www.repository.cam.ac.uk/handle/1810/281866>.

45. Apollo/VR3PP, PhotoID\_4, <https://www.repository.cam.ac.uk/handle/1810/281977>; Apollo/VR3PP, PhotoID\_5, <https://www.repository.cam.ac.uk/handle/1810/281977>.

/1810/282089. For a discussion of bird's-eye views in epidemic photography, see chapters 2 and 3.

46. As Megan Vaughan has shown, this motion of the camera diving in so as reveal the breeding grounds of plague was also used later in a public health education film on plague in colonial Nigeria (*Anti-Plague Operations in Lagos*); the film “begins . . . with an aerial view of a Lagos shantytown before ‘zooming in’ on a rat scurrying amongst rubbish”; Megan Vaughan, *Curing Their Ills: Colonial Power and African Illness* (Cambridge, UK: Polity Press, 1991), 188.

47. I rely here on Carlo Ginzburg's reading of *enargeia* as developed by Polybius in relation to Homer and of *graphike enargeia* as developed by Plutarch in relation to Thucydides; Carlo Ginzburg, *Threads and Traces: True False Fictive*, trans. Anne C. Tedeschi and John Tedeschi (Berkeley, CA: University of California Press, 2012), 9, see also pp. 8–12.

48. P. S. Selwyn-Clarke, *Report on the Outbreak of Plague in Kumasi, Ashanti* (Accra, Gold Coast [Ghana]: Government Printing Department, 1925).

49. Benjamin Talton, “‘Kill rats and stop plague’: Race, space and public health in postconquest Kumasi,” *Ghana Studies* 22 (2019): 95–113.

50. Selwyn-Clarke, *Outbreak of Plague in Kumasi*, 3.

51. Liora Bigon, “Bubonic plague, colonial ideologies, and urban planning policies: Dakar, Lagos, and Kumasi,” *Planning Perspectives* 31, no. 2 (2016): 205–226.

52. Talton, “Kill rats and stop plague,” 96.

53. Talton, “Kill rats and stop plague”; Bigon, “Bubonic plague.”

54. WL, +M289, *Report by Professor W. J. Simpson on Sanitary Matters in Various West African Colonies and the Outbreak of Plague in the Gold Coast* (London, UK: Darling & Son: His Majesty's Stationery Office 1909). The report is on the plague outbreak in Accra in 1908. See also William J. R. Simpson, *Report on Plague in the Gold Coast in 1908* (London, UK: J. & A. Churchill, 1909). For a discussion of this outbreak, see Ryan Johnson, “Mantsemei, interpreters, and the successful eradication of plague: The 1908 plague epidemic in colonial Accra,” in *Public Health in the British Empire: Intermediaries, Subordinates, and the Practice of Public Health, 1850–1960*, ed. Ryan Johnson and Amna Khalid, 135–153 (London, UK: Routledge, 2011); Akwasi Kwarteng Amoako-Gyampah, “Sanitation and Public Hygiene in the Gold Coast (Ghana) from the Late 19th Century to 1950,” PhD diss. (University of Johannesburg, 2019). For a discussion on the challenges of researching the plague outbreaks in the Gold Coast, see Daniel Gilfoyle, “Researching Colonial Office correspondence: Plague in Gold Coast,” *National Archives Blog*, March 26, 2018, <https://blog.nationalarchives.gov.uk/researching-colonial-office-correspondence-plague-in-gold-coast/>.

55. Selwyn-Clarke, *Outbreak of Plague in Kumasi*, unnumbered plate between pages 14 and 15.

56. Selwyn-Clarke, *Outbreak of Plague in Kumasi*.
57. Selwyn-Clarke, *Outbreak of Plague in Kumasi*.
58. Selwyn-Clarke, *Outbreak of Plague in Kumasi*.
59. Talton, “Kill rats and stop plague,” 103. Peckham makes a similar point as regards technology as a driver of the pandemic, in the form of steamboats and railways; Peckham, *Epidemics in Modern Asia*.
60. Talton, “Kill rats and stop plague,” 103.
61. Talton, “Kill rats and stop plague,” 103.
62. Talton, “Kill rats and stop plague,” 104. On plague, racism, and sanitary reform in Cape Town, see Swanson, “Sanitation syndrome.”
63. Jiat-Hwee Chang, *A Genealogy of Tropical Architecture: Colonial Networks, Nature and Technoscience* (London, UK: Routledge, 2016), 132. See also Brenda S. A. Yeoh, *Contesting Space in Colonial Singapore: Power Relations and the Urban Built Environment* (Singapore: Singapore University Press, 2003), chapter 3.
64. On photographs of overcrowding and their sanitarian as well as orientalist inflections, see Krstić, *Slums on Screen*; Daniel Czitrom and Bonnie Yochelson, *Rediscovering Jacob Riis: Exposure Journalism and Photography in Turn-of-the-Century New York* (New York, NY: New Press, 2007).
65. Ann-Louise Shapiro, *Housing the Poor of Paris, 1850–1902* (Madison, WI: University of Wisconsin Press, 1985); Sidney Chalhoub, “The politics of disease control: Yellow fever and race in nineteenth century Rio de Janeiro,” *Journal of Latin American Studies* 25, no. 3 (October 1993): 441–463. Within medical materialist readings of the Bible at the time, demolition further enjoyed divine sanction, as it was seen as a practice whose roots laid with Moses himself; Edward T. Williams, “Moses as a sanitarian,” *Boston Medical and Surgical Journal* 106 (1882): 6–8.
66. Giovanna Borasi and Mirko Zardini, “Demedicalize architecture,” in *Imperfect Health: The Medicalization of Architecture*, ed. Giovanna Borasi and Mirko Zardini, 15–37 (Montreal, Quebec: Canadian Centre for Architecture/Lars Müller, 2012), 19.
67. In her work introducing the notion of hygienic modernity, Ruth Rogaski discusses the demolition of the ancient walls of Tianjin and the “shacks” reclining on them as part of the treaty port’s colonial plan for urban hygiene; Ruth Rogaski, *Hygienic Modernity: Meanings of Health and Disease in Treaty-Port China* (Berkeley, CA: University of California Press, 2004); Alice Mah, “Demolition for development: A critical analysis of official urban imaginaries in past and present UK cities,” *Journal of Historical Sociology* 25, no. 1 (March 2012): 151–176.
68. Branwyn Poleykett, “Public culture and the spectacle of epidemic disease in Rabat and Casablanca,” in *Plague and the City*, ed. Lukas Engelmann, John HENDERSON and Christos Lynteris, 159–171 (London, UK: Routledge, 2018).

69. Talton, “Kill rats and stop plague,” 102.
70. Cecilia Chu, “Combatting nuisance: Sanitation, regulation and politics of property in colonial Hong Kong,” in *Imperial Contagions: Medicine, Hygiene, and Cultures of Planning in Asia*, ed. Robert Peckham and David Pomfret, 17–36 (Hong Kong: Hong Kong University Press, 2013).
71. John Tagg, *The Burden of Representation: Essays on Photographies and Histories* (London, UK: Macmillan, 1988), 151.
72. Larissa Heinrich, *The Afterlife of Images: Translating the Pathological Body between China and the West* (Durham, NC: Duke University Press, 2008); Eric A. Stein, “Colonial theatres of proof: Representation and laughter in 1930s Rockefeller Foundation hygiene cinema in Java,” in “Health, Medicine and the Media,” special issue, *Health and History* 8, no. 2 (2006): 14–44.
73. Stein, “Colonial theatres,” 21, 24.
74. Stein, “Colonial theatres,” 26; Selwyn–Clarke, *Outbreak of Plague in Kumasi*.
75. Stephanie Lewthwaite, *Race, Place, and Reform in Mexican Los Angeles: A Transnational Perspective, 1890–1940* (Tucson, AZ: University of Arizona Press, 2009), 120.
76. BANC PIC 1988.052—PIC, Photographic Documentation of Pneumonic Plague Outbreak Sites and Rats in Los Angeles, 1924.
77. William F. Deverell, *Whitewashed Adobe: The Rise of Los Angeles and the Remaking of Its Mexican Past* (Berkeley, CA: University of California Press, 2004); A. J. Viseltear, “The pneumonic plague epidemic of 1924 in Los Angeles,” *Yale Journal of Biological Medicine* 47, no. 1 (1974): 40–54.
78. Deverell, *Whitewashed Adobe*, 187.
79. Lewthwaite, *Race, Place, and Reform*, 124.
80. Lewthwaite, *Race, Place, and Reform*, 124.
81. Lewthwaite, *Race, Place, and Reform*, 124–125. The destruction of Mexican houses involved no compensation and no rehousing of those rendered homeless as a result of anti-plague demolition; Deverell, *Whitewashed Adobe*, 188.
82. Selwyn–Clarke, *Outbreak of Plague in Kumasi*; Lewthwaite, *Race, Place, and Reform*.
83. Helen Grace, “A new journal of the plague year,” *Cultural Studies* 1, no. 1 (1987): 75–91, 77.
84. State Library of New South Wales, PXE 90–1001, “Views taken during Cleansing Operations, Quarantine Area, Sydney, 1900, Vol. I to XI, under the supervision of Mr George McCredie, F.I.A., N.S.W.”
85. Grace, “New journal of the plague year,” 76.
86. San Francisco Public Library, leather-bound album titled “J. M. Williamson M.D. Board of Health” (uncataloged, no call number). Williamson’s album contains

some, clearly orientalist, frames of Chinese men in their condemned houses; for example, see Apollo/VR3PP, PhotoID\_7188, <https://www.repository.cam.ac.uk/handle/1810/281176>.

87. Grace also speculates that the photographs of the plague-ridden slum may have been “intended to be used as evidence *in case litigation arose*”; Grace, “New journal of the plague year,” 77. This form of photographic “legal realism” has been shown by Tagg to be the case in the case of photographs of in Quarry Hill, Leeds, England, aimed at supporting the case of slum clearance before Parliament after a series of typhus outbreaks in the neighborhood; Tagg, *Burden of Representation*, 144.

88. Guenter B. Risse, *Plague, Fear, and Politics in San Francisco’s Chinatown* (Baltimore, MD: Johns Hopkins University Press, 2012); Nayan Shah, *Contagious Divides: Epidemics and Race in San Francisco’s Chinatown* (Berkeley, CA: University of California Press, 2001); Marilyn Chase, *The Barbary Plague: The Black Death in Victorian San Francisco* (London, UK: Random House, 2003); Craddock, *City of Plagues*.

89. Anon., “The bubonic plague and the remedy,” *The Worker* 11, no. 464 (March 24, 1900): 1. For a discussion on plague and Sinophobia in Australia, see Peter Curson and Kevin McCracken, *Plague in Sydney: The Anatomy of an Epidemic* (Kensington, Australia: New South Wales University Press, 1989). The Sydney albums contain only four photographs directly identified as “Chinese sleeping apartments,” for example, Apollo/VR3PP, PhotoID\_2653, <https://www.repository.cam.ac.uk/handle/1810/282185>.

90. Williamson in Risse, *Plague, Fear, and Politics*, 192.

91. Lynteris, “A ‘suitable soil.’”

92. For a discussion of this idea at the time, see Hong Kong Government, “Report, Scheme for the Improvement of the Resumed Area in Taipingshan (incorporating Correspondence No. 132 by Francis A. Cooper, Director of Public Works, 22 March 1895), (March 30, 1895),” *Hong Kong Government Gazette*, GA 1895, no. 117, p. 264.

93. AIP, YER.Cor1, Lieu: A1/13, Alexandre Yersin to Fanny Yersin, 29 September 1898; AIP, YER.Cor1, Lieu: A1/13, Alexandre Yersin to Fanny Yersin, 16 March 1899. For discussion, see Christos Lynteris, “Vagabond microbes, leaky laboratories and epidemic mapping: Alexandre Yersin and the 1898 plague epidemic in Nha Trang,” *Social History of Medicine* 34, no. 1 (2021): 190–213.

94. AIP, BPT.Doc.81, Lieu: A7/244–267; Apollo/VR3PP, PhotoID\_6877, <https://www.repository.cam.ac.uk/handle/1810/284802>. The caption in the published photograph misdates the outbreak as having taken place in 1897. On Yersin sharing these photographs with Roux, see AIP, IND.A2, Lieu: A4/151–153, Yersin to Roux, 12 August 1898.

95. Robert Peckham, “Plague views: Epidemics, photography, and the ruined city,” in *Plague and the City*, ed. Lukas Engelmann, John Henderson, and Christos Lynteris, 91–115 (London, UK: Routledge, 2018).



96. Clement Scott, "The black death in China," *Illustrated London News* 2880, no. 104 (June 30, 1894): 823.
97. Peckham, "Plague views," 94; Robert Peckham, "Hong Kong junk: Plague and the economy of Chinese things," *Bulletin of the History of Medicine* 90, no. 1 (2016): 32–60.
98. Peckham, "Plague views," 94; Peckham, "Hong Kong junk," 32.
99. Peckham, "Plague views"; see also Jerome J. Platt, Maurice E. Jones, and Arleen Kay Platt, *The Whitewash Brigade: The Hong Kong Plague, 1894* (London, UK: Dix Noonan Webb, 1998).
100. See, for example, Anon., "Hong Kong during the plague," *Australian Town and Country Journal* (Sydney) 49, no. 1285 (September 22, 1894): 30; Anon., "The Plague at Hong Kong: British troops destroying the refuse from infected houses at Tai-ping-shan," *The Graphic* (London) 1288 (August 4, 1894): 120; Anon., "The Plague at Hong Kong," *Illustrated London News* 2884 (July 28, 1894): 100.
101. Peckham, "Plague views," 100. Peckham clarifies that "the 'ruin' as a subcategory of building photography, [was] a genre popularized in a Chinese context by photographers such as Felice Beato, Thomas Child, and John Thomson" (53). On the photography of ruination in China, see Andrew F. Jones, "Portable monuments: Architectural photography and the 'forms' of empire in modern China," *Positions* 18, no. 3 (2010): 599–631.
102. Anon., "The Plague," *Hongkong Daily Press*, July 6, 1894, 2; quoted in Peckham, "Plague views," 101.
103. Shropshire Regiment "Whitewash Brigade" emptying items from Chinese homes in Taipingshan, Hong Kong, and burning them on the street as an epidemic control measure during the 1894 plague outbreak; Apollo/VR3PP, PhotoID\_73, <https://www.repository.cam.ac.uk/handle/1810/282067>. Originals of the photograph are held by the Wellcome Library (L0022367) and the National Archives (United Kingdom): 6005/SHYKS/10/0256, Album of Photographs. On imperial debris, see Ann Laura Stoler, *Duress: Imperial Durabilities in Our Times* (Durham, NC: Duke University Press, 2016).
104. Jones, "Portable Monuments," 620.
105. James R. Ryan, *Picturing Empire: Photography and the Visualization of the British Empire* (London, UK: Reaktion Books, 1997).
106. Peckham, "Plague views," 102.
107. Michael Taussig, *What Color Is the Sacred?* (Chicago, IL: University of Chicago Press, 2009), 82.
108. As shown by Carole Rawcliffe, bonfires were used since the Middle Ages not simply to dispel stench but also to burn "corrupt foodstuffs" and other pestilential objects; Rawcliffe, "Great stench, horrible sights," 18. On plague, fire, and

ruination in visual culture, see Christine M. Boeckl, *Images of Plague and Pestilence: Iconography and Iconology* (University Park, PA: Pennsylvania State University Press, 2001); Sheila Barker, “Poussin, plague, and early modern medicine,” *Art Bulletin* 86, no. 4 (2004): 659–689.

109. Faye Marie Getz, “Black Death and the silver lining: Meaning, continuity, and revolutionary change in histories of medieval plague,” *Journal of the History of Biology* 24, no. 2 (1991): 265–289.

110. Mohr may be correct in suggesting that the example best known to Honolulu’s Board of Health was the burning of rubble during the Taipingshan resumption in Hong Kong, which took place in 1898; James C. Mohr, *Plague and Fire: Battling Black Death and the 1900 Burning of Honolulu’s Chinatown* (Oxford, UK: Oxford University Press, 2004), 91.

111. BANC PIC 1988.052. Centro Português de Fotografia holds fifty-nine photographs of the 1899 plague epidemic in Porto (Oporto), a number of which involve disinfection and the destruction of “infected houses.”

112. Mohr, *Plague and Fire*.

113. “Stamping out,” as Mohr notes, was the trope used by army medical authorities in Honolulu at the time; Mohr, *Plague and Fire*, 90.

114. Engelmann, “‘A source of sickness’: Photographic mapping of the plague in Honolulu in 1900,” in *Plague and the City*, ed. Lukas Engelmann, John Henderson and Christos Lynteris, 139–158 (London, UK: Routledge, 2018), 143.

115. Mohr, *Plague and Fire*.

116. Engelmann, “Source of sickness,” 146.

117. Mohr, *Plague and Fire*. For press coverage and visualization of these “sanitary fires,” see Anon., “Fighting bubonic plague in the Chinese and native quarters, Honolulu, H.I.,” *Harper’s Weekly*, February 3, 1900, 112; Anon., “Plague fought by fire,” *New-York Tribune Illustrated Supplement*, January 28, 1900, 13; The Hawaii State Archives hold several prints and albums by photographers covering “sanitary fires” and the events of January 20, 1900.

118. On the reputation and professionalism of Honolulu’s fire department, see Mohr, *Plague and Fire*, 118–119. For examples of the press exonerating the fire department from blame over the January 20 catastrophe, see Charles H. Thurston, “The Honolulu fire department,” *Pacific Commercial Advertiser* (Honolulu) 35, no. 6054 (January 1, 1902): 47; Frank Godfrey, “The Kaumakapili church fire,” *Austin’s Hawaiian Weekly* 2, no. 20 (February 3, 1900): 7.

119. Mohr, *Plague and Fire*; Richard A. Greer, “‘Sweet and clean’: The Chinatown fire of 1886,” *Hawaiian Journal of History* 10 (1976): 33–51. For photographs of the 1886 fire, see Hawaii Historical Society Library, Photographic Collection, Nos. 699, 700, 701, 702, 4543, 4544.

120. Hawaii State Archives, 501 v.2, Records of the Special Vector Eradication Campaign, Oahu and Maui Plague Records, 1899–1900, The Attack of Plague, December 12th 1899, 33.
121. On the “forced march,” see Mohr, *Plague and Fire*, 138–139.
122. Anon., “The great fire in Honolulu,” *Harper’s Weekly*, February 17, 1900, 149.
123. Hawaii Historical Society Library, Photographic Collection, No. 693.
124. This is possibly: Hawaii State Archive, Photograph Collection, Epidemics, Bubonic Plague, 1900, PP-19-1-007, [http://gallery.hawaii.gov/gallery2/main.php?g2\\_itemId=15043](http://gallery.hawaii.gov/gallery2/main.php?g2_itemId=15043).
125. I have not been able to locate the archival repository or source of this photograph.
126. Anon., “Great fire in Honolulu,” 149.
127. Anon., “Two million dollar blaze razes Honolulu’s Chinatown,” *San Francisco Call*, February 1, 1900, 4.
128. Anon., “Two million dollar blaze,” 4.
129. Hawaii State Archives, Photograph Collection: Albums, PA 4b, Photo Album Hawaiian Islands, 1898–1900, F.J. H. Rockon, Vol. 3 (untitled, no page number).
130. Hawaii Historical Society Library, Photographic Collection, No. 691; The “Citizens with pick and ax handles” photograph was taken by Taylor Coll, and is only slightly cropped in this publication: Hawaii State Archive, Photograph Collection, Epidemics, Bubonic Plague, 1900, PP-19-1-042, [http://gallery.hawaii.gov/gallery2/main.php?g2\\_itemId=15148](http://gallery.hawaii.gov/gallery2/main.php?g2_itemId=15148).
131. This was taken by Davey and was severely cropped for its published version; Hawaii State Archives, Photograph Collection, Epidemics, Bubonic Plague, 1900, PP-18-9-027.
132. Lukas Engelmann and Christos Lynteris, *Sulphuric Utopias: A History of Maritime Fumigation* (Cambridge, MA: MIT Press, 2020), 49; Lindsey Fitzharris, *The Butchering Art: Joseph Lister’s Quest to Transform the Grisly World of Victorian Medicine* (London, UK: Penguin, 2017).
133. Peter Baldwin, *Contagion and the State in Europe, 1830–1930* (Cambridge, UK: Cambridge University Press, 2005); David S. Barnes, “Cargo, ‘infection,’ and the logic of quarantine in the nineteenth century,” *Bulletin of the History of Medicine* 88, no. 1 (2014): 75–101; William Coleman, *Yellow Fever in the North: The Methods of Early Epidemiology* (Madison, WI: University of Wisconsin Press, 1987); Engelmann and Lynteris, *Sulphuric Utopias*; Mooney, *Intrusive Interventions*; Michael Worboys, *Spreading Germs: Disease Theories and Medical Practice in Britain, 1865–1900* (Cambridge, UK: Cambridge University Press, 2000).

134. Mooney, *Intrusive Interventions*, 126.
135. Mooney, *Intrusive Interventions*, 127; Engelmann and Lynteris, *Sulphuric Utopias*, 51.
136. Rebecca Whyte, “Disinfection in the laboratory: Theory and practice in disinfection policy in late C19th and Early C20th England,” *Endeavour* 39, no. 1 (March 2015): 35–43.
137. Engelmann and Lynteris, *Sulphuric Utopias*.
138. See Engelmann and Lynteris, *Sulphuric Utopias*, for discussion. For example, in a publication on disinfecting experiments in India from *The Lancet*, we read “the most successful disinfectant will be the one which is capable of destroying both rats and their fleas”; Anon., “Recent experiments on plague disinfectants in India,” *The Lancet*, September 26, 1908, 960.
139. Mooney, *Intrusive Interventions*.
140. Engelmann and Lynteris, *Sulphuric Utopias*.
141. Lukas Engelmann has, for example, examined the development and application of the Marot apparatus for land-based use in Argentina; Lukas Engelmann, “Fumigating the hygienic model city: Bubonic Plague and the sulfurozador in early-twentieth-century Buenos Aires,” *Medical History* 62, no. 3 (2018): 360–382.
142. BL, *Plague Visitation, Bombay, 1896–97*. Photographer(s): Cpt. Moss, Photo 311/1: 1896–1897; WL, no. 24258i, *The Bombay Plague Epidemic of 1896–1897: Work of the Bombay Plague Committee*. Photographs attributed to Capt. C. Moss, 1897. See Shivani Sud, “Bombay plague visitation, 1896–97,” *Asian and African Studies Blog* (British Library), July 22, 2020, <https://blogs.bl.uk/asian-and-african/index.html>; Shivani Sud, “Water, air, light: The materialities of plague photography in colonial Bombay, 1896–97,” *Getty Research Journal* 12 (2020): 219–230. As David Arnold explains, “Of the 142 images in the album the majority are attributed to Captain C. Moss of the Gloucestershire Regiment with a smaller number, eight in all, attributed to a professional ‘photo artist’, F. B. Stewart of Poona, who is also credited with having complied [*sic*] the volume”; David Arnold, “Picturing plague: Photography, pestilence, and cremation in late nineteenth- and early twentieth-century India,” in *Plague Image and Imagination from Medieval to Modern Times*, ed. Christos Lynteris, 111–139 (London, UK: Palgrave Macmillan, 2021). On the album and its production, see Abhijit Sarkar, “Reflexive gaze and constructed meanings: Photographs of plague hospitals in colonial Bombay,” in *Plague Image and Imagination from Medieval to Modern Times*, ed. Christos Lynteris, 141–189 (London, UK: Palgrave Macmillan, 2021).
143. The Getty photograph was also reproduced in Anon., “The plague in India: Fighting the epidemic in Bombay,” *The Graphic* (London) 1451 (September 18, 1897): 394.
144. The use of water is suggested in Sud, “Water, Air, Light,” 219.

145. Following Simpson, in a disinfection experiment that Hankin carried out, water was used to spray the walls and ceilings of an infected room before burning sulfur in it; the experiment resulted in failed germicide; William J. R. Simpson, *A Treatise on Plague: Dealing with the Historical, Epidemiological, Clinical, Therapeutic and Preventive Aspects of the Disease* (Cambridge, UK: Cambridge University Press, 1905), 390. The only supporting evidence, to my knowledge, of water being used in the operations depicted in this photograph comes from the text accompanying the photograph in a rough rendition of it included in a French popular science article in 1900; AIP, BPT.Doc.81, Lieu: A7/244–267, Unknown. “La fin d’un cauchemar,” “Lectures pour tous: mars 1900,” 492. I would like to thank Shivani Sud for her feedback on this matter.

146. Surgn.-Capt. T. E. Dyson, “Memorandum. Plague and house disinfection,” *Indian Medical Gazette* 32, no. 8 (August 1897): 298. For an extensive review of disinfectants used, with no mention of water other than as a diluter for “Perchloride of Mercury” (HgCl<sub>2</sub>), see also chapter 4 in NLS, 77505435, *Report of the Municipal Commissioner of the Plague in Bombay for the Year Ending 31<sup>st</sup> May 1899, Part I. General Administration* (Bombay, India: Times of India, 1899).

147. Myron J. Echenberg, *Plague Ports: The Global Urban Impact of Bubonic Plague, 1894–1901* (New York, NY: New York University Press, 2007), 57–58.

148. Sud, “Water, air, light,” 225. The Getty Research Institute album (138 photographs) holds a slightly different photograph of the same scene to the British Library (142 photograph) and the Wellcome Library (125 photographs) copies which share figure 4.5. Apollo/VR3PP contains the combined British Library and Wellcome Library prints of the albums. In the Getty version of the photograph, there is less commotion on the streets, resulting in less ghostly looking figures from the long exposure. At the same time, in the Getty copy the liquid has hit the surface of the wall resulting in a visible cascade on the surface of the building while in the British Library version a studio artist has added what looks like a badly drawn cloud of particles at the end of the jet; Getty Research Institute, 1384–039/96.R.81, Plague visitation, Bombay, 1896–1897.

149. Peckham, *Epidemics in Modern Asia*, 88.

150. Dyson, “Memorandum,” 298.

151. Dyson, “Memorandum,” 298.

152. Stein, “Colonial theatres.”

153. On the Clayton Company and the Clayton machine, see Engelmann and Lyn-teris, *Sulphuric Utopias*.

154. An example of these pamphlets can be found in National Archives (United Kingdom), MH 19/274, “Plague Destruction of Rats on Ship; Plague Precautions. Destruction of Rats on Ships, 24 May 1900,” enclosed pamphlet “The Clayton

Fire Extinguishing and Ventilating Company, Limited”; ANOM, INDO GGI 4416, Appareil Clayton; AIP, CAL.D16, Lieu: 5/174–179, brochure “Gaz Clayton Appareil Clayton” (Paris, May 1903).

155. Selwyn-Clarke, *Outbreak of Plague in Kumasi*. Following the demise of large fumigators circa 1945, photographs of DDT disinfection against plague would fulfill a similar role. For photographs of these in Senegal, see Myron Echenberg, *Black Death, White Medicine: Bubonic Plague and the Politics of Public Health in Colonial Senegal, 1914–1945* (Oxford, UK: James Currey, 2002).

156. Engelmann, “Fumigating the hygienic model city.”

157. Engelmann and Lynteris, *Sulphuric Utopias*.

158. For recent works, outside plague, on how epidemic control violently transformed these relations to nonhuman animals, see Rohan Deb Roy, *Malarial Subjects: Empire, Medicine and Nonhumans in British India, 1820–1909* (Cambridge, UK: Cambridge University Press, 2017); Barnard, *Imperial Creatures*; Deborah Nadal, *Rabies in the Streets: Interspecies Camaraderie in Urban India* (University Park, PA: Pennsylvania State University Press, 2020).

159. I am drawing here from the broader theory of capitalism in: Gilles Deleuze and Felix Guattari, *Capitalism and Schizophrenia I: Anti-Oedipus*, trans. Robert Hurley (1972; repr., London, UK: Penguin, 2009).

### CHAPTER 3

1. Alison Bashford, “Maritime quarantine: Linking Old World and New World histories,” in *Quarantine: Local and Global Histories*, ed. Alison Bashford, 1–12 (London, UK: Palgrave Macmillan, 2016); Jane Stevens Crawshaw, “The Renaissance invention of quarantine,” in *The Fifteenth Century XII: Society in an Age of Plague*, ed. Linda Clark and Carole Rawcliffe, 161–174 (Cambridge, UK: Cambridge University Press, 2013).

2. Erwin H. Ackerknecht, “Anticontagionism between 1821 and 1867,” *Bulletin of the History of Medicine* 22 (1948): 562–593; Peter Baldwin, *Contagion and the State in Europe, 1830–1930* (Cambridge, UK: Cambridge University Press, 2005); Mark Harrison, *Contagion: How Commerce Has Spread Disease* (New Haven, CT: Yale University Press, 2013).

3. David S. Barnes, “Cargo, ‘infection,’ and the logic of quarantine in the nineteenth century,” *Bulletin of the History of Medicine* 88, no. 1 (2014): 75–101; Lukas Engelmann and Christos Lynteris, *Sulphuric Utopias: A History of Maritime Fumigation* (Cambridge, MA: MIT Press, 2020).

4. On the merging of quarantine and isolation, see Robert Peckham, “Spaces of quarantine in colonial Hong Kong,” in *Quarantine: Local and Global Histories*, ed. Alison Bashford, 66–84 (London, UK: Palgrave Macmillan, 2016).

5. Inland lazarettos had been used for centuries. For discussion, see Ann G. Carmichael, “Pesthouse Imaginaries,” in *Plague Image and Imagination*, ed. Christos Lynteris (London, UK: Palgrave Macmillan, 2021).

6. In the case of Manchuria, contacts were also isolated in immobilized train wagons. For relevant photographs, see NRI, 808.24za WLD:1 (RBR), Wu Lien-teh, *Views of Harbin (Fuchiatien) Taken during the Plague Epidemic, December 1910–March 1911* (Shanghai, China: Commercial Press, 1911); NYAML, RBS74, Anon., *Chuma v Manchzhurii, v. 1910–11 g.g* (n.p., 1911).

7. On the importance of ports as loci for problematizing and intervening on plague, see Myron J. Echenberg, *Plague Ports: The Global Urban Impact of Bubonic Plague, 1894–1901* (New York, NY: New York University Press, 2007); Engelmann and Lynteris, *Sulphuric Utopias*; Harrison, *Contagion*, chapter 4.

8. Adrien Proust, *La défense de l’Europe contre la peste et la conférence de Venise de 1897* (Paris, France: Masson, 1897). For a historical reviews of the International Sanitary Conferences, their relation to quarantine and their colonial vestiges, see W. F. Bynum, “Policing hearts of darkness: Aspects of the international sanitary conferences,” *History and Philosophy of the Life Sciences* 15, no. 3 (1993): 421–434; Harrison, *Contagion*. On the negotiation of plague-related quarantine in smaller sanitary conferences, see Engelmann and Lynteris, *Sulphuric Utopias*. For a general history of lazarettos, see Sofiane Bouhdiba, *Pavillon jaune: Histoire de la quarantaine, de la Peste à Ebola* (Paris, France: L’Harmattan, 2016).

9. Ministère des Affaires Étrangère, *Conférence sanitaire internationale de Paris: 10 octobre–3 décembre 1903, procès-verbaux* (Paris, France: Imprimerie Nationale, 1904).

10. Engelmann and Lynteris, *Sulphuric Utopias*, 14.

11. Engelmann and Lynteris, *Sulphuric Utopias*; Harrison, *Contagion*.

12. Alison Bashford, *Imperial Hygiene: A Critical History of Colonialism, Nationalism and Public Health* (Basingstoke, UK: Palgrave Macmillan, 2004); Krista Maglen, *The English System: Quarantine, Immigration and the Making of a Port Sanitary Zone* (Manchester, UK: Manchester University Press, 2014); Howard Markel, *Quarantine!: East European Jewish Immigrants and the New York City Epidemics of 1892* (Baltimore, MD: Johns Hopkins University Press, 1999); Sujit Sivasundaram, “Towards a critical history of connection: The port of Colombo, the geographical ‘circuit,’ and the visual politics of new imperialism ca.1880–1914,” *Comparative Studies in Society and History* 59, no. 2 (2017): 346–384, especially 378–379.

13. Birsen Bulmuş, *Plague, Quarantines and Geopolitics in the Ottoman Empire* (Edinburgh, UK: Edinburgh University Press, 2012); Sylvia Chiffolleau, *Le voyage à La Mecque: Un pèlerinage mondial en terre d’Islam* (Paris, France: Belin, 2015); John Chircop, “Quarantine, sanitization, colonialism and the construction of the ‘contagious Arab’ in the Mediterranean, 1830s–1900,” in *Mediterranean Quarantines, 1750–1914: Space, Identity and Power*, ed. John Chircop and Francisco Javier

Martinez, 199–231 (Manchester, UK: Manchester University Press, 2018); Mark Harrison, “Quarantine, pilgrimage, and colonial trade,” *Indian Economic and Social History Review* 29 (1992): 117–144; Francisco Javier Martínez, “Mending ‘Moors’ in Mogador: *Hajj*, cholera and Spanish-Moroccan regeneration, 1890–99,” in *Mediterranean Quarantines, 1750–1914: Space, Identity and Power*, ed. John Chircop and Francisco Javier Martínez, 66–106 (Manchester, UK: Manchester University Press, 2018); Saurab Mishra, *Pilgrimage, Politics, and Pestilence: The Hajj from the Indian Subcontinent* (Oxford, UK: Oxford University Press, 2011); Christian Promitzer, “Prevention and stigma: The sanitary control of Muslim pilgrims from the Balkans, 1830–1914,” in *Mediterranean Quarantines, 1750–1914: Space, Identity and Power*, ed. John Chircop and Francisco Javier Martínez, 145–169 (Manchester, UK: Manchester University Press, 2018).

14. Examples of such photographs in the British India plague photographic corpus are contained in BL, *Plague Visitation, Bombay, 1896–97*. Photographer(s): Moss, C. Photo 311/1: 1896–1897; WL, 24258i, *The Bombay Plague Epidemic of 1896–1897: Work of the Bombay Plague Committee*, photographs attributed to Capt. C. Moss, 1897; Getty Research Institute, 1384–039/96.R.81, *Plague visitation, Bombay, 1896–1897*; for instance, respectively, Apollo/VR3PP, PhotoID\_3689, <https://www.repository.cam.ac.uk/handle/1810/282518>; Apollo/VR3PP, PhotoID\_4019, <https://www.repository.cam.ac.uk/handle/1810/282679>.

15. For an excellent collection of primary sources on the subject, see Laurent Escande, ed., *Avec les pèlerins de La Mecque: Dossiers numériques* (Aix-en-Provence, France: Presses Universitaires de Provence, Maison Méditerranéenne des Sciences de l’Homme, 2013). The Ottoman Empire’s establishment of a sanitary service in Hejaz dates back to 1866; Chiffolleau, *Le voyage à La Mecque*, 194.

16. Sylvia Chiffolleau, *Genèse de la santé publique internationale: De la peste d’Orient à l’OMS* (Rennes, France: Presses Universitaires de Rennes 2012).

17. Michael Christopher Low, “Empire and the Hajj: Pilgrims, plagues, and pan-Islam under British surveillance, 1865–1908,” *International Journal of Middle East Studies* 40, no. 2 (May 2008): 269–290.

18. Cozzonis Effendi, *Rapport sur la manifestation pestilentielle à Djeddah, en 1898 suivi d’une esquisse sur les conditions générales de la dite ville* (Constantinople, Turkey: Imprimerie Osmanié, 1898).

19. On plague in the Ottoman Empire before the third pandemic, see Nükhet Varlık, *Plague and Empire in the Early Modern Mediterranean World: The Ottoman Experience, 1347–1600* (Cambridge, UK: Cambridge University Press, 2015).

20. Anon., “The Turkish lazarets,” *The Lancet* 169, no. 4365 (April 27, 1907): 1173. The Commission was preceded by the Commission of Lazarettos (*Commission des Lazarets*, established in 1891), as well as two earlier commissions (1867 and 1870); Administration Sanitaire de l’Empire Ottoman, *Projets pour la réorganisation*



*des lazarets de l'empire Ottoman: Actes du conseil supérieur de santé 1889–1894* (Constantinople, Turkey: Typographie et Lithographie Osmanié, 1894). The nine lazarettos in the Ottoman Empire contemporary to the 1905 commission (Sinop and Kavak, in the Bosphorus, Clazomenes, Beirut and Tripoli, in the Mediterranean, Abu-Saad and Kamaran (also spelled Camaran) in the Red Sea, Basra, and Khanaqin on the Turkish-Persian border) were under the control of the Council; The British Delegate on the Constantinople Board of Health, “Some Turkish lazarets and other sanitary institutions in the Near East, I,” *The Lancet* 169, no. 4365 (April 27, 1907): 1188–1189. Also known as the Quarantine Council, the Constantinople Board of Health, the Council (*Meclis-i Tahaffuz* in Turkish) was established in 1839, composed of Ottoman as well as international members, and was “tasked with enforcing quarantine regulations in the Mediterranean region”; A. Arslan and H. A. Polat, “Travel from Europe to Istanbul in the 19th century and the quarantine of Çanakkale,” *Journal of Transport and Health* 4 (2017): 10–17, 16. On the history of the Council, see Nuran Yıldırım, *A History of Healthcare in Istanbul: Health Organizations—Epidemics, Infections and Disease Control Preventive Health Institutions—Hospitals—Medical Education* (Istanbul, Turkey: Ajansfa, 2010).

21. Combining Clemow and Balilis in the Commission was a risky choice as the two men were known to hold diametrically opposed positions on quarantine and to have engaged in heated exchanges in the past; Engelmann and Lynteris, *Sulphuric Utopias*.

22. Other than those examined here, reports also covered the lazarettos of Abou-Saad, Wasta, and Abou-Ali (1906), Kamaran (1906), and Sinop (1908), while the disinfecting stations in Jaffa and Rhodes were also inspected; see Anon., “Turkish lazarets.” Kamaran lazaretto is the Ottoman quarantine station that has attracted the most historical attention to date: Sylvia Chiffolleau, “Les pèlerins de La Mecque, les germes et la communauté internationale,” *Médecine/Sciences* (Paris) 27, no. 12 (December 2011): 1121–1126; Harrison, “Quarantine, pilgrimage, and colonial trade”; Saurab Mishra, “Incarceration and resistance in a Red Sea lazaretto, 1880–1930,” in *Quarantine: Local and Global Histories*, ed. Alison Bashford, 54–65 (London, UK: Palgrave Macmillan, 2016); G. Sariyildiz and O. D. Macar, “Cholera, pilgrimage, and international politics of sanitation: The quarantine station on the island of Kamaran,” in *Plague and Contagion in the Islamic Mediterranean*, ed. Nukhet Varlık, 243–274 (Croydon, UK: ARC Humanities Press, 2017).

23. For a history of sanitation in Lebanon, see Houssam Yehya, “La protection sanitaire et sociale au Liban (1860–1963),” PhD diss. (Université Nice Sophia Antipolis, 2015).

24. Administration Sanitaire de l'Empire Ottoman, *Rapport de la commission d'inspection des lazarets sur le lazaret de Beyrouth, présenté au Conseil supérieur de santé le 9 octobre, 1906* (Constantinople, Turkey: Imprimerie F. Loeffler, Lithographie de S.M.I le Sultan, 1906). On the construction of the lazaretto by request of Ibrahim Pasha

(the son of Muhammad Ali of Egypt) and the early nineteenth-century history of quarantine in Ottoman Beirut, see Toufoul Abou-Hodeib, “Quarantine and trade: The case of Beirut, 1831–1840,” *International Journal of Maritime History* 19, no. 2 (2007): 223–224. On the history of the lazaretto, see also Jens Hanssen, *Fin de Siècle Beirut: The Making of an Ottoman Provincial Capital* (Oxford, UK: Oxford University Press, 2005).

25. Administration Sanitaire de l’Empire Ottoman, *Le lazaret de Beyrouth*, 3–4, my translation.

26. The use of diagrams had been an integral part of discussions of lazarettos since Howard’s authoritative monograph on the subject; John Howard, *An Account of the Principal Lazarettos in Europe with Various Papers Relative to Plague* (Warrington, UK: William Eyres, 1789). For a discussion of diagrams in lazaretto treatises before the third pandemic, see also Manlio Brusatin, *Il muro della peste: Spazio della pietà e governo del lazaretto* (Venice, Italy: Cluva Libreria Editrice, 1981); Pierre-Louis Laget, “Les lazarets et l’émergence de nouvelles maladies pestilentielles au XIXe et au début du XXe siècle,” *In Situ: Revue des Patrimoines* 2 (2002), <https://dx.doi.org/10.4000/insitu.1225>.

27. On intervisuality and photography, see Nicholas Mirzoeff, “The multiple viewpoint: Diasporic visual cultures,” in *Diaspora and Visual Culture: Representing Africans and Jews*, ed. Nicholas Mirzoeff, 1–18 (London, UK: Routledge, 2000).

28. Administration Sanitaire de l’Empire Ottoman, *Le lazaret de Beyrouth*, 4, my translation.

29. Anon., “Turkish lazarets,” 1173.

30. Administration Sanitaire de l’Empire Ottoman, *Rapport de la commission d’inspection des lazarets sur le lazaret de Camaran, présenté au Conseil supérieur de santé le 31 juillet 1906* (Constantinople, Turkey: Imprimerie Française E. Souma & cie 1906); Clemow was *rapporteur* to both reports.

31. British Delegate on the Constantinople Board of Health, “Some Turkish lazarets and other sanitary institutions in the Near East,” *The Lancet* 169, no. 4365 (April 27, 1907): 1188–1189, the beginning of an article series that ran between April and August 1907.

32. British Delegate on the Constantinople Board of Health, “Some Turkish lazarets and other sanitary institutions in the Near East, V. The Camaran lazaret,” *The Lancet* 169, no. 4370 (June 1, 1907): 1518–1521.

33. Elizabeth Edwards, *The Camera as Historian: Photographers and Historical Imagination, 1885–1918* (Durham, NC: Duke University Press, 2012); Robin Kelsey, *Archive Style: Photographs and Illustrations for U.S. Surveys, 1850–1890* (Berkeley, CA: University of California Press, 2007).

34. Kelsey, *Archive Style*, 97.

35. Michael Christopher Low, "Ottoman infrastructures of the Saudi hydro-state: The technopolitics of pilgrimage and potable water in the Hijaz," *Comparative Studies in Society and History* 57, no. 4 (2015): 942–974. On survey photography in the late Ottoman Empire, see Ahmet A. Erso, "Ottomans and the Kodak galaxy: Archiving everyday life and historical space in Ottoman illustrated journals," *History of Photography* 40, no. 3 (2016): 330–357.
36. Zeynep Devrim Gürsel, "A picture of health: The search for a genre to visualize care in late Ottoman Istanbul," *Grey Room* 72 (Summer 2018): 36–67; Zeynep Devrim Gürsel, "Thinking with X-rays: Investigating the politics of visibility through the Ottoman Sultan Abdülhamid's photography collection," *Visual Anthropology* 29, no. 3 (2016): 229–242.
37. Low, "Ottoman infrastructures"; Bulmuş, *Plague, Quarantines*, 5.
38. Esra Ekan, "Off the frame: The panoramic city albums of Istanbul," in *Photography's Orientalism: New Essays on Colonial Representation*, ed. Ali Behdad and Luke Gartland (Los Angeles, CA: Getty Research Institute, 2013), 95.
39. Administration Sanitaire de l'Empire Ottoman, *Rapport générale sur la campagne du pèlerinage de 1909 au lazaret de Tébuk* (Constantinople, Turkey: Gérard Frères, 1909).
40. Administration Sanitaire de l'Empire Ottoman, *Rapport générale sur la campagne du pèlerinage de 1909 au lazaret de Tébuk*. The railway route via Tabuk operated between 1909 and 1913, with large parts of it and the entirety of the lazaretto destroyed during World War I; League of Nations, Health Organisation, *Report of Commission to Enquire into International Arrangements in Connection with Epidemic Disease Prevention in Certain Areas of the Near East (Basin of Eastern Mediterranean and Black Sea, etc.) and in Connection with the Mecca Pilgrimage*, February 20th to March 27th 1922, C 342. M 193. 122 II.
41. Frank-Gerard Clemow, "Étude sur la défense sanitaire du chemin de fer du Hedjaz," *Revue d'hygiène et de police sanitaire* 32 (1910): 213–244, 342–361. Clemow's article contains four more photographs of the Tabuk lazaretto. The hospital had been built in 1907 for soldiers and workers engaged in the construction of the Hejaz railway line; Chiffolleau, *Le voyage à La Mecque*, 190.
42. Administration Sanitaire de l'Empire Ottoman, *Rapport générale sur la campagne du pèlerinage de 1909 au lazaret de Tébuk*.
43. A pavilion hospital replaced these tents in 1910; Chiffolleau, *Genèse de la santé*. See also Gabriel Delamare, *La défense sanitaire de la ligne Médine-Damas* (Constantinople, Turkey: Imprimerie L. Mourkidès, 1912).
44. Administration Sanitaire de l'Empire Ottoman, *Rapport générale sur la campagne du pèlerinage de 1909 au lazaret de Tébuk*.
45. On the importance of diagrams in the reconfiguration of lazarettoes in the course of the nineteenth century, see Laget, "Les lazarets."

46. Administration Sanitaire de l'Empire Ottoman, *Rapport générale sur la campagne du pèlerinage de 1909 au lazaret de Tébuk*. For a less optimistic view about the ability of the lazaretto to act as a barrier to disease, especially cholera, see Antoine Lorty, "La menace du choléra en Europe et le chemin de fer du Hedjaz," *Questions diplomatiques et coloniales* 32 (July-December 1911): 98–107.
47. Chiffolleau, *Genèse de la santé*, 163, my translation.
48. Bulmuş, *Plague, Quarantines*, 160. In particular, Clemow disapproved of the earlier established quarantine station at Medain-I Salihi, for practical as well as political reasons, and suggested Tabuk as an alternative site.
49. Low, "Empire and the Hajj."
50. Elizabeth Edwards, "Photographic uncertainties: Between evidence and reassurance," *History and Anthropology* 25, no. 2 (2014), 174.
51. Jennifer Tucker, "Photography and the making of modern science," in *The Handbook of Photography Studies*, ed. Gil Pasternak, 235–254 (London, UK: Routledge, 2020).
52. Tucker, "Photography," 236.
53. Lorraine J. Daston, and Peter Galison, *Objectivity* (New York, NY: Zone Books, 2007).
54. Zeynep Çelik, *Displaying the Orient: Architecture of Islam at 19th Century World's Fairs* (Berkeley, CA: University of California Press, 1992); Michelle L. Woodward, "Between orientalist clichés and images of modernization," *History of Photography* 27, no. 4 (2003): 363–374.
55. Wendy M. K. Shaw, "Ottoman photography of the late nineteenth century: An 'innocent' modernism?" *History of Photography* 33, no. 1 (2009), 93.
56. Baldwin, *Contagion and the State in Europe*.
57. Muslim pilgrims subjected to quarantine did of course frequently decry the horrendous conditions of detention; for discussion, see Chiffolleau, *Le voyage à La Mecque*; Mishra, *Pilgrimage, Politics, and Pestilence*.
58. Jacques Chevallier, "Une quarantaine de peste au lazaret de Frioul en 1901," *Histoire des sciences médicales* 49, no. 2 (2015): 179–188. On the history of educational, scientific cruises organized by the *Revue générale des sciences pures et appliquées*, see Veronica della Dora, "Making mobile knowledges: The educational cruises of the *Revue générale des sciences pures et appliquées*, 1897–1914," *Isis* 101, no. 3 (September 2010): 467–500.
59. On the questions arising as to how the man was infected and the impact of the incident in the development of maritime sanitation, see Engelmann and Lynteris, *Sulphuric Utopias*.
60. Fabre succumbed a few days later, but the second patient survived; no one else became infected during the incident. For a synoptic history of the Frioul lazaretto,

see Georges François, “Les lazarets de Marseille,” *Association des Amis du Patrimoine Médical de Marseille*, [http://patrimoinemedical.univmed.fr/articles/article\\_lazarets.pdf](http://patrimoinemedical.univmed.fr/articles/article_lazarets.pdf). For situating the Frioul lazaretto within Europe’s defense against the importation of diseases for the East, see Daniel Panzac, *Quarantaines et lazarets: L’Europe et la peste d’Orient (XVIIe–XXe siècles)* (Aix-en-Provence, France: Édisud, 1986).

61. Chevallier, “Une quarantaine de peste.”

62. Jean Bertot, *Au lazaret: Souvenirs de quarantaine* (Tours, France: Deslis Freres, 1902), 144. Bertot’s published memoir of the quarantine includes a photograph of “vaccination des dames” by Mrs. Richardière (the doctor or the editor of the book is here confusing serotherapy with vaccination) (144). For a detailed examination of the cases treated in Frioul and of the after-effects of the serotherapy delivered during this incident, see, respectively, Joseph Pellissier, *La peste au Frioul, lazaret de Marseille en 1900 et 1901* (Paris, France: Stein-heil, 1902); and Charles Leroux, “Des accidents consécutifs aux injections préventives du sérum anti-pesteux,” *Gazette hebdomadaire de médecine et de chirurgie* 98 (December 8, 1901): 1172–1176; also contained in Bertot, *Au lazaret*, 289–295.

63. Chevallier, “Une quarantaine de peste.”

64. Gustave Autran, “Ballade des 80 rats morts,” in Anon., *Le “Sénégal” au Frioul (vers)*, 44–47 (Paris, France: Imprimerie de la Court d’Appel, 1902). For a description of the celebrations, including the program and copies of recited poems, see Bertot, *Au lazaret*.

65. Léo D’Hampol, “La peste en Europe—A Marseille et à Naples,” *La vie illustrée* 156 (October 11, 1901): 19–21, 20, my translation.

66. Bertot, *Au lazaret*, 107.

67. Anon., “Nos lazarets,” *Le matin* 18, no. 6427 (September 30, 1901): 1, my translation.

68. Anon., “Nos lazarets,” 1, my translation.

69. Anon., “Nos lazarets,” 1, my translation.

70. For a particularly vitriolic anonymous account, see Anon., “Le lazaret du Frioul,” *L’actualité* 2, no. 90 (October 20, 1901): 659. It is important to note that this sense of superiority risked the lives of those the passengers considered as inferior to themselves: the boat’s one-hundred crew members were not allowed to disembark and be quarantined together with the passengers, all of them remaining on the boat—something that, as has pointed out by Pierre Carrey, exposed them to plague-carrying rats, the cadavers of which had been discovered on board; Pierre Carrey, “Marseille, 1901: Le paquebot de la peste, la quarantaine et les caprices de riches,” *Libération*, April 25, 2020, [https://www.liberation.fr/france/2020/04/25/marseille-1901-le-paquebot-de-la-peste-la-quarantaine-et-les-caprices-de-riches\\_1786369](https://www.liberation.fr/france/2020/04/25/marseille-1901-le-paquebot-de-la-peste-la-quarantaine-et-les-caprices-de-riches_1786369).

71. M. Branger, “La peste au Frioul,” *Armée et marine* 3, no. 41 (October 13, 1901): 138–140.
72. Anon., “Les passagers du *Sénégal*, rélégués derrière la grille du lazaret, dans l’île Ratonneau (Photographie de Chusseau-Flaviers),” *La vie illustrée* 156 (October 11, 1901): 3.
73. Anon., “Au lazaret du Frioul,” *La petite gironde* 31, no. 10,698 (October 7, 1901): 1.
74. Ariella Azoulay, *Civil Imagination: A Political Ontology of Photography*, trans. Louise Bethlehem (London, UK: Verso, 2012), 15.
75. Christos Lynteris and Ruth J. Prince, “Introduction: Medical photography,” *Visual Anthropology* 29, no. 2 (2016), 104.
76. “Views of the various officers regarding the establishment of detention camps,” MSA General Department (Plague), vol. 617, 1899, quoted in Aidan Forth, *Barbed-Wire Imperialism: Britain’s Empire of Camps, 1876–1903* (Berkeley, CA: University of California Press, 2017), 78.
77. Key works include David Arnold, *Colonizing the Body: State Medicine and Epidemic Disease in Nineteenth Century India* (Cambridge, UK: Cambridge University Press, 1993); Ian Catanach, “Plague and the tensions of Empire: India, 1896–1918,” in *Imperial Medicine and Indigenous Societies*, ed. David Arnold, 149–171 (Manchester, UK: Manchester University Press, 1988); Dipesh Chakrabarty, “Community, state and the body: Epidemics and popular culture in colonial India,” in *Medical Marginality in South Asia: Situating Subaltern Therapeutics*, ed. David Hardiman and Projit Bihari Mukharji, 36–58 (London, UK: Routledge, 2012); Rajnarayan Chandavarkar, “Plague panic and epidemic politics in India, 1896–1914,” in *Epidemics and Ideas: Essays on the Historical Perception of Pestilence*, ed. Paul Slack, 203–240 (Cambridge, UK: Cambridge University Press, 1992); Ira Klein, “Plague, policy and popular unrest in British India,” *Modern Asian Studies* 22, no. 4 (1988): 723–755.
78. Aditya Sarkar, “The tie that snapped: Bubonic plague and mill labour in Bombay, 1896–1898,” *International Review of Social History* 59, no. 2 (August 2014), 184. It is here interesting to note that the Epidemic Diseases Act, 1897, was reinstated in 2020 in India’s fight against COVID-19; Pratik Chakrabarti, “Covid-19 and the spectres of colonialism,” *India Forum*, July 14, 2020, <https://www.theindiaforum.in/article/covid-19-and-spectres-colonialism>; Dwai Banerjee, “Fantasies of control: The colonial character of the Modi government’s actions during the pandemic,” *Caravan Magazine*, June 30, 2020, <https://caravanmagazine.in/perspectives/colonial-character-of-the-modi-governments-actions-during-the-pandemic>.
79. Forth, *Barbed-Wire Imperialism*, 77.
80. Forth, *Barbed-Wire Imperialism*, 77.
81. Forth, *Barbed-Wire Imperialism*, 77. Natasha Sarkar in turn describes three camp categories in place in Bombay—“hospital camps, segregation camps and observation

camps”—with the same structure sometimes incorporating several functions; Nata-sha Sarkar, “Fleas, Faith and Politics: Anatomy of an Indian Epidemic, 1890–1925,” PhD diss. (National University of Singapore, 2011), 83, 72.

82. Sarkar, “Fleas, Faith and Politics”; Klein, “Plague, policy”; Anita Prakash, “Plague riot in Kanpur—Perspectives on colonial public health,” *Proceedings of the Indian History Congress* 69 (2008): 839–846.

83. On the number kept in Bombay’s camps: NLS, 9937335823804341, *Report of the Municipal Commissioner on the Plague in Bombay for the Year Ending 31st May 1900*, vol. 2 (Bombay, India: Times of India, 1901). Forth estimates that over a million people were kept in camps across India during the pandemic (*Barbed-Wire Imperialism*, 77).

84. WL, b32162698, *Karachi Plague Committee in 1897*; BL, *Plague Visitation, Bombay, 1896–97*, photographer(s): Moss, C., photo 311/1: 1896–1897; WL, 24258i, *Bombay Plague Epidemic*; Getty Research Institute, 1384–039/96.R.81, *Plague Visitation*; Getty Research Institute, 96.R.95, *Poona Plague Pictures, 1897–1908* (undated).

85. I am here borrowing the term from Jeanne Haffner, *The View from Above: The Science of Social Space* (Cambridge, MA: MIT Press, 2013).

86. Louis Marin, *Utopics: Spatial Play* (Atlantic Highlands, NJ: Humanities Press, 1984), 207; Kelsey, *Archive Style*, 93.

87. Marin Warner, “Intimate communiqués: Melchior Lorck’s flying tortoise,” in *Seeing from Above: The Aerial View in Visual Culture*, ed. Mark Dorrian and Frédéric Pousin, 11–45 (London, UK: I. B. Tauris, 2013).

88. James R. Ryan, *Picturing Empire: Photography and the Visualization of the British Empire* (London, UK: Reaktion Books, 1997).

89. Ryan, *Picturing Empire*, 81.

90. Ryan, *Picturing Empire*, 81.

91. Jean-Marc Besse, “European cities from bird’s-eye views: The case of Alfred Guesdon,” in *Seeing from Above: The Aerial View in Visual Culture*, ed. Mark Dorrian and Frédéric Pousin, 66–82 (London, UK: I. B. Tauris, 2013).

92. Ryan, *Picturing Empire*, 96. On the use of panopticism as a colonial technique in British India, see Martha Kaplan, “Panopticon in Poona: An essay on Foucault and colonialism,” *Cultural Anthropology* 10, no. 1 (February 1995): 85–98. On deciphering hidden or invisible information from above, see Haffner, *View from Above*. For examples of the “view from above” techniques used to photograph plague camps in Kumasi, see P. S. Selwyn-Clarke, *Report on the Outbreak of Plague in Kumasi, Ashanti* (Accra, Gold Coast [Ghana]: Government Printing Department, 1925), for example, Apollo/VR3PP, PhotoID\_11977, <https://www.repository.cam.ac.uk/handle/1810/281836>.

93. Apollo/VR3PP, PhotoID\_3993, <https://www.repository.cam.ac.uk/handle/1810/282650>.

94. Mark Harrison, "The medicalization of war—the militarization of medicine," *Social History of Medicine* 9, no. 2 (1996): 267–276.
95. WL, b32162698, *Karachi Plague Committee*.
96. Adia Benton, "Risky business: Race, nonequivalence and the humanitarian politics of life," *Visual Anthropology* 29, no. 2 (2016): 187–203, 193.
97. Anon., "The pool of Siloam: In a plague segregation camp at Karachi," *The Graphic*, August 21, 1897, 268.
98. Branwyn Poleykett, "Pasteurian tropical medicine and colonial scientific vision," *Subjectivity* 10 (2017): 190–203, 192.
99. Jacob Steere-Williams, "'Coolie' control: State surveillance and the labour of disinfection across the late Victorian British Empire," in *Making Surveillance States: Transnational Histories*, ed. Robert Heynen and Emily van der Meulen, 35–57 (Toronto, Ontario: University of Toronto Press, 2019), 47, 38.
100. Christopher Pinney, "Introduction: 'How the other half . . .,'" in *Photography's Other Histories*, ed. Christopher Pinney and Nicolas Peterson, 1–14 (Durham, NC: Duke University Press, 2003), 4.
101. HCPP, Cd.140, Indian Plague Commission, 1898–99. "Minutes of evidence taken by the Indian Plague Commission with appendices. Vol. II. Evidence taken from 11th January 1899 to 8th February 1899." In the course of the first Karachi outbreak (December 1896–June 1897), including the province of Sind as a whole, 6,063 people were infected, of whom 4,779 died; in the camps themselves, 242 people were infected, and 144 died; "Report on Sind by Mr. Wingate, Acting Commissioner," in R. Nathan, *The Plague in India, 1896, 1897*, vol. 2, appendix VI (Simla, India: Government Central Printing Office, 1898), 402, 417.
102. HCPP, Cd.140, 132. More detail on this camp is provided in the same volume by Dr. Kaka (155). For a detailed timeline on deciding whether to implement compulsory evacuation in Karachi, see "Report on Sind by Mr. Wingate," in Nathan, *Plague in India*.
103. HCPP, Cd.140, 367.
104. HCPP, Cd.140, 367.
105. HCPP, Cd.140, 133.
106. HCPP, Cd.140, 133.
107. HCPP, Cd.140, 133.
108. For a discussion of the various plague commissions in India, see Mark Harrison, *Public Health in British India: Anglo-Indian Preventive Medicine 1859–1914* (Cambridge, UK: Cambridge University Press, 1994).
109. Nathan, *Plague in India*, "Report on Sind by Mr. Wingate," 134. For these regulations as detailed in Notification No.1518–970.P, dated March 17, 1897, see Nathan, *Plague in India*, 166–168.



110. HCPP, Cd.140, 134.

111. The Indian Plague Commission calculated the cases in the second epidemic to be 6,301, of which 4,731 were casualties; HCPP, Cd.810, Indian Plague Commission, 1898–99, “Report of the Indian Plague Commission with appendices and summary. Vol. V”, 26, session 1902.

112. HCPP, Cd.140, 136.

113. Nicholas H. Evans, “Blaming the rat? Accounting for plague in colonial Indian medicine,” *Medicine, Anthropology, Theory* 5, no. 3 (2018): 15–42, 130. For the original: BL, IOR/V/25/840/23, “Health Officer’s Report for the 1st Quarter of 1903.” Following Lieut.-Col. McCloghry’s calculations in the first months of the second Karachi epidemic (spring 1898) one-third of the population evacuated the city, while according to the Health Officer of the Karachi Municipality, Dr. S. M. Kaka, at the peak of the second outbreak there were more than 26,000 individuals held in plague camps around the city; HCPP, Cd.140, 143, 147.

114. In Nathan, *Plague in India*, 292. On how “voluntary camps” were further encouraged in the second Karachi outbreak, see HCPP, Cd.140, 137. The only recorded resistance in the course of the first outbreak took place on January 18, 1897, with regards to the burning down of a house in the Muslim quarter of the city across the Lyari River; Nathan, *Plague in India*, “Report on Sind by Mr. Wingate,” 366.

115. HCPP, Cd.140, 158.

116. HCPP, Cd.140, 136.

117. HCPP, Cd.140, 136

118. HCPP, Cd.140, 158.

119. See, for example, the testimony of J. H. Duboulay, Deputy Commissioner for Plague Operations in Bombay, to the Plague Commission in HCPP, Cd.139, Indian Plague Commission, 1898–99, “Minutes of evidence taken by the Indian Plague Commission with appendices. Vol. I. Evidence taken from 29th November 1898 to 5th January 1899,” 57. The Commission made an effort to quantify the relevant data, finding, for example, that, between March and May 1898, out of a total of 103 cases occurring in Banga, a town in the Punjab, sixty-two occurred in the plague camps of the region; HCPP, Cd.140, 99.

120. NLS, IP/13/PC.4, Malcolm Edward Couchman, *Account of Plague Administration in the Bombay Presidency from September 1896 till May 1897* (Bombay, India: Government Central Press, 1897).

121. On the infectivity of clothing, see Giles’s and Lieut.-Col. McCloghry’s testimonies to the Plague Commission, especially HCPP, Cd.140. On the difficulty in distinguishing the two, see HCPP, Cd.180, 111–112.

122. HCPP, Cd.141, Indian Plague Commission, 1898–99. “Minutes of evidence taken by the Indian Plague Commission with appendices. Vol. III. Evidence taken from 11th February 1898 to 20th May 1899,” 162.

123. Nathan, *Plague in India*, “Report on Sind by Mr. Wingate,” 393. We may assume this to be the liquid used in figure 3.6.
124. For a discussion of the use of this chemical in human disinfection in British India, see Steere-Williams, “‘Coolie’ control.”
125. The lack of depictions of suffering in British India’s plague camps may be here compared to the visualization of suffering in photographs of concentration camps during the Boer War in South Africa; Michael Godby, “Confronting horror: Emily Hobhouse and the concentration camp photographs of the South African War,” *Kronos* 32 (November 2006): 34–48.
126. For a reading of quarantine in terms of “imagining the geo-body of the nation,” see Bashford, *Imperial Hygiene*, chapter 5.
127. Bashford, “Maritime quarantine,” 10.
128. Sivasundaram, “Towards a critical history,” 382.
129. Sivasundaram, “Towards a critical history,” 382.
130. Sivasundaram, “Towards a critical history”; Jane Stevens Crawshaw, “The places and spaces of early modern quarantine,” in *Quarantine: Local and Global Histories*, ed. Alison Bashford, 15–53 (London, UK: Palgrave Macmillan, 2016).

## CHAPTER 4

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1. See, for example, Rebecca Morrell, “‘Gerbils replace rats’ as main cause of Black Death,” *BBC News*, February 24, 2015, <https://www.bbc.co.uk/news/science-environment-31588671>. The article is based on a misinterpretation of the following scientific paper: Boris V. Schmid, Ulf Büntgen, W. Ryan Easterday, Christian Ginzler, Lars Walløe, Barbara Bramanti, and Nils Chr. Stenseth, “Climate-driven introduction of the Black Death and successive plague reintroductions into Europe,” *Proceedings of the National Academy of Sciences of the United States of America* 112, no. 10 (2015): 3020–3025. In fact, marmots were identified as carriers of plague as far back as 1894, with scientific literature covering this zoonotic host of the disease pre-dating that covering the rat’s similar role; Christos Lynteris, *Ethnographic Plague: Configuring Disease on the Russian-Chinese Frontier* (London, UK: Palgrave Macmillan, 2016).
2. See chapters in Christos Lynteris, ed., *Framing Animals as Epidemic Villains: Histories of Non-Human Disease Vectors* (London, UK: Palgrave Macmillan, 2019); James Robert Fairhead, “Technology, inclusivity and the rogue: Bats and the war against the ‘invisible enemy,’” *Conservation and Society* 16, no. 2 (2018): 170–180.

3. Nicholas B. King, “The scale politics of emerging diseases,” *Osiris*, 2nd Series, 19, (2004): 62–76.
4. For a review of these approaches in the context of the pandemic imaginary, see Christos Lynteris, *Human Extinction and the Pandemic Imaginary* (London, UK: Routledge, 2019).
5. Neil Pemberton, “The rat-catcher’s prank: Interspecies cunningness and scavenging in Henry Mayhew’s London,” *Journal of Victorian Culture* 19 (2014): 520–535.
6. Mary Fissell, “Imagining vermin in early modern England,” *History Workshop Journal* 47 (1999): 1–29.
7. Carlo M. Cipolla, *Cristofano and the Plague: A Study in the History of Public Health in the Age of Galileo* (Berkeley, CA: University of California Press, 1973).
8. C. R. Francis and Frank Pearson, “Mahamurree, or Indian plague,” *Indian Annals of Medical Science* 2 (1854): 609–645.
9. Pemberton, “Rat-catcher’s prank,” 532.
10. Pemberton, “Rat-catcher’s prank,” 533. Rodwell was the author of a popular treatise: James Rodwell, *The Rat: Its History and Destructive Character* (London, UK: Routledge, 1858).
11. Carol A. Benedict, *Bubonic Plague in Nineteenth-Century China* (Redwood City, CA: Stanford University Press, 1996); Myron J. Echenberg, *Plague Ports: The Global Urban Impact of Bubonic Plague, 1894–1901* (New York, NY: New York University Press, 2007).
12. Nicholas H. Evans, “Blaming the rat? Accounting for plague in colonial Indian medicine,” *Medicine, Anthropology, Theory* 5, no. 3 (2018): 15–42.
13. B. E. Holsendorf, “Rat surveys and rat proofing,” *American Journal of Public Health and the Nation’s Health* 27, no. 9 (1937): 883–888.
14. W. R. Boetler, *The Rat Problem* (London, UK: Bale and Danielsson, 1909). The war metaphor was used in various permutations by a wide range of scientists, journalists, and functionaries at the time; see, for example, Albert Calmette, “Déclarons la guerre aux rats,” *La revue du mois* 3, no. 28 (April 10, 1908): 432–444.
15. In anthropological literature, the term “global war against the rat” was coined in Branwyn Poleykett, “Building out the rat: Animal intimacies and prophylactic settlement in 1920s South Africa,” *American Anthropological Association: Engagement*, February 7, 2017, <https://aesengagement.wordpress.com/2017/02/07/building-out-the-rat-animal-intimacies-and-prophylactic-settlement-in-1920s-south-africa/>.
16. Éric Baratay, *Bêtes des tranchées, des vécus oubliés* (Paris, France: CNRS Éditions, 2013); L. C. Murphy and A. D. Alexander, “Significance of the leptospiroses in military medicine,” *Military Medicine* 121, no. 1 (1957): 1–10; Poleykett, “Building

out the rat”; Karen Sayer, “The ‘modern’ management of rats: British agricultural science in farm and field during the twentieth century,” *British Journal for the History of Science* 2 (2017): 235–263.

17. David E. Lantz, *House Rats and Mice*, Farmer’s Bulletin 896, United States Department of Agriculture (Washington, DC: Government Printing Office, 1917). On rats and quarantine, see Birsen Bulmuş, *Plague, Quarantines and Geopolitics in the Ottoman Empire* (Edinburgh, UK: Edinburgh University Press, 2012); Echenberg, *Plague Ports*; Lukas Engelmann and Christos Lynteris, *Sulphuric Utopias: A History of Maritime Fumigation* (Cambridge, MA: MIT Press, 2020); Robert Peckham, “Spaces of quarantine in colonial Hong Kong,” in *Quarantine: Local and Global Histories*, ed. Alison Bashford, 66–84 (London, UK: Palgrave Macmillan, 2017).

18. For an excellent history of the use of the Danysz Virus against rats, see Lukas Engelmann, “An epidemic for sale: Observation, modification, and commercial circulation of the Danysz Virus, 1890–1910,” *Isis* 112, no. 3 (2021): 439–460.

19. Timothy P. Barnard, *Imperial Creatures: Humans and Other Animals in Colonial Singapore, 1819–1942* (Singapore: Singapore University Press, 2019); Lukas Engelmann, “Fumigating the hygienic model city: Bubonic plague and the sulfurozador in early-twentieth-century Buenos Aires,” *Medical History* 62, no. 3 (2018): 360–382; Projit Bihari Mukharji, “Cat and mouse: Animal technologies, trans-imperial networks and public health from below, British India, c. 1907–1918,” *Social History of Medicine* 31, no. 3 (2017): 510–532; Poleykett, “Building out the rat”; Karen Sayer, “Vermin landscapes: Suffolk, England, shaped by plague, rat and flea (1906–1920),” in *Framing Animals as Epidemic Villains: Histories of Non-Human Disease Vectors*, ed. Christos Lynteris, 27–64 (London, UK: Palgrave Macmillan, 2019); Megan Vaughan, *Curing Their Ills: Colonial Power and African Illness* (Redwood City, CA: Stanford University Press, 1991); Ann Zulawski, “Environment, urbanization, and public health: The bubonic plague epidemic of 1912 in San Juan, Puerto Rico,” *Latin American Research Review* 53, no. 3 (2018): 500–516.

20. On rats and the International Sanitary Conferences, see Engelmann and Lynteris, *Sulphuric Utopias*. For the minutes of the two international rat conferences, see Gabriel Petit, ed., *Première conférence internationale du rat, Paris—Le Havre 16–22 Mai 1928* (Paris, France: Vigot Frères, 1928); Gabriel Petit, ed., *Deuxième conférence internationale et congrès colonial du rat et de la peste: Paris, 7–12 octobre 1931* (Paris, France: Vigot Frères, 1932).

21. Koen Beumer, “Catching the rat: Understanding multiple and contradictory human-rat relations as situated practices,” *Society and Animals* 22 (2014): 8–25; Jonathan Burt, *Rat* (London, UK: Reaktion Books, 2006); Maud Ellmann, “Writing like a rat,” *Critical Quarterly* 46, no. 4 (2004): 59–76; Albert Calmette, “Discours (7/10/1931),” in *Deuxième conférence internationale et congrès colonial du rat et de la peste: Paris, 7–12 octobre 1931*, ed. Gabriel Petit, 48 (Paris, France: Vigot Fr. 1932).

22. Mukharji, “Cat and mouse.”

23. I borrow here the idea of the rat as an “infrastructure” from Genese Marie Sodikoff, “The multispecies infrastructure of zoonosis,” in *The Anthropology of Epidemics*, ed. Ann H. Kelly, Frédéric Keck, and Christos Lynteris, 102–120 (London, UK: Routledge, 2019).

24. On the development of sanitary hygienic utopias at the turn of the nineteenth century, see Engelmann and Lynteris, *Sulphuric Utopias*; Mark Harrison, “Towards a sanitary utopia? Professional visions and public health in India, 1880–1914,” *South Asia Research* 10, no. 1 (1990): 19–41.

25. H. J. Sears, “The problem of plague as an epidemic disease,” *Bulletin of the Medical Library Association* 29, no. 1 (October 1940), 10.

26. Paul-Louis Simond, “La propagation de la peste,” *Annales de l’Institut Pasteur* (Paris) 12 (1898): 625–687. In reality, Simond was not the first to make this identification, and the notes of his experiment suggest it may not have been as successful as suggested by the 1898 publication in the *Annales de l’Institut Pasteur*. Simond’s notes and notebooks on his plague research in India (1897–1898) contain a rich trail of visual material but no images of rats or fleas, or of experiments on them; the key notebook here being AIP, Lieu SIM.2, A3/81–84, “Observ. concern. épid. de peste.”

27. Evans, “Blaming the rat?”

28. For what seem to be the first images of rat-catching in British India, see WL, b32162698, *Karachi Plague Committee in 1897* (e.g., Apollo/VR3PP, PhotoID\_4045, <https://www.repository.cam.ac.uk/handle/1810/282705>).

29. For example, a lecture slide (85 × 100 mm) from 1900, tagged “Bacille de la peste. Bubon pesteux. Rat et mangouste,” showed the image of a plague bacillus, two photographs of patients with cervical and axillary buboes, respectively, the microphotograph of a flea, and the photograph of a rat and a mongoose; Musée National de l’Éducation (Rouen), 0003.00539.11, Projections Molteni, Radiguet & Massiot, “Prophylaxie des maladies contagieuses. 1ère série. Transmises par les déjections, les matières fécales, l’eau souillée; les sécrétions respiratoire. Bacille de la peste. Bubon pesteux. Rat et mangouste.”

30. For a history of the emergence of systematic images of animal dissection in the seventeenth century, see Anita Guerrini, *The Courtiers’ Anatomists: Animals and Humans in Louis XIV’s Paris* (Chicago, IL: University of Chicago Press, 2015).

31. Domenico Bertoloni Meli, *Visualizing Disease: The Art History of Pathological Illustrations* (Chicago, IL: University of Chicago Press, 2017).

32. Plague Commission, “XI. The diagnosis of natural rat plague,” *Journal of Hygiene* 7, no. 3 (1907): 324–358. For a discussion, see Evans, “Blaming the rat?” See also Katherine Royer, “The blind men and the elephant: Imperial medicine, medieval historians and the role of rates in the historiography of plague,” in *Medicine and Colonialism: Historical Perspectives in India and South Africa*, ed. Poonam Bala, 99–110 (London, UK: Routledge, 2015).

33. For examples of organ pathology, see B. Burnett Ham, *Report on Plague in Queensland, 1900–1907 (26th February, 1900, to 30th June, 1907)* (Brisbane, Australia: Government Printer, 1907), from which the image “Lungs of naturally-infected plague rats, showing general congestion and a few scattered grey nodules” is available at Apollo/VR3PP, PhotoID\_3522, <https://www.repository.cam.ac.uk/handle/1810/282405>. For examples of the photography of rats with buboes, or of bubo-related pathology, see Ham, *Report on Plague in Queensland, 1900–1907*, from which the image “Dissections of fore and hind legs of naturally-infected plague rats, showing in No. I. enlarged axillary gland, and in Nos II. and III. enlarged femoral gland,” is available at Apollo/VR3PP, PhotoID\_3521, <https://www.repository.cam.ac.uk/handle/1810/282404>.

34. See, for example, BANC PIC 1988.052:037-PIC, “Tumor on Norway rat—open beneath and exceeding in weight the animal’s body. Taken in the heart of Los Angeles,” Available via Online Archive of California, <https://calisphere.org/item/ark:/13030/tf3v19p3d9/>.

35. Evans, “Blaming the rat?”

36. See, for example, J. A. Lopez del Valle and E. B. Barnet, *Plan de campaña sanitaria contra la peste bubonica* (Havana, Cuba: La Moderna Poesia, 1915).

37. For a full discussion of these, see Christos Lynteris, “Zoonotic diagrams: Mastering and unsettling human-animal relations,” *Journal of the Royal Anthropological Institute* 23, no. 3 (2017): 463–485. For the application of such diagrams in the work of Marcel Baltazard, see Lukas Engelmann, Caroline Humphrey, and Christos Lynteris, “Introduction: Diagrams beyond mere tools,” in “Working with Diagrams,” edited by Lukas Engelmann, Caroline Humphrey, and Christos Lynteris, special issue, *Social Analysis* 63, no. 4 (Winter 2019): 1–19.

38. For example, William Hunter, *A Research into Epidemic and Epizootic Plague* (Hong Kong: Noronha & Co., 1904). Another visual device used to demonstrate the same process involved the visualization of plague’s annual cycle by means of a disk representing the solar year in monthly slices, with concentric cycles showing human plague, “chronic rat plague,” “acute rat plague,” and “rat prolificity,” with curves in each cycle showing the rise and fall of cases and correlating these to the monsoon seasons and the harvest of different crops; A. F. Stevens, “The natural history of plague,” *Indian Medical Gazette* (July 1906), 254. For discussion of these diagrams, see Lukas Engelmann, “Making a model plague: Paper technologies and epidemiological casuistry in the early twentieth century,” in *Plague Image and Imagination from Medieval to Modern Times*, ed. Christos Lynteris, 235–266 (London, UK: Palgrave Macmillan, 2021).

39. William J. R. Simpson, *Report on the Causes and Continuance of Plague in Hongkong and Suggestions as to Remedial Measures* (London, UK: Waterlow and Sons, 1903); Anon., “Observations on rat and human plague in Belgaum,” *Journal of Hygiene* 10, no. 3 (1910): 446–482. For a critical discussion of Snow’s map and its uses and

reception, see Tom Koch, “The map as intent: Variations on the theme of John Snow,” *Cartographica* 39, no. 4 (Winter 2004): 1–14.

40. For example, Valle and Barnet, *Plan de campaña sanitaria*.

41. Hans-Jörg Rheinberger, “Difference machines: Time in experimental systems,” *Configurations* 23, no. 2 (Spring 2015): 165–176.

42. For a broader reading of disease cartography in Rheinberger’s terms of an experimental system, see Tom Koch, *Disease Maps: Epidemics on the Ground* (Chicago, IL: University of Chicago Press, 2011). On plague maps as experimental systems, see Lukas Engelmann, “Configurations of plague: Spatial diagrams in early epidemiology,” *Social Analysis* 63, no. 4 (Winter 2019): 89–109.

43. Frank Morton Todd, *Eradicating Plague from San Francisco: Report of the Citizens’ Health Committee and an Account of Its Work* (San Francisco, CA: Press of C. A. Murdock & Co., 1909), 57.

44. Todd, *Eradicating Plague from San Francisco*, frontispiece.

45. Guenter B. Risse, *Plague, Fear, and Politics in San Francisco’s Chinatown* (Baltimore, MD: Johns Hopkins University Press, 2012).

46. Risse, *Plague, Fear, and Politics*. On the visualization of the hostility against Kinyoun in the local press, see Lukas Engelmann, “A Plague of Kinyounism: The caricatures of bacteriology in 1900 San Francisco,” *Social History of Medicine* 33, no. 2 (May 2020): 489–514.

47. Anon., “The arrest of plague in Japan,” *Illustrated London News* 3624 (October 3, 1908): 458.

48. David J. Bibel and T. E. Chen, “Diagnosis of plague: An analysis of the Yersin-Kitasato controversy,” *Bacteriological Reviews* 40, no. 3 (September 1976): 633–651.

49. Evans, “Blaming the rat?”

50. On similar bounty-led rat-catching practices in other parts of the world, see below.

51. Anon., “Arrest of plague in Japan,” 458.

52. Anon., “Arrest of plague in Japan,” 458..

53. Shibasaburō Kitasato, “Combating plague in Japan,” *Philippine Journal of Science* 1 (1906): 465–481, reprinted in K. Mizunoe, ed., *The Collected Papers of Shibasaburo Kitasato* (Tokyo, Japan: Kitasato University, 1977). Whether this was the same person as the famous theosophist and biographer of Madame Blavatsky and Annie Besant is open to speculation. Kitasato’s paper had also appeared translated in French, but carrying no images: Shibasaburō Kitasato, “La lute contre la peste,” *Archives de Medicine Navale* 86 (1906): 289–308.

54. The same visual strategy would be employed, if less elaborately, a month later by the *Adelaide Chronicle* issue of November 7, 1908, where the two top laboratory images

of the *Illustrated London News* article would be combined in a quarter-page composite with one of the images carried from the latter in the second illustrated page of its “Arrest of plague in Japan” article, showing the evacuation of shops in a Japanese city in the process of disinfection. The *Adelaide Chronicle* composite bore the title “Exterminating the Microbe Carrying Rat” and once again visually linked lab research with street-level operations as plague-control processes underscored by the same scientific principles; Anon., “Precautions taken against the plague in Japan,” *Adelaide Chronicle* 51, no. 2620 (November 7, 1908): 30. The second page of the *Illustrated London News* issue contained two photographs on the same subject bearing the title “An Example to Russia: House Cleaning by Law.”

55. Rotem Kowner, “Becoming an honorary civilized nation: Remaking Japan’s military image during the Russo-Japanese War, 1904–1905,” *The Historian* 64, no. 1 (2001): 19–38.

56. Pemberton, “Rat-catcher’s prank,” 526.

57. Pemberton, “Rat-catcher’s prank,” 528.

58. Henry Mayhew, *London Labour and the London Poor* (London, UK: Dover, 1860–1861).

59. Pemberton, “Rat-catcher’s prank,” 523.

60. Mayhew, *London Labour*.

61. WL, 38263i, “A rat-catcher enticing rats in to a tray which is strapped around his shoulder; he also holds a pole with a cage on top of it in which rats are trapped. Etching by Vliet,” <https://wellcomecollection.org/works/ztxzxcxs?wellcomeImagesUrl=/indexplus/image/V0020297.html>; WL, 38321i, “A crowd gathered around a mountebank who points to a banner illustrating various methods of execution; to the left stands a rat-catcher who holds a long stick with a cage on top of it from which rats dangle. Etching by C.W.E. Dietrich, 1740, after A. van Ostade,” <https://wellcomecollection.org/works/ys7fmf6p>; WL, 38254i, “A rat-catcher and his young assistant standing outside a doorway having their services refused by an old man: the rat-catcher holds a long stick with a cage on top of it containing rats, on his right shoulder sits a rat. Etching after Rembrandt van Rijn, c. 1632,” <https://wellcomecollection.org/works/x7sxdsvw>. For discussion of Rembrandt’s drawing, see Stanley M. Aronson, “Rembrandt and the rat catchers,” *Medicine and Health Rhode Island* 87, no. 6 (June 2004): 167.

62. WL, 42250i, “A boy kneeling down opening a rat-trap with two dogs eagerly awaiting the appearance of the rat. Etching by J. Scott after A. Cooper,” <https://wellcomecollection.org/works/mwr87p2g>.

63. WL, 41285i, “A terrier dog has chased a rat into a corner and is about to kill it. Wood engraving by E. Griset,” <https://wellcomecollection.org/works/ujg2b6wh>.

64. NARA, RG90, Central File 1897–1923 537–544, Box 065, “US Consul General Copenhagen, January 16, 1909, Extermination of Rats in Denmark.” On Zuschlag’s



rat-related research, see Emil Zuschlag, *Le rat migratoire et sa destruction rationnelle*, trans. M. Pierre Oesterby (Copenhagen, Denmark: Impr. F. Bagge, 1903).

65. The Danish state-organized war against rats may here be compared to one in colonial Hanoi in 1902, as examined in Michael G. Vann, “Of rats, rice, and race: The great Hanoi rat massacre, an episode in French colonial history,” *French Colonial History* 4 (2003): 191–203. For works examining campaigns of rat-catching in British colonies in other parts of Southeast Asia, see Barnard, *Imperial Creatures*; Lenore Manderson, *Sickness and the State: Health and Illness in Colonial Malaya, 1870–1940* (Cambridge, UK: Cambridge University Press, 1996).

66. See, for example, Dorothy Worell, *The Women’s Municipal League of Boston: A History of Thirty Five Years of Civic Endeavor* (Boston, MA: Women’s Municipal League of Committees, 1943); Countway Library (Harvard University), P.6679, Mrs. Albert T. Leatherbee and the Women’s Municipal League of Boston, *Plague Conditions in Boston*, 1921 [pamphlet]; Anon., “Elimination of the rat,” *Boston Medical and Surgical Journal* 174, no. 2 (October 19, 1916): 576. Similar campaigns were frequently organized around a Rat Day or Rat Week theme across the East Coast. For examples, see NARA, RG90, Central File, 1897–1923, 544 Box 066.

67. Sayer, “‘Modern’ management of rats.”

68. For images of these Indian laborers, see the “Reports on Plague Investigations in India” in the *Journal of Hygiene*.

69. Vann, “Of rats, rice, and race.”

70. Echenberg, *Plague Ports*.

71. Lukas Engelmann, “Fumigating the hygienic model city: Bubonic plague and the sulfurozador in early-twentieth-century Buenos Aires,” *Medical History* 62, no. 3 (2018): 360–382, 364.

72. Engelmann, “Fumigating,” 374.

73. Engelmann, “Fumigating,” 378.

74. Anon., “La bubónica y las ratas,” *Caras y Caretas* 727 (September 7, 1912): 92–93.

75. Anon., “El amigo del hombre: El perro. La lucha contra las ratas en el Puerto,” *Caras y Caretas* 1281 (April 21, 1923): 56–57.

76. On bounty rat-catching, see Vann, “Of rats, rice, and race”; Peter Soppelsa, “Losing France’s imperial war on rats,” *Journal of the Western Society for French History* 47 (2021): 67–87.

77. Poleykett “Building out the rat.”

78. Hannah Appel, Nikhil Anand, and Akhil Gupta, “Temporality, politics and the promise of infrastructure,” in *The Promise of Infrastructure*, ed. Nihil Anand, Akhil Gupta, and Hannah Appel, 1–40 (Durham, NC: Duke University Press, 2018).

79. Uli Beisel, “Markets and mutations: Mosquito nets and the politics of disentanglement in global health,” *Geoforum* 66 (2015): 146–155; Maurice Lagarrigue, *La lutte contre le rat* (Paris, France: Jouve & Cie, 1911); S. W. Lindsay and M. E. Gibson, “Bednets revisited—Old idea, new angle,” *Trends in Parasitology* 4, no. 10 (1988): 270–272.
80. Vinciane Despret, *Penser comme un rat* (Versailles, France: Quae, 2009); Richard H. Harte, *Protect Your Home and Public Health against Rats* (Philadelphia, PA: Bureau of Health, 1941).
81. Poleykett “Building out the rat”; see also R. K. K. Molefi, “Of rats, fleas, and peoples: Towards a history of bubonic plague in Southern Africa, 1890–1950,” *Pula: Botswana Journal of African Studies* 15, no. 2 (2001): 259–267. And for the post-third-pandemic period: Dawn D. Biehler, *Pests in the City: Flies, Bedbugs, Cockroaches, and Rats* (Washington, DC: University of Washington Press, 2013).
82. I would like to thank Jules Skotnes-Brown and Maurits Bastiaan Meerwijk for information about colonial exhibitions. For an image of the latter at Klaten, in the East Dutch Indies, see Apollo/VR3PP, PhotoID\_11688, <https://www.repository.cam.ac.uk/handle/1810/285221>; PhotoID\_11690, <https://www.repository.cam.ac.uk/handle/1810/285223>; PhotoID\_11692, <https://www.repository.cam.ac.uk/handle/1810/285226>; PhotoID\_11693, <https://www.repository.cam.ac.uk/handle/1810/285227>.
83. Maurits Bastiaan Meerwijk, “Bamboo dwellers: Plague, photography, and the house in colonial Java,” in *Plague Image and Imagination*, ed. Christos Lynteris, 205–234 (London, UK: Palgrave Macmillan, 2021).
84. Graham Mooney, *Intrusive Interventions: Public Health, Domestic Space, and Infectious Disease Surveillance in England, 1840–1914* (Rochester, NY: University of Rochester Press, 2015).
85. Terence Hull, “Plague in Java,” in *Death and Disease in Southeast Asia: Explorations in Social, Medical and Demographic History*, ed. Norman G. Owen, 210–234 (Oxford, UK: Oxford University Press, 1987).
86. Meerwijk, “Bamboo dwellers,” 212, 221, 207.
87. Meerwijk, “Bamboo dwellers,” 217; Ruth Rogaski, *Hygienic Modernity: Meanings of Health and Disease in Treaty-Port China* (Berkeley, CA: University of California Press, 2004). As Eric Stein has discussed, these operations were also captured and reproduced in public health campaign films; Eric A. Stein, “Colonial theatres of proof: Representation and laughter in 1930s Rockefeller Foundation hygienic cinema in Java,” in “Health, Medicine and the Media,” special issue, *Health and History* 8, no. 2 (2006): 14–44.
88. Sayer, “Vermin Landscapes,” 18.
89. On this problem, see Evans, “Blaming the rat?” 34.

90. NYAML, WA 243 U58 1949, *Rat-Borne Disease Prevention and Control* (Atlanta, GA: Communicable Disease Center, Public Health Service, Federal Security Agency, 1949).
91. NYAML, WA 243 U58 1949, *Rat-Borne Disease*, 41, 45.
92. NYAML, WA 243 U58 1949, *Rat-Borne Disease*, 41, capitalization in the original, where text is framed in a box.
93. NYAML, WA 243 U58 1949, *Rat-Borne Disease*, 41.
94. NYAML, WA 243 U58 1949, *Rat-Borne Disease*, 45
95. NYAML, WA 243 U58 1949, *Rat-Borne Disease*, 45, capitalization in the original.
96. NYAML, WA 243 U58 1949, *Rat-Borne Disease*, 46–47.
97. NYAML, WA 243 U58 1949, *Rat-Borne Disease*, Figure 19 is spread across pp. 52–54, quote on p. 42. Following the same boxed text, “These pictures parallel the CDC motion picture ‘The Climbing Activity of the Norway Rat.’” The film referred to is United States Army, “Practical Rat Control: Ratproofing,” T.F. 8-1673. (Atlanta, GA: Communicable Disease Center, United States Health Service, Federal Security Agency, 1950), U.S. National Library of Medicine, *YouTube*, December 20, 2016, <https://www.youtube.com/watch?v=4lgS0X0YfPg>.
98. The manual also contained actual comic strips, which were used in order to punctuate points, in an often reflexive manner. This visual trope centered on a protagonist, Roscoe the Rat-Ridder, who assumed the role of an instructor and commentator. But not all strips in the manual include Roscoe. As the volume progresses, rats also appear as protagonists or antiheroes, in some cases directly confronting their nemesis.
99. Figure 19 is in fact a hybrid composite made of photographs that parallel the CDC motion picture “The Climbing Activity of the Norway Rat” and others “taken by Mr. John Grennor, Typhus Control Officer of the City of Atlanta”; NYAML, WA 243 U58 1949, *Rat-Borne Disease*, 52.
100. Walter Benjamin, *Reflections: Essays, Aphorism, Autobiographical Writings*, ed. Peter Demetz (New York, NY: Schocken, 1986).
101. Benjamin, *Reflections*, 93.
102. For discussion, see Lynteris, *Human Extinction*.
103. On the soil-rat interrelation, see Christos Lynteris, “A ‘suitable soil’: Plague’s urban breeding grounds at the dawn of the third pandemic,” *Medical History* 61, no. 3 (2017): 343–357; Sodikoff, “Multispecies infrastructure.”
104. Sodikoff, “Multispecies infrastructure,” 103.
105. Sodikoff, “Multispecies infrastructure,” 103.
106. Maan Barua, “Nonhuman life as infrastructure,” *Society and Space*, November 30, 2020, <https://www.societyandspace.org/articles/nonhuman-life-as-infrastructure>.

## CHAPTER 5

1. Available online: <http://www.scmp.com/magazines/post-magazine/article/1367769/germ-warfare-hong-kongs-never-ending-fight-against-viruses>.
2. S. Lazarus, “Germ warfare: Hong Kong’s never-ending fight against viruses,” *Post Magazine* (December 1, 2013), 21.
3. For a discussion of the image and imaginary of the “next pandemic,” see Christos Lynteris, *Human Extinction and the Pandemic Imaginary* (London, UK: Routledge, 2019).
4. Laurie Garrett, *The Coming Plague: Newly Emerging Diseases in a World Out of Balance* (London, UK: Penguin, 1994).
5. L. M. Casanova et al., CDC Prevention Epicenters Program, “Assessment of self-contamination during removal of personal protective equipment for Ebola patient care,” *Infection Control and Hospital Epidemiology* 37, no. 10 (2016): 1156–1161; C. R. Biscotto et al., “Evaluation of N95 respirator use as a tuberculosis control measure in a resource-limited setting,” *International Journal of Tuberculosis and Lung Disease* 9, no. 5 (2005): 545–549; B. J. Cowling et al., “Face masks to prevent transmission of influenza virus: A systematic review,” *Epidemiology and Infection* 138, no. 4 (2010): 449–456.
6. Indicatively: Y. C. Chuang et al., “Social capital and health-protective behavior intentions in an influenza pandemic,” *PLOS One* 10, no. 4 (2015): e0122970; B. J. Condon and T. Sinha, “Who is that masked person: The use of face masks on Mexico City public transportation during the influenza A (H1N1) outbreak,” *Health Policy* 95, no. 1 (2010): 50–56; J. T. Lau et al., “Perceptions related to bird-to-human avian influenza, influenza vaccination, and use of face mask,” *Infection* 36, no. 5 (2008): 434–443; Maria S. Y. Sin, “Masking fears: SARS and the politics of public health in China,” *Critical Public Health* 26, no. 1 (2016): 88–98.
7. There are by now dozens of articles on mask use during the COVID-19 pandemic. For a good summary, see Jiao Wang et al., “Mask use during COVID-19: A risk adjusted strategy,” *Environmental Pollution* 266 (2020): 115099.
8. Françoise Frontisi-Ducroux, *Du masque au visage: Aspects de l’identité en Grèce ancienne* (Paris, France: Flammarion, 1995); Donald Pollock, “Masks and the semiotics of identity,” *Journal of the Royal Anthropological Institute*, n.s., 1, no. 3 (1995): 581–597; Hans Belting, *Face and Mask: A Double History*, trans. Thomas S. Hansen and Abby J. Hansen (Princeton, NJ: Princeton University Press, 2017).
9. See, for example, Laurel Birch de Aguilar, *Inscribing the Mask: Interpretation of Nyau Masks and Ritual Performance among the Chewa of Central Malawi* (Sankt Augustin, Germany: Anthropos Institut, 1996); A. Fienup-Riordan, *The Living Tradition of Yup’ik Masks: Agayuliyararput (Our Way of Making Prayer)* (Seattle, WA: University of Washington Press, 1996); Jarich Oosten, “Representing the spirits: The masks of

the Alaskan Inuit,” in *Anthropology, Art and Aesthetics*, ed. Jeremy Coote and Anthony Shelton, 113–134 (Oxford, UK: Clarendon Press, 1992); A. David Napier, *Masks, Transformation, and Paradox* (Berkeley, CA: University of California Press, 1986), xxiii.

10. Elizabeth Tonkin, “Masks and powers,” *Man*, n.s., 14, no. 2 (1979), 240.

11. Napier, *Masks, Transformation*, xxiii.

12. Ruth Rogaski, *Hygienic Modernity. Meaning of Health and Disease in Treaty-Port China* (Berkeley, CA: University of California Press, 2004).

13. Mark Gamsa, “The epidemic of pneumonic plague in Manchuria 1910–1911,” *Past and Present* 190, no. 1 (2006): 147–183; Christos Lynteris, *Ethnographic Plague: Configuring Disease on the Chinese-Russian Frontier* (London, UK: Palgrave Macmillan, 2016); Carl F. Nathan, *Plague Prevention and Politics in Manchuria 1910–1931* (Cambridge, MA: Harvard East Asian Monographs, 1967); William C. Summers, *The Great Manchurian Plague of 1910–1911: The Geopolitics of an Epidemic Disease* (New Haven, CT: Yale University Press, 2012).

14. Sean Hsiang-lin Lei, “Sovereignty and the microscope: Constituting notifiable infectious disease and containing the Manchurian plague (1910–11),” in *Health and Hygiene in Chinese East Asia: Policies and Publics in the Long Twentieth Century*, ed. Angela Ki Che Leung and Charlotte Furth, 73–106 (Durham, NC: Duke University Press, 2011).

15. On previous masks and respirators and the question of whether this was in fact Wu’s invention or one usurped by him, see Zhang Meng, “From respirator to Wu’s mask: The transition of personal protective equipment in the Manchurian plague,” *Journal of Modern Chinese History* 14, no. 2 (2021): 221–239. For a discussion between Zhang, Tomohisa Sumida, and myself regarding the history of this device in East Asia, see Christos Lynteris, Tomohisa Sumida, and Meng Zhang, “The history of plague masks in East Asia: A conversation between Christos Lynteris, Tomohisa Sumida, and Meng Zhang,” *The Mask—Arrayed*, April 26, 2021, <https://themarkarrayed.net/2021/04/26/the-history-of-plague-masks-in-east-asia-a-conversation-between-christos-lynteris-tomohisa-sumida-and-meng-zhang/>.

16. John L. Spooner, “History of surgical face masks,” *AORN Journal* 5 (1967): 76–80.

17. Wu Lien-teh, *Treatise on Pneumonic Plague* (Geneva, Switzerland: League of Nations, 1926), 393–394. Figure 4.1 shows Wu Liande wearing a mask, possibly from a later development of the device. HKUL, U 614.42518 M26 e, Manchurian Plague Prevention Service (Harbin), Early photos of pneumonic plague epidemics, 1910–11 and 1920–21, Manchuria.

18. Bradford Luckingham, “To mask or not to mask: A note on the 1918 Spanish influenza epidemic in Tucson,” *Journal of Arizona History* 25, no. 2 (1984): 191–204; Nancy Tomes, “‘Destroyer and Teacher’: Managing the masses during the

1918–1919 influenza pandemic,” supplement, *Public Health Reports* 125, no. S3 (2010): 48–62.

19. Wu Lien-teh, *Plague Fighter, the Autobiography of a Modern Chinese Physician* (Cambridge, UK: W. Heffer & Sons, 1959), 19.

20. Wu, *Plague Fighter*, 22.

21. NRI, 808.24za WLD:1 (RBR), Wu Lien-teh, *Views of Harbin (Fuchiatien) Taken during the Plague Epidemic, December 1910–March 1911* (Shanghai, China: Commercial Press, [1911]).

22. Wu, *Plague Fighter*.

23. Lynteris, *Ethnographic Plague*.

24. Fang Chin, “Individual precautions taken by the medical staff during the recent epidemic at Fuchiatien,” in *Report of the International Plague Conference Held at Mukden April 1911*, ed. Richard Pearson Strong et al. 287–289 [discussion 289–303] (Manila, Philippines: Bureau of Printing, 1912), 287. I have not managed to locate images of the masks presented by Fang Chin or of the mannequins exhibited during the conference.

25. Charles Broquet, *La conférence de la peste à Moukden, avril 1911* (Cahors & Alençon, France: Imprimeries de A. Coueslant, 1914), 7.

26. Laveran in “Séance du 30 mai 1911: Présentations d’ouvrages manuscrits et imprimés,” *Bulletin de l’Académie Nationale de Médecine* 3e séries, 65 (1911), 627. Again, I have not been able to locate images or further descriptions of Matignon’s samples.

27. Several mask models are displayed, for example, in Wu, *Treatise on Pneumonic Plague*, figure 28.

28. UAB, Series/Collection MC12, Folder 1.14., M. A. Barber and O. Teague, “Studies on Pneumonic Plague and Plague Immunization, XII,” in *Some Experiments to Determine the Efficacy of Various Masks for Protection against Pneumonic Plague* (Manila, Philippines: Bureau of Printing, 1912), 244. With thanks to Timothy Lee Pennycuff for his help in locating and accessing these sources.

29. Anon., “Plague in Manchuria,” *North-China Herald* 2267 (January 20, 1911): 114; Charles Broquet, “Le masque dans la peste: Présentation d’un modèle de masque antipesteux,” *Bulletin de la Société de Pathologie Exotique* 4 (1911): 636–645, 642, my translation.

30. Kévin Seivert, “Les débuts du territoire français de Kouang-Tchéou-Wan,” *Annales de Bretagne et des pays de l’Ouest* 124, no. 1 (2017): 113–134; For Broquet’s work on plague in the region, see Charles Broquet, *Foyer de peste bubonique dans la Chine méridionale* (Paris, France: Gainche, 1902). For Broquet’s view on the conference, see Broquet, *La conférence de la peste*. The Médiathèque F. Mitterrand - les Capucins (Brest) attribute the authorship of an album of photographs covering the 1910–1911 outbreak in Manchuria to Broquet (RES FB C710—f). However,

multiple copies of the same album, some with important differences in both content and form, exist in the University of Alabama at Birmingham Archives, the archives of the Institute of Experimental Medicine in Saint Petersburg, and the Countway Library of Harvard University. These versions cast doubt to the provenance attribution of the Médiathèque F. Mitterrand - les Capucins. Given the lack of any supporting or contextual information on this album I have avoided discussing it in this book.

31. Broquet, “Le masque dans la peste,” 641, my translation.

32. Broquet, “Le masque dans la peste,” 641, my translation.

33. Broquet, “Le masque dans la peste,” 641, my translation. For images of Broquet’s different models, see NLM, 101405394, Clothing—protective: Protective mask after Dr. Broquet—used during the epidemic of pneumonic plague in Manchuria, available at [https://collections.nlm.nih.gov/catalog/nlm:nlmuid-101405394-img;Apollo/VR3PP\\_PhotoID\\_67](https://collections.nlm.nih.gov/catalog/nlm:nlmuid-101405394-img;Apollo/VR3PP_PhotoID_67), <https://www.repository.cam.ac.uk/handle/1810/284772>.

34. Broquet, “Le masque dans la peste.”

35. Broquet, “Le masque dans la peste,” 642, 643, my translation. In later publications, the 1819 prototype was represented as a medieval device; B. J. Hendrick, “Fighting ‘Black Death’ in Manchuria,” *The World’s Work* 27 (1914): 210–222.

36. Aspland in the discussion in *Report of the International Plague Conference Held at Mukden April 1911*, ed. Richard Pearson Strong et al. (Manila, Philippines: Bureau of Printing, 1912), 304.

37. *Report of the International Plague Conference*, 304.

38. Anon., “The plague—from our correspondents,” *North-China Herald* 2272 (February 24, 1911): 418, 422.

39. Aspland in *Report of the International Plague Conference*, 377.

40. J. Chabaneix, *Notes sur la défense contre la peste pulmonaire dans la province du Tcheli (1911)* (Tianjin, China: Imprimerie de l’écho de Tientsin, 1911). The same text appears in the fifteenth volume of the *Annales d’hygiène et de médecine coloniales* (1912), 85–103. On Chabaneix’s anti-plague work, see J.-M. Milleliri and E. Deroo, “Joseph Chabaneix (1870–1913). Un médecin au coeur de l’histoire française outremer,” *Medecine tropicale: Revue du Corps de sante colonial* 65, no. 3 (2005): 285–289; Jacqueline Brossollet, “Segalen et Chabaneix en Chine pendant la peste de Mandchourie,” *Revue du praticien* 43, no. 6 (March 15, 1993): 742–745.

41. Chabaneix, *Notes sur la défense*, 28, my translation.

42. Chabaneix, *Notes sur la défense*. This story was repeated by Broquet, who compared Chinese doctors to fourteenth-century physicians in their supposed ignorance and to the Boxers in their “belief in invulnerability”; Broquet, “Le masque dans la peste,” 645, my translation. In another version, Broquet frames this as a

confrontation between young, scientifically trained Chinese doctors and senior/elder Chinese doctors; Broquet, *La conférence de la peste*, 12.

43. Farrar in *Report of the International Plague Conference*, 303.

44. Strong in *Report of the International Plague Conference*, 394n1.

45. UAB, Series/Collection MC12, Folder 1.14., Barber and Teague, “Studies on Pneumonic Plague,” 268. Doubts regarding the efficacy of the masks continued to haunt their application in the course of the 1918 influenza pandemic and in the context of later plague outbreaks in China. I thank Freddie Stephenson for bringing to my attention historical material attesting to the latter.

46. Susan Buck-Morss, *The Origin of Negative Dialects: Theodor W. Adorno, Walter Benjamin, and the Frankfurt Institute* (New York, NY: Free Press, 1977).

47. Pollock, “Masks and the semiotics,” 586.

48. Buck-Morss, *Origin of Negative Dialects*, 106.

49. Bruce Kapferer, “Anthropology and the dialectic of enlightenment: A discourse on the definition and ideals of a threatened discipline,” *Australian Journal of Anthropology* 18, no. 1 (2007): 72–94, 86.

50. Michael Taussig, “History as commodity in some recent American (anthropological) literature,” *Critique of Anthropology* 9, no. 1 (1989), 12.

51. I am borrowing the latter term from Rogaski, *Hygienic Modernity*.

52. Anon., “How our forefathers fought the plague,” *British Medical Journal* 2, no. 1969 (1898): 903–908; Anon., “The management of pneumonic plague epidemics,” *The Lancet* 209, no. 5403 (1927): 611–612.

53. See Poussin’s painting *The Plague of Ashdod* (1630), on which more details are provided below. This practice was replicated by British soldiers involved in anti-plague work in 1894 Hong Kong, with handkerchiefs soaked in carbolic acid being pressed against their noses and mouths as they operated in the city; Robert Peckham, “Hong Kong junk: Plague and the economy of Chinese things,” *Bulletin of the History of Medicine* 90 (2016): 32–60.

54. Laveran replying to A. Manaud, “Le peste au Siam,” *Bulletin de la Société de Pathologie Exotique* 6 (1911), 356, my translation.

55. Carlo M. Cipolla, “A plague doctor,” in *The Medieval City*, ed. Harry A. Miskimin, David Herlihy, and A. L. Udovitch, 65–72 (New Haven, CT: Yale University Press, 1977). A century later, in the Swiss physician and alchemist Jean-Jacques Manget’s 1720 treatise on plague, a costume resembling that of De l’Orme’s appears in a famous etching of the plague doctor; R. Blanchard, “Notes historiques sur la peste,” *Archives de parasitologie* 3 (1900): 589–646.

56. Broquet, “Le masque dans la peste”; Johann Melchior Füssli’s image of a 1720 plague doctor in Marseille was suspected by early-twentieth-century plague experts



like Broquet to be no more than a German caricature; Johann Melchior Füssli, “Sketch of a Cordovan-leather-clad doctor of Marseille,” [https://commons.wikimedia.org/wiki/File:Johann\\_Melchior\\_Füssli\\_\(1677–1736\),\\_Sketch\\_of\\_a\\_Cordovan-leather-clad\\_doctor\\_of\\_Marseilles.png](https://commons.wikimedia.org/wiki/File:Johann_Melchior_Füssli_(1677–1736),_Sketch_of_a_Cordovan-leather-clad_doctor_of_Marseilles.png).

57. Broquet, “Le masque dans la peste.”

58. Daniel Panzac, “Médecine révolutionnaire et révolution de la médecine dans l’Égypte de Muhammad Ali: Le Dr Clot-Bey,” *Revue des mondes musulmans et de la Méditerranée* 52–53 (1989): 95–110; Christian Jean Dubois, *Clot Bey: Médecin de Marseille (1793–1868), chirurgien du vice-roi d’Égypte* (Marseille, France: Jeanne Lafitte, 2013); Bruno Argémi, *Clot-Bey: Ou l’étonnante aventure d’un médecin marseillais en Égypte au XIXe siècle* (Paris, France: Gaussen, 2018); G. N. Burrow, “Clot-Bey: Founder of Western Medical Practice in Egypt,” *Yale Journal of Biology and Medicine* 48 (1975): 251–257.

59. LaVerne Kuhnke, *Lives at Risk: Public Health in Nineteenth-Century Egypt* (Berkeley, CA: University of California Press, 1990).

60. George Michael La Rue, “Treating black deaths in Egypt: Clot-Bey, African slaves, and the plague epidemic of 1834–1835,” in *Histories of Medicine and Healing in the Indian Ocean World*, vol. 2: *The Modern Period*, ed. Anna Winterbottom and Facil Tesfaye, 27–59 (London, UK: Palgrave Macmillan, 2016), 28. La Rue estimates the total toll between 80,000 and 100,000 individuals in the 1834–1835 phase of the epidemic, with Black communities being most seriously affected.

61. Kuhnke, *Lives at Risk*. On Pariset and his theory, see Alan Mikhail, “The nature of plague in late eighteenth-century Egypt,” *Bulletin of the History of Medicine* 82, no. 2 (Summer 2008): 249–275.

62. Kuhnke, *Lives at Risk*, 70.

63. Kuhnke, *Lives at Risk*; La Rue, “Treating black deaths in Egypt”; Khaled Fahmy, *In Quest of Justice: Islamic Law and Forensic Medicine in Modern Egypt* (Berkeley, CA: University of California Press, 2018). Although he maintained his anticontagionist stance for decades to come, Clot did support the implementation of quarantine measures when these were ordered by the Pasha; La Rue “Treating black deaths in Egypt.” On Clot-Bey’s insistence that plague is not contagious, see A. B. Clot-Bey, *Derniers mots sur la non-contagion de la peste* (Paris, France: Victor Masson & fils, 1866).

64. A. B. Clot-Bey, *De la peste observée en Égypte: Recherches et considérations sur cette maladie* (Paris, France: Fortin Masson et Cie, 1840), 425.

65. Clot-Bey, *De la peste observée*, 389, my translation.

66. It is worth noting that this idea of fear leading to plague was also shared by local religious leaders at the time in Egypt. Fahmy quotes the fatwa against quarantine issued by the mufti of Alexandria to Muhammad Ali as explaining that quarantines

“evoke fear and anxiety, and these feelings are the strongest causes of diseases and the plague”; Fahmy, *In Quest of Justice*, 60.

67. Sheila Barker, “Poussin, plague, and early modern medicine,” *Art Bulletin* 86, no. 4 (2004): 659–689.

68. Barker, “Poussin, plague,” 661. On other aspects of plague’s relation to fear in early modern times, see Stevens Crawshaw’s analysis of Antero Maria da San Bonaventura’s 1658 writings on quarantine: Jane Stevens Crawshaw, “The places and spaces of early modern quarantine,” in *Quarantine: Local and Global Histories*, ed. Alison Bashford, 15–34 (London, UK: Palgrave Macmillan, 2017).

69. Barker, “Poussin, plague”.

70. Pierre-Jean Fabre, *Remèdes curatifs et préservatifs de la peste donnez au public en 1652* (Toulouse, France: Claude-Gilles Lecamus, 1720).

71. Fabre, *Remèdes curatifs*, 5, my translation.

72. Barker, “Poussin, plague,” 668.

73. Darcy Grimaldo Grigsby, “Rumour, contagion and colonization in Gros’s plague-stricken of Jaffa (1804),” *Representations* 51, no. (1995): 1–46.

74. Grigsby, “Rumour, contagion”; Marc Bloch, *Les rois thaumaturges: Étude sur le caractère surnaturel attribué à la puissance royale particulièrement en France et en Angleterre* (Paris, France: Gallimard, 1983).

75. In Grigsby, “Rumour, contagion,” 9. On Napoleonic medicine, the Egyptian Campaign, and plague, see Thomas G. Russell and Terence M. Russell, “Medicine in Egypt at the time of Napoleon Bonaparte,” *British Medical Journal* 327, no. 7429 (2003): 1461–1464; Jean-François Hutin, “La littérature médicale de la campagne d’Égypte,” *Histoire des sciences médicales* 46, no. 1 (2012): 19–30; Catherine Kelly, “Medicine and the Egyptian campaign: The development of the military medical officer during the Napoleonic Wars c. 1798–1801,” *Canadian Bulletin of Medical History* 27, no. 2 (2010): 321–342.

76. Yvonne Hibbot, “Bonaparte visiting the plague-stricken at Jaffa’ by Antoine Jean Gros (1771–1835),” *British Medical Journal* 1, no. 5642 (1969): 501–502.

77. Clot admired and replicated the self-inoculation of Napoleon Bonaparte’s chief military doctor in the Egyptian Campaign, René-Nicolas Dufriche Desgenettes, with puss from axillary buboes of plague victims, a feat meant to prove that plague was not contagious. Desgenettes’s act became part of the visual culture of the era. Examples of visual art focusing on Desgenettes and plague include Pierre Antoine Augustin Vafflard’s lithograph *Desgenettes, médecin en chef de l’armée d’Égypte, s’inocule la peste en présence des soldats malades afin de calmer leur imagination* (Victoria and Albert Museum, SP.598, [ca. 1820–1835]), <https://collections.vam.ac.uk/item/O1105684/desgenettes-médecin-en-chef-de-lithograph-pierre-antoine-augustin/>. A modern mural on the subject by Jean Coquet (1946) adorns the hall of L’Hôpital Desgenettes

in Lyon; Frédéric Chauvin and Louis-Paul Fischer, “Les peintures murales de Jean Coquet de l’hôpital Desgenettes à Lyon,” *Histoire des Sciences Médicales* 44, no. 1 (2010): 23–34.

78. Farrar in *Report of the International Plague Conference*, 303.

79. For discussion, see Lynteris, *Ethnographic Plague*.

80. E. Kinnear, “Propitiating the plague spirits,” *China Medical Missionary Journal* 264 (1902): 204.

81. The incident also underlined in the eyes of medical modernizers that “‘coolies’ were not simply unskilled or degenerate, they were culturally contagious: their touch was imagined as exercising a degenerative power on the very means employed for the hygienic modernization of China”; Lynteris, *Ethnographic Plague*, 315.

82. Peter Redfield, “Fluid technologies: The Bush Pump, the LifeStraw® and micro-worlds of humanitarian design,” *Social Studies of Science* 46, no. 2 (2016): 159–183.

83. Alfred Gell, *Metamorphosis of the Cassowaries* (London, UK: Athlone Press, 1975), 301.

84. For a discussion of Wu’s mask in China after 1911, see Zhang, “From respirator to Wu’s mask.”

85. Wu Lien-teh, “Practical points in the treatment of plague,” *The Lancet* 198, no. 5121 (1921): 853–854; After World War II, the mask would carry on its material as well as visual social life in Communist China, where it would systematically feature in dramatic and info-sheet-like public health posters. See the following collections: NLM, Chinese Public Health Posters, <https://www.nlm.nih.gov/hmd/chineseposters/index.html>; WL, 660567i, *China: Protection against Nuclear, Chemical, and Germ Warfare*, color lithographs, 1971, <https://wellcomecollection.org/works/z2avkryh>.

86. Branwyn Poleykett, “Ethnohistory and the dead: Cultures of colonial epidemiology,” *Medical Anthropology* 37, no. 6 (2018): 472–485; Genese Marie Sodikoff, “The multispecies infrastructures of zoonosis,” in *The Anthropology of Epidemics*, ed. Ann H. Kelly, Frédéric Keck, and Christos Lynteris, 102–120 (London, UK: Routledge, 2019).

87. Roger Pollitzer, *Plague* (Geneva, Switzerland: World Health Organization, 1954). Genese Sodikoff and Dieudonné Rasolonomenjanahary point out that in some cases these workers were actually prisoners; Genese Sodikoff and Z. R. Dieudonné Rasolonomenjanahary, “Ethnographic images of the plague: Outbreak and the landscape of memory in Madagascar,” in *Plague Image and Imagination*, ed. Christos Lynteris (London, UK: Palgrave, 2021). On the reception of and resistance to these hygienic burials and the banning of *famadihana*, see Faranirina Esoavelomandroso, “Résistance à la médecine en situation coloniale: La peste à Madagascar,” *Annales* 36, no. 2 (1981): 168–190.

88. PIP, MP35722, “Mise en bière d’un cadavre pesteux par une équipe d’hygiène à Madagascar vers 1935.” Sodikoff and Rasolonomenjanahary have identified a follow-up caption with the coffin being carried away: Agence Nationale Taratra, Antananarivo. Album AS 5 No. 9; Sodikoff and Rasolonomenjanahary, “Ethnographic Images of the Plague.”
89. Gordon Henry Hirshberg, “Medical science’s newest discoveries about the ‘Spanish influenza,’” *Washington Times*, October 6, 1918, National Edition, American Weekly Section, 22.
90. Hirshberg, “Medical science’s newest.”
91. Hirshberg, “Medical science’s newest.”
92. Anon., “Hospital which no patient leaves alive. A visit to the plague sufferers at Harbin,” *The Sun* (New York) 78, no. 256 (May 14, 1911): 9.
93. Anon., “How science masks itself against the Black Plague,” *Richmond Palladium and Sun-Telegram* 36, no. 218 (July 15, 1911): 2.
94. Anon., “How science masks itself.”
95. Anon., “How science masks itself.”
96. Anon., “Le pestiféré,” frontispiece, supplement, *L’illustration* 69, no. 3551 (March 18, 1911): 1; Anon., “The Plague in Manchuria: Direct Camera Pictures by Frederick Moore,” *The Sphere* 44, no. 582 (March 18, 1911): 233.
97. Anon., “How science masks itself,” 2.
98. Both this and the burning coffin photograph were originally printed (uncropped) in Anon., “Plague in Manchuria: Direct Camera Pictures.”
99. For a discussion of the apotropaic properties of masks, see Napier, *Masks, Transformation*.

#### CONCLUSION

1. Erin O’Connor, “Camera medica: Towards a morbid history of photography,” *History of Photography* 23, no. 3 (1999), 234.
2. On visualizing epidemics since the second half of the twentieth century, see Roger Cooter and Claudia Stein, “Visual imagery and epidemics in the twentieth century,” in *Imagining Illness: Public Health and Visual Culture*, ed. David Harley Serlin, 169–192 (Minneapolis, MN: University of Minnesota Press, 2010); Lukas Engelmann, “Photographing AIDS: On capturing a disease in pictures of people with AIDS,” *Bulletin of the History of Medicine* 90, no. 2 (Summer 2016): 250–278; Neil A. Gerlach, “Visualizing Ebola: Hazmat suit imagery, the press, and the production of biosecurity,” *Canadian Journal of Communication* 44, no. 2 (2019): 191–210; Ingrid Gessner, “Picturing Ebola: Photography as an instrument of biopolitical (in)justice,” March 16, 2020, <https://dx.doi.org/10.13140/RG.2.2.32358>

.37447. On visualizing contagion and the “next pandemic,” see Priscilla Wald, *Contagious: Cultures, Carriers, and the Outbreak Narrative* (Durham, NC: Duke University Press, 2008); Christos Lynteris, *Human Extinction and the Pandemic Imaginary* (London, UK: Routledge, 2019); Dahlia Schweitzer, *Going Viral: Zombies, Viruses, and the End of the World* (New Brunswick, NJ: Rutgers University Press, 2018); On the emerging infectious diseases framework, see Nicholas B. King, “The scale politics of emerging diseases,” *Osiris* 19 (2004): 62–76.

3. Andrew Lakoff, *Unprepared: Global Health in a Time of Emergency* (Berkeley, CA: University of California Press, 2017); Limor Samimian Darash, “Governing future potential biotreats: Toward an anthropology of uncertainty,” *Current Anthropology* 54, no. 1 (2013): 1–22; Carlo Caduff, *The Pandemic Perhaps: Dramatic Events in a Public Culture of Danger* (Berkeley, CA: University of California Press, 2015); Lynteris, *Human Extinction*.

4. Christos Lynteris, “The prophetic faculty of epidemic photography: Chinese wet markets and the imagination of the next pandemic,” *Visual Anthropology* 29, no. 2 (2016), 129.

5. See, for example, Brian Callender et al., “COVID-19, comics, and the visual culture of contagion,” *The Lancet* 396, no. 10257 (October 10, 2020): 1061–1063; Gloria Yan Dow, “Toward a non-binary sense of mobility: Insights from self-presentation in Instagram photography during COVID-19 pandemic,” *Media, Culture and Society*, April 15, 2021, <https://doi.org/10.1177/01634437211008734>; Megan Williams, “Five photographers interpret anxiety in Wellcome Covid-19 project,” *Creative Review*, October 29, 2020, <https://www.creativereview.co.uk/wellcome-anxiety-covid-project>.

6. Christos Lynteris, “Why do people really wear face masks during an epidemic?” *New York Times*, February 13, 2020, <https://www.nytimes.com/2020/02/13/opinion/coronavirus-face-mask-effective.html>. See also the essays published in “The Mask—Arrayed” project of Department III of the Max Planck Institute for the History of Science (<https://thefacearrayed.net>).

7. See, for example, the first issue of the German arts periodical *Pictoplasma* (“Face Value,” Spring 2021), dedicated to masks and PPE.

8. For discussion, see Kamayani Sharma, “Why the world must witness pictures of India’s mass COVID-19 cremations,” *Vox*, May 21, 2021, <https://www.vox.com/first-person/22434028/india-covid-cremations>.

9. Christos Lynteris, “Sinophobia, epidemics, and interspecies catastrophe,” in “Hot Spots, Responding to an Unfolding Pandemic: Asian Medicines and COVID-19,” *Cultural Anthropology: Editor’s Forum*, June 23, 2020, <https://culanth.org/fieldsights/sinophobia-epidemics-and-interspecies-catastrophe>. On the question of wet markets and COVID-19 as entangled in Sinophobic readings of the origin of the pandemic, see Christos Lynteris, “The imperative origins of COVID-19,” *L’Homme*:

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# Visual Plague

## The Emergence of Epidemic Photography

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