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Title: A Plague of Kinyounism: The Caricatures of Bacteriology in 1900 San Francisco

Abstract: The arrival of bubonic plague in San Francisco in 1900 has become a pivotal case study in the history of American public health. The presence of plague remained contested for months as the evidence provided by the federal bacteriologist Joseph Kinyoun of the Marine Hospital Service was rejected, his laboratory methods disputed and his person ridiculed. Before the disease diagnosis became widely accepted, Kinyoun had been subjected to public caricature; his expensive and disruptive pragmatics for containing the epidemic were ridiculed as a plague of 'Kinyounism.' Not only does this history offer insight into the difficult and contradictory ways in which bacteriology became an established science, it also provides an early twentieth-century example of 'politicised science.' This paper revisits the controversy around Kinyoun and his bacteriological practice through the lens of caricature to sharpen the historical understanding of the shifting and shifty relationships between science, medicine, public health and politics.

Keywords: American Public Health, Caricature, Bacteriology, Bubonic Plague, Politicised Science.

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history of epidemiology and the social, political and cultural dimensions of epidemics in the nineteenth and twentieth century.

Introduction

A new word has been coined in the parlance of Western language, and that is 'Kinyounism.' Kinyounism is meant to be that a man will carry out his orders irrespective of the wish of the local people; that he will tell the truth whether it is politic to do so or not; that he cannot be bribed, coerced or jollied into suppressing the truth, particularly to his superiors. I suppose that the word 'Kinyounism' will remain for quite a number of years as one of the set phrases in describing this condition. I hope so at least.¹

Writing to his friend Dr. Bailhache in August 1900, Joseph J. Kinyoun, officer of the US Marine Hospital Service, was defending his name against an ambush on his reputation. In 1898 the renowned bacteriologist had been summoned to San Francisco to protect the US from the arrival of bubonic plague. Once he announced the dreaded epidemic's appearance, after painstaking laboratory confirmation in March 1900, this diagnosis failed to convince the city's public, as well as a majority of its medical profession. They accused Kinyoun of causing a 'plague craze' and publicly ridiculed his scientific practice. Criticism ranged from his unnecessary expenditure from the city's budget to the irrevocable damage done to its economic

¹ Joseph J. Kinyoun, Letter, dated 9 August 1900, addressed to Dr. Bailhache, Kinyoun Papers, MS C 464, History of Medicine Division, National Library of Medicine, p 49.

reputation. Contrary to Kinyoun's claim of producing apolitical, courageous scientific knowledge, his name was turned into Kinyounism: a plague, a scourge of medical authoritarianism, scientific misconduct and high-handed federal intrusion into local business. Kinyoun's public downfall, which culminated in his departure from San Francisco in 1901, was marked by a dramatic loss of moral authority for his profession of bacteriology when it came to pressing political, economic and social questions in epidemic crisis.

As the epigraph above indicates, Kinyoun hoped that immortalising his name in this new coinage would eventually take on a new meaning. He hoped to be vindicated – perhaps by historians - of the accusations against his name, which might come to stand for the heroism of an imperturbable mind who protected scientific rigor and federal public health principles against the public in California and San Francisco. While some historical scholarship indeed portrays Kinyoun as an 'indispensable men' who defended scientific rigor against political and commercial attacks, I am interested in the resentments and motifs that were mobilised by Kinyoun's contemporaries to delegitimise his profession.² Why, I ask, did laboratory science become subject to aggressive public mockery? What were the conditions under which Kinyoun became assailable to his critics? Finally, what can this case tell us about the uneasy adoption of bacteriological expertise in medicine and public health in the US at that time?

² David M Morens and National Library of Medicine (U.S.), *The Forgotten Indispensable Man Joe Kinyoun & the Birth of NIH* (Bethesda, Md.: National Library of Medicine, 2011). For Kinyoun's biography and position within the MHS and the early Public Health Service, see: Victoria Angela Harden, *Inventing the NIH: Federal Biomedical Research Policy, 1887-1937* (Johns Hopkins University Press, 1986).

Explanations for the attacks on Kinyoun have so far been sought in the economic dimensions of this history with a focus on the consequences Kinyoun's actions had on San Francisco's trade.³ But already Erwin Ackerknecht has warned against attributing public and professional reservations about quarantine exclusively to economic interest.⁴ Other historians have focused on the racism that structured much of the civic and medical perception of epidemic crisis in the late nineteenth century to explain the tensions in San Francisco.⁵ Although Kinyoun's racist views had significant impact on the shape the conflict took, these prejudices were also shared by a majority of his opponents and explain little about the divisive mockery of his scientific practice. The case of plague in San Francisco also offered itself to

³ Philip A. Kalisch, "The Black Death in Chinatown: Plague and Politics in San Francisco 1900-1904," *Arizona and the West* 14, no. 2 (July 1, 1972): 113–36; Robert Barde, "Prelude to the Plague: Public Health and Politics at America's Pacific Gateway, 1899," *Journal of the History of Medicine and Allied Sciences* 58, no. 2 (April 1, 2003): 153–86, <https://doi.org/10.1093/jhmas/58.2.153>; Marilyn Chase, *The Barbary Plague: The Black Death in Victorian San Francisco* (London: Random House Publishing Group, 2004).

⁴ Erwin H. Ackerknecht, "Anticontagionism between 1821 and 1867," *Bulletin of the History of Medicine* 22 (1948): 562–93. A similar argument against the confusion of commercial interest with skepticism about germ theory has been made in detail by Humphrey for the case of Yellow Fever in the American South and by Peter Baldwin for the liberal economic policies of the UK in the 19th century. Margaret Humphreys, *Yellow Fever and the South* (Baltimore: Johns Hopkins University Press, 1999); Peter Baldwin, *Contagion and the State in Europe, 1830-1930* (Cambridge University Press, 1999).

⁵ Nayan Bhupendra Shah, *San Francisco's "Chinatown": Race and the Cultural Politics of Public Health, 1854-1952* (Oakland, California: University of Chicago, 1995); J. G. Power, "Media Dependency, Bubonic Plague, and the Social Construction of the Chinese Other," *Journal of Communication Inquiry* 19, no. 1 (April 1, 1995): 89–110, <https://doi.org/10.1177/019685999501900106>; Alan M. Kraut, *Silent Travelers. Germs, Genes, and the "Immigrant Menace"* (New York: BasicBooks, 1995); Nayan Shah, *Contagious Divides: Epidemics and Race in San Francisco's Chinatown* (Berkeley: University of California Press, 2001); Guenter B. Risse, *Driven by Fear: Epidemics and Isolation in San Francisco's House of Pestilence* (University of Illinois Press, 2015).

political and legal interpretation of federal intrusion into state matters. But inevitably, as discussions around the 1893 Quarantine Act show, rejection of federalism was already informed by disputes over the position of science and expertise in political decision-making.⁶

Rather, I focus here on the emergence of bacteriology and the challenges the laboratory raised for the place of science in political life before expert knowledge was fully institutionalized in early-twentieth century USA. I propose that the rejection of Kinyounism by the public was indicative of long-held reservations about a new kind of laboratory expertise, which claimed to be foundational for rational political decisions. Furthermore, the medical profession's dismissal of Kinyoun's practice was not only driven by political and economic motives, but must be seen as deeply embedded within the epistemological transformation of medical knowledge production in the late-nineteenth century. As the laboratory began to claim a unique authority in the realm of medical diagnostics, many physicians resisted and argued that their established clinical and bedside practices were better suited to the unique challenges posed by bubonic plague.⁷

In this paper I will revisit the story of plague in San Francisco through the squinted eyes of caricature, satire and vicious medical polemics. Shrill voices and extreme

⁶ Howard Markel, *Quarantine!: East European Jewish Immigrants and the New York City Epidemics of 1892* (JHU Press, 1999).

⁷ The argument made here attaches itself therefore to the scholarship that has shaped our understanding of the dichotomies between bedside practices and laboratory analysis in the history of medicine in the late nineteenth century. See e.g. Christopher Lawrence, "Incommunicable Knowledge: Science, Technology and the Clinical Art in Britain 1850-1914," *Journal of Contemporary History* 20, no. 4 (October 1, 1985): 503–20, <https://doi.org/10.1177/002200948502000402>; R. Wall, "Using Bacteriology in Elite Hospital Practice: London and Cambridge, 1880-1920," *Social History of Medicine* 24, no. 3 (December 1, 2011): 776–95, <https://doi.org/10.1093/shm/hkq114>.

accusations contributed to a set of distorted and exaggerated images, which I collect here under the term of Kinyounism. The existing scholarship on San Francisco's plague crisis treated these voices often as mere symptoms of an economic crisis or as a result of a campaign led by the republican Governor of California, Henry T. Gage, which was in turn endorsed by local newspapers and a significant proportion of the San Francisco medical profession.⁸ In this article I move the visual polemics of caricatures to the centre of historical scholarship to retreat from the positioning of scientific truth versus political conspiracy that has dominated the writing of this history. Through a detailed analysis of caricatures of Kinyounism, I identify instead what art historian Ernst Gombrich called the 'hardened metaphors of political jargon.'⁹ I contrast these metaphors of Kinyounism with illustrations of bacteriology in the last decades of the nineteenth century to broaden and deepen our understanding of the images that contributed to the specific political weakness and epistemological vulnerability of Kinyoun's expertise.

The graphical mockery of Kinyoun underlines that the ideal of medical science at the time was, as John Harley Warner points out, 'one that posited a new relationship not

⁸ The most detailed account of the history of plague in San Francisco has been given by Guenter B. Risse, *Plague, Fear, and Politics in San Francisco's Chinatown* (Baltimore: Johns Hopkins University Press, 2012). On the anti-plague positions of the Californian Governor, see *Ibid.*, 137 ff. The earliest historical interpretations which have emphasized the tragic role of Kinyoun in San Francisco include: W. H. Kellogg, 'Present State of Plague with Historical Review,' *American Journal of Public Health*, 1920, 10 (11), 835–44; G. H. Evans, 'Plague Epidemics in San Francisco; Historical Notes: Part I,' *California and Western Medicine*, 1938, 49 (5), 383–84; G. H. Evans, 'Plague Epidemics in San Francisco; Historical Notes: Part II,' *California and Western Medicine*, 1938, 49(6), 458–60; G. H. Evans, 'Plague Epidemics in San Francisco; Historical Notes: Part III,' *California and Western Medicine*, 1939, 50 (1), 24–25.

⁹ E. H. Gombrich, 'The Cartoonist's Armory,' in *Meditations on a Hobby Horse* (London; New York: Phaidon, 1963), 127–42, 127.

just between science and practice, but also between science and professional identity and between science and moral legitimacy.¹⁰ Caricatures of Kinyounism offer tangible expressions of circulating images and beliefs and point to how people felt about the changing landscape of medical expertise. They offer a rich armoury of images, metaphors and often animalistic symbols through which we can identify some of the reasons that prevented Kinyoun from successfully defining the course of public health intervention in San Francisco in and through his laboratory.

I unpack this history of Kinyounism in three distinct parts. The first section introduces the history of bacteriological expertise in the United States with a particular focus on North America's reluctance to embrace the new European science. Often (but not exclusively) bound to the bacteriological laboratory, American medicine underwent an expansive reorientation in the second half of the nineteenth century with novel standardization of diagnostic categories, dwindling tolerance for quackery and idiosyncratic unsafe practice. Rejection of alternative medical movements, such as the once-popular homeopathy, and further marginalization of sanitarians, changed the practical conduct of medicine and impacted heavily on the profession's image.¹¹ I

¹⁰ John Harley Warner, 'Ideals of Science and Their Discontents in Late Nineteenth-Century American Medicine,' *Isis*, 1991, 82, (3), 454–78; Patricia Peck Gossel, 'Pasteur, Koch and American Bacteriology,' *History and Philosophy of the Life Sciences*, 2000, 22, (1), 81–100; Powel H. Kazanjian, 'The Beginnings of Bacteriology in American Medicine: Works of Frederick Novy 1888--1933' (Ph.D., 2012).

¹¹ Charles Rosenberg, "The Therapeutic Revolution: Medicine, Meaning and Social Change in Nineteenth-Century America," *Perspectives in Biology and Medicine* 20, no. 4 (1977): 485–506; John Harley Warner, "The History of Science and the Sciences of Medicine," *Osiris* 10 (1995): 164–93; Owen Whooley, *Knowledge in the Time of Cholera: The Struggle over American Medicine in the Nineteenth Century* (Chicago: University of Chicago Press, 2013); John Harley Warner, *The Therapeutic Perspective: Medical Practice, Knowledge, and Identity in America, 1820-1885* (Princeton University Press, 2014).

argue, with Bert Hansen, that visualizations of scientific practice in the illustrated press addressed and resolved much of the scepticism surrounding the bacteriological transformation of medicine. But rather than to assume a 'picturing of progress' from the 1880s onwards, this paper points to the persistent epistemological obstacles that allowed Kinyoun's plague diagnosis to be seen as controversial.¹²

The second section offers a systematic analysis of visualized satire about Kinyoun in San Francisco newspapers. With a discussion of the motifs and images exaggerated by comic illustrations, I show how the arrival of plague on American soil challenged the visual repository of medical progress, as well as the authority of Kinyoun's bacteriological practice. To further situate the caricature of Kinyounism, I demonstrate in the third section that a considerable faction of San Francisco's medical profession also problematized his bacteriological practice.¹³ The divisive tone set by the illustrated commentary from March to June 1900 extended to polemical debates in the medical community from July to September. To his professional opponents, Kinyounism was synonymous with what could tentatively be called a 'bacteriological extremism.'

The caricatures as well as the medical dispute underline that the central achievement of the bacteriological transformation – an unambiguous definition of the presence of a disease - could appear itself as a rickety methodological polemic in conflict with

¹² Bert Hansen, *Picturing Medical Progress from Pasteur to Polio: A History of Mass Media Images and Popular Attitudes in America* (Rutgers University Press, 2009).

¹³ These disputes have been presented in detail in Risse, *Plague, Fear, and Politics in San Francisco's Chinatown*, 152 ff. and were also subject for an unpublished lecture: Guenter B. Risse, 'Science Contested: Bacteriologists and Bubonic Plague in San Francisco,' https://www.academia.edu/24924891/Science_Contested_Bacteriologists_and_Bubonic_Plague_in_San_Francisco, accessed 28 April 2016.

pre-existing and persisting modes of medical reasoning as well as with their established public authority. Caricatures and polemics translated Kinyoun's scientific practice into political stances, making Kinyounism a mockery of bacteriological expertise in epidemic crisis. This story thus adds a further layer to the historical complexity of disseminating and establishing the authority of bacteriology in medicine and in the public eye. But moreover, the case of Kinyoun in the plague crisis of 1900 San Francisco exposes the fragility of scientific authority in the face of public and professional opposition and it reminds us of the political and cultural, rather than scientific conditions that allow the scientist to appear as trusted expert.

Bubonic Plague and the Transformation of American Medicine

Bubonic plague was a powerful vehicle for epistemological transformation in late nineteenth-century medicine. The global distribution of the pandemic, catalysed by growing concern about a potential return of the Black Death, posed a fitting challenge to demonstrate to a global audience the advantages of laboratory medicine to serve public health. Soon after plague broke out in Hong Kong's Taipingshan in May 1894, the Japanese bacteriologist Shibasaburo Kitasato followed by the French scientist Alexandre Yersin from the Institut Pasteur, claimed that they had identified plague's bacteriological agent.¹⁴ Within a matter of months, bacteriological plague diagnosis became standardised and started to replace symptom-based ways to characterise an outbreak. The art of recognizing and describing the varied occurrences of bubonic,

¹⁴ Kitasato, Shibasaburo, 'The Bacillus of Bubonic Plague,' *The Lancet*, 1894, 144 (3704), 428–30; Yersin, Alexandre, 'La Peste Bubonique a Hong Kong,' *Annales de Institut Pasteur*, 1894, 662–67; D. J. Bibel and T. H. Chen, 'Diagnosis of Plague: An Analysis of the Yersin-Kitasato Controversy.,' *Bacteriological Reviews* 1976, 40, (3),b 633–51.

septicaemic and pneumonic plague was now subordinated by identification of plague via its bacterial agent.¹⁵

According to Andrew Cunningham, the third plague pandemic demonstrated to the global medical profession that the laboratory could work as a 'final arbiter of the accuracy of the diagnosis the physician offers.'¹⁶ And with that, he argues, two dominant modes of understanding plague were demoted. A symptom-based identity of plague considered a range of characteristic signs, which had become legible beyond the medical profession. The public knew the disease's ominous signs. Secondly, causes for plague had previously included the patient's constitution as well as the quality of air and the patient's diet. Identification of the bacteria was a watershed moment, says Cunningham, in which bacteriology, not the clinic, nor epidemiology had the last word about what plague was, how it should be treated and prevented.

Cunningham's contribution to the historiography of plague prompted a considerable critical reaction. Among others, Worboys has challenged the overarching narrative of a bacteriological revolution in medicine in the late nineteenth century and highlighted

¹⁵ For a selection of significant discussions on the implications of Yersin's paper for the diagnosis of plague before 1900, see: Simpson, "Plague: Its Symptomatology, Pathology, Treatment and Prophylaxis," *British Medical Journal*, no. 2 (2020) (1899): 697–99; Albert Calmette, *The Plague at Oporto* (The North American Review, 1900); Anon, "Preliminary Note on Bacteriological Investigations into the Bubonic Plague at Bombay [The Plague in India]," *British Medical Journal*, no. 2 (1870) (1896): 1343–1343; R. (Robert) Nathan, India. Home Department, and Royal College of Physicians of London, *The Plague in India, 1896, 1897* (Simla : Government Central Printing Office, 1898), http://archive.org/details/b2497528x_0001; Simond, "La Propagation de La Peste," *Annales de l'Institut Pasteur*, no. 62 (?) (1898).

¹⁶ Andrew Cunningham, "Transforming Plague: The Laboratory and the Identity of Infectious Disease," in *The Laboratory Revolution in Medicine*, ed. Andrew Cunningham and Perry Williams (Cambridge: Cambridge University Press, 1992), 219.

a broader and more complex landscape of epistemological transformation in medical knowledge production in Britain and elsewhere.¹⁷ To many historians, the proposition of a radical transformation between old and new concepts of plague failed to explain the rich and varied methodological landscape of plague research in the years following 1894. Perhaps most obviously, identification of the bacteria in the laboratory failed to explain the particular patterns of disease distribution, nor did the laboratory give consistent evidence about possible animal vectors. Instead, a synecdoche of physical filth, cramped housing, scarcity of food and lack of personal hygiene continued to accompany plague research long into the twentieth century.

Christos Lynteris has recently described the research landscape that developed around plague in Manchuria after 1910 as producing rather an ‘ethnographic plague.’ To minimize disorder in the wake of public health interventions, imperial powers in Manchuria continued to establish typologies and topographies of cultural customs and living conditions that were hypothetically implicated in the cause and distribution of the epidemic.¹⁸ The bacteriological definition of plague in 1894, Lynteris argues, did not lead to a reduction in the scope of understanding plague solely through the

¹⁷ Michael Worboys, “Was There a Bacteriological Revolution in Late Nineteenth-Century Medicine?,” *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences* 38, no. 1 (March 2007): 20–42, <https://doi.org/10.1016/j.shpsc.2006.12.003>; Flurin Condrau and Michael Worboys, “Second Opinions: Epidemics and Infections in Nineteenth-Century Britain,” *Social History of Medicine* 20, no. 1 (April 1, 2007): 147–58, <https://doi.org/10.1093/shm/hkm001>; For the case of Britain, see also: Wall, “Using Bacteriology in Elite Hospital Practice”; Graham Mooney, *Intrusive Interventions: Public Health, Domestic Space, and Infectious Disease Surveillance in England, 1840-1914* (Woodbridge: Boydell & Brewer, 2015).

¹⁸ Christos Lynteris, *Ethnographic Plague: Configuring Disease on the Chinese-Russian Frontier* (Palgrave Macmillan, 2016), 30.

instruments of the laboratory, but the disease's identity invited multiple and often contradictory ways of seeing.

The position of the laboratory in late nineteenth-century American medicine was characterized by a significant shift of medical authority ahead of the arrival of plague in 1900. As Warner has argued, this was not a story about introducing science into medicine, as the discipline already considered itself to be a robust clinical science. Nor did the ascent of the laboratory follow the European trajectory whereby a budding institutional framework made room for new intellectual endeavours. Instead, the ascendance and eventual success of laboratory medicine as a locale of knowledge production in the late-nineteenth century US depended on the rise of an 'elitist epistemology'. This rewarded specialism, privileged access to knowledge and a renewed appreciation of 'legitimate complexity' enabled a small group of physicians to establish a new kind of medical authority.¹⁹

When bacteriology was first adapted by a young generation of physicians travelling to Germany to learn from Koch and Ehrlich, their return to the US was typically met with scepticism or even outright opposition. The ideals of scientific practice were seen by many to be already established in medical empiricism. The art of clinical observation, resting on the example of the Paris School of Medicine, had proven to be a successful vehicle to sustain the scientific identity of the medical profession. In opposition to natural healers, quacks and homeopaths, allopathic medicine

¹⁹ John Harley Warner, "The Fall and Rise of Professional Mystery: Epistemology, Authority and the Emergence of Laboratory Medicine in Nineteenth-Century America," in *The Laboratory Revolution in Medicine*, ed. Andrew Cunningham and Perry Williams (Cambridge: Cambridge University Press, 1992), 112.

embraced bedside diagnosis to reject mystification and obfuscation of medical knowledge.²⁰

The laboratory, while already moving to the centre of European medicine in the third quarter of the nineteenth century, was side-lined in the antebellum US, and was openly attacked for the types of claims experimental physiology and bacteriology sought to make about medical practice. Bacteriology in the US prompted fundamental questions about the appropriate place for science, scientific practice and scientific laboratories in politics and for the public. So that the laboratory might eventually expand its influence in the progressive era after the American civil war, the status of expertise had to be reframed. Essentially, the laboratory could only succeed to find a place in American medicine (as well as in the eyes of the public) once its medical practitioners embraced their specialism and established laboratory medicine as a force for expert elitism. As Warner put it, '[t]he laboratory provided the material and cognitive bases for an elitist epistemology and a regrounding of medicine on a decidedly privileged body of knowledge accessible to only a small proportions of Americans.'²¹

This transformation of the mode of diagnostics was usually accompanied by public acceptance of the new science, an embrace which lasted often just as long as it did not contradict public assumptions about infectious diseases. The 1892 cholera outbreak in the New York harbour is a case in point, as it shows how bacteriological expertise effectively failed to 'reground' the medical intervention against an epidemic. William Jenkins, a doctor who was in charge of the quarantine, expressed on

²⁰ Warner, 117; Whooley, *Knowledge in the Time of Cholera*, 4.

²¹ Warner, "The Fall and Rise of Professional Mystery," 140.

numerous public occasions his faith in the capacities of bacteriology to protect the city. Modern sanitary science based on bacteriological diagnostics was hailed by one of Jenkins' chief advisors, George M. Sternberg (author of the first American *Manual of Bacteriology*) to provide the best measures against the epidemic. But Markel has argued that in the daily routines at immigration stations bacteriological testing was almost completely insignificant.²² Incapable of testing the overwhelming numbers of suspicious cases, diagnostics were instead carried out on loose clinical observation and were often confirmed by the immigrant-status of patients. Many bacteriologists began to speak out against the simplified confirmation of the disease by association with immigrants, especially against the background of an emerging pattern of disconnected local cases in the city, but failed to convince doctors or the city's mayor, Hugh Grant.²³

The New York cholera epidemic had been a prominent spectacle in the illustrated press.²⁴ In parallel to depictions of immigrants as causes of the disease, newspapers maintained a positive image of bacteriology as a reliable and modern authority over public health, despite its limited influence on practices on the ground. As Bert Hansen has shown, visual metaphors were essential to public advancement of the new and exclusive medical orthodoxy. The images and imaginations guided the tone of public support or disapproval for scientific endeavour and innovation.²⁵

Hansen argues that the acceptance for medical knowledge stemming from laboratories was coupled with the elevation of the bacteriologist's status to a kind of

²² Markel, *Quarantine!*, 107.

²³ Markel, 128.

²⁴ Kraut, *Silent Travelers. Germs, Genes, and the "Immigrant Menace,"* 37.

²⁵ Hansen, *Picturing Medical Progress*, 28.

'medical celebrity.' Especially since the popular reception of the rabies vaccines developed in Europe, caricatures and illustrations regularly alluded to Pasteur and Koch as new masters of an inaccessible but fascinating world of infectious disease agents. In Hansen's view, these pictures – both illustrations and caricatures - conveyed specific meanings of this new scientific practice. Not only did they prompt intensely positive feelings about medicine's position in American society, they also caused a 'craze' for laboratory practice. But perhaps even more importantly, the pictures suggest an emerging enthusiasm about the social utility of science. The heroic portraits of bacteriologists enhanced a perception of medicine as a practice with 'humane and democratic values.'²⁶

One cartoon published in Puck from 1886 captured the changing face of medicine in light of this new science: the human skeleton has been cast aside and the medical students depicted are being taught 'Pasteur's Method' instead. Or in other words, body-snatching in the tradition of Burke and Hare was replaced by Cat-Snatching for dissection and experimentation. The suggestion was, that rabbits rather than humans were disembowelled in anatomical theatres and that cases of rabies had become a rare subject challenging for doctors to compete for treatment. (Figure 1) Neglecting 'common sick folks', the caricatures suggest that laboratory experiments monopolised doctors' times, their attention was focused on animals instead of humans and that they had lost their ability to care for the public. Hansen's interpretation of these satirical illustrations as indicators of 'epoch-making transitions' shows the main sentiments towards medical progress were found in exaggerated

²⁶ Hansen, 254–55.

dichotomies between physiology and bacteriology, experiment and treatment, and common versus spectacular diseases.²⁷



Figure 1 'The Profession Gone Mad', Puck, 18, 462, 13 January 1886

Despite these satirical voices of discontent, Hansen concludes that laboratory research to advance therapeutics increased medicine's public prestige. When illustrated, bacteriology improved the reputation of the laboratory by demonstrating that it was committed to progress and innovation. 'The series of advances helped to establish permanently in mass culture two new intertwined notions', Hansen writes,

²⁷ Hansen, 71.

'medicine is scientific, and medicine makes progress. Research had become visible; medical innovation was now a public thrill.'²⁸ Illustrations of the laboratory, microscopes, laboratory rodents and the scientists at work all contributed to a presentation of singular authority granted to a new figure of the medical expert. The experimental space in which the visibility and pathogenicity of microbes was tested became a metaphor for scientific progress, a condensation and abstraction of a new medical 'mysticism,' as Warner called it.²⁹ Now bacteriologists had to prove that their practice was a necessary specialization which enabled intellectual and socially-desirable change. The successful prevention and containment of infectious diseases provided an ideal way to showcase this contribution. It required bacteriologists to establish their profession within the existing range of medical diagnostics, while negotiating a new place for their exclusive scientific expertise in public. This task was especially critical but equally assailable in the face of an epidemic crisis.

Plague in 1900 San Francisco

Ahead of plague's arrival on the shores of the US, San Francisco's public shared in the enthusiasm for bacteriology. In 1896, the Surgeon General Walter Wyman sent Dr. Milton J. Rosenau to lead the quarantine station of Angel Island which would safeguard San Francisco against the plague. Rosenau's appointment as well as his bacteriological expertise was well received. In 1898, *The San Francisco Call* illustrated his practice in the form of a heroic and a sturdy defence against plague.

²⁸ Hansen, 98.

²⁹ Warner, "The Fall and Rise of Professional Mystery," 141.

One sketch in the newspaper shows him in stalwart posture immersed in his laboratory routine, holding a vial which presumably contains microorganisms. His work is illuminated by the light of the bay of Angel Island shining through the laboratory window (Figure 2). The image's strapline invokes the metaphor of an amicable farmer watching over the deadly microorganisms in order to protect his flock.³⁰ Rosenau's 'deft, diplomatic touch'³¹ in conducting his research to safeguard the city was perceived well by the public. He was portrayed as a benevolent scientist whose authority assured public wellbeing thanks to his rigorous efforts and ethics in the laboratory.

³⁰ San Francisco Call, 30 October 1898, 3.

³¹ Barde, 'Prelude to the Plague,' 168.



the tiny tubes of deadly organisms as a farmer watches over his crops, and should the contents of a tube show signs of dying all the resources of science and the tender care of a watchful guardian are brought to bear, in order to sustain life. Sometimes the result is a success, but more frequently it is failure.

It is a good deal more difficult to rear the germs of cholera than it is to rear chickens. Germs are delicate and require the most careful attention to keep them alive, in spite of the fact that they are so difficult to kill when they spread among the population and become a plague.

There are about six large laboratories in and around San Francisco where nearly all kinds of deadly germs are always on hand. The most important of these, and the best supplied with healthy germs, is the one on Angel Is-

Figure 21 'Dr Rosenau examining bacteria cultures for the government in the laboratory at Angel Island.' San Francisco Call, 30 October 1898

This image of Rosenau in the newspaper resembles many of the portraits of Pasteur in circulation at the time. Like the French father of bacteriology, the artist depicted Rosenau as a responsible and reliable force in his field, who carries out research with aptitude, respect and care. Fittingly, Rosenau's bacteriological expertise was requested by the city's board of health on numerous occasions to reassure the city in

the wake of plague scares. His expertise as well as his reassuring bacteriological practice seem to have satisfied the public and the medical profession.³²

So why was Kinyoun, who replaced Rosenau just before the actual arrival of plague in 1900, not able to continue and maintain this favourable reputation of the laboratory at Angel Island? How did Kinyoun lose the moral authority and the capacity to guide the city's exposure to epidemic risk? How in particular did Kinyoun make his profession of bacteriology assailable to the attacks and defamations that followed on the epidemic's heel?

Kinyoun was almost excessively qualified and experienced for his newfound role. Having travelled to the epicentres of modern bacteriology in Berlin and Paris, he was also known as the scientist who identified one of the first cholera bacilli in the US. Walter Wyman sent Kinyoun to oversee operations at the quarantine station of Angel Island in 1898, in light of concerns that the arrival of plague was imminent, and this would be the 'ultimate test' of the Marine Hospital Service's capacities.³³ With his orders to protect the nation against plague, Kinyoun relocated with his family and settled on the quarantine island. Here, he would go on not only to fail in this task – plague did eventually break out in San Francisco on 6 March 1900 - he would also find himself scapegoated as the cause of a substantial political crisis. He was ridiculed as a bacteriological extremist, a heartless federal scientist and the bearer of plague germs. Kinyoun's bacteriological convictions and laboratory expertise made him a useful target for the public, who resented his supposedly spurious claims about

³² Ibid., 160.

³³ Morens and National Library of Medicine (U.S.), *The Forgotten Indispensable Man. Joe Kinyoun & the Birth of NIH*, 26.

the arrival of plague, while sections of the medical profession rejected his reductive scientific view of plague out of protection for their own clinical expertise.

Suspicion spread quickly in early March that there had been an outbreak started in San Francisco's Chinatown. On 7 March 1900, Kinyoun made a detailed note in the Angel Island quarantine station's registry book:

This morning the press announces that a suspicious case, probably bubonic plague had been observed in Chinatown, San Francisco, and that the whole of Chinatown had been quarantined by the Board of Health. In the afternoon, I telephoned to Dr. Kellogg, the bacteriologist for the City Board of Health, who informed me that he had made an examination of specimens of gland tissue from a Chinese, which showed some very suspicious forms. He asked if he could come over to the station with some of the tissue and make an examination here. On his arrival, new preparations were made, which when examined showed a number of very suspicious forms, which suggested plague. I then suggested that animal inoculations be made with a small portion of the gland tissue. This was done, a rat, a guinea pig and a small monkey were inoculated.³⁴

As Risse has reconstructed in detail, the point source under suspicion was Wong Chut King, a Chinese male labourer living in the basement of a hotel in Chinatown. He had been ill for several months before he had died on 6 March 1900.³⁵ Treatment of venereal diseases had failed, and only the post-mortem examination of fluid from a bubo (which had developed just before his death) led to suspicion of plague. Once

³⁴ Registry Book of the Angel Island Quarantine Station, 1900, San Francisco Marine National Park Library, Marine Hospital Service Records, entry of 7 March 1900.

³⁵ Risse, *Plague, Fear, and Politics in San Francisco's Chinatown*, 40 and 277.

informed of the case, Kellogg performed the newly-standardized routines of bacteriological verification. He took specimens from glandular tissue and under microscopy compared their appearance to the characteristic shape of a plague bacillus from descriptions given by the Japanese bacteriologist Kitasato.³⁶ Visual comparison could also be undertaken with photographic representations of the bacteria distributed through the Marine Hospital Service.³⁷ Kellogg found a characteristic shape suggestive of the plague bacillus, but was not able to fully satisfy Koch's postulates. Kellogg could not induce the specimen to reproduce the typical symptoms of plague in animals, and so could not say with certainty that the infectious nature of the agent in the gland specimen was plague.³⁸ To confirm bacteriological diagnostics he required Kinyoun's support.

While Kinyoun waited to observe characteristic symptoms in the injected laboratory animals, the San Francisco Board of Health decided to impose a quarantine on Chinese quarters to shield the rest of the city from what they saw as imminent danger. Protest was immediately sounded by the Chinese Consul Ho Yow against the extreme and unjustified imposition. He thought the Chinese population were being unfairly implicated in this diagnosis of plague which had not yet been confirmed. Consul Ho Yow believed that the decision rested on mere public speculation, motivated by anti-Chinese sentiments.³⁹ While Chinatown was

³⁶ Bibel and Chen, 'Diagnosis of Plaque.'

³⁷ Yersin, 'La Peste Bubonique a Hong Kong.' These slides had been distributed to all quarantine stations, see: Honolulu Board of Health, 'Minutes, January 1 1899 – April 31 1900, Volume 8,' 1899 - 1900, 259, State Archive Hawaii.

³⁸ Kellogg, 'Present State of Plague with Historical Review,' 837. On Koch's postulate in early twentieth century medicine, see Christoph Gradmann, 'A Spirit of Scientific Rigour: Koch's Postulates in Twentieth-Century Medicine,' *Microbes and Infection* 2014, 16, (11), 885–92.

³⁹ *San Francisco Call*, 8 March 1900, p. 8

considered to be a 'seed-bed of infection' by health officials and the general public alike, its inhabitants protested both the official diagnosis and the drastic measures which would halt day-to-day life in the district.⁴⁰ Petitions were filed against the racist implications, lawsuits were drawn up and alternative diagnoses (such as syphilis) were brought forward to challenge the alleged case of plague.

Two days later, in the absence of new cases and mounting pressure from the public, the quarantine was lifted. The city continued to wait for an official confirmation of a diagnosis; this hinged on the death of artificially-infected laboratory animals at Angel Island. When no announcement came by 8 March, the *San Francisco Call* began to attack the procedures of the Board of Health, and accused officials of having invented plague to plunder the city's treasury. The following day the paper described the questionable expectation of the death of the inoculated animals, and pointed out how the public's fate depended on the board's physicians who were 'wallowing in a sea of doubt.'⁴¹ The paper continued its campaigns to paint a dire picture of the quarantined territory and its inhabitants. A caricature in the *Call* from 9 March showed a series of racist portraits of Chinese life in the previously quarantined area, characterizing a typical Chinese citizen as devious, dirty and sly. In association with similar cartoons in later issues that week and comparable caricatures in *Harper's Weekly*, the paper framed plague through a racial lens, structured by prejudice and disdain for the living conditions in Chinatown.⁴² By focusing on cultural differences,

⁴⁰ Risse, *Plague, Fear, and Politics in San Francisco's Chinatown*, 74; Shah, *San Francisco's 'Chinatown'*; Shah, *Contagious Divides*.

⁴¹ *San Francisco Call*, 8 March 1900, 3, quoted in *San Francisco Call*, 9 March 1900, 12.

⁴² *Harper's Weekly* ran a story on Plague in San Francisco, which was illustrated with a portrait of a Chinese cooking practices in a dark and crowded dwelling. *Harper's Weekly*, 2 June 1900, v. 44, 505.

the *Call* united two rather incompatible ideas: the paper at once denied the presence of plague, yet continued to point out the supposed sanitary shortcomings of Chinatown which would make it vulnerable to such an outbreak.

On 10 March, the *Call* dedicated a large cartoon to the bacteriological procedures that were believed to hold the future of the city in the balance. Appearing under the headline 'Plague Farce is Over', the caricature mocks the failing procedures of the laboratory to prove the existence of plague (Figure 3). The caricature's title reads, 'Fed on Bubonic Plague Microbes by Phelan's Board of Health.' Divided in two sections, the picture shows a before-and-after comparison. The first segment under the caption 'Before Using' depicts three animals - a guinea pig, a rat and a monkey - shown in impoverished conditions, each emaciated and weeping. The second segment shows these same three animals now well-fed, adorned with opulent jewellery, smoking cigars and sporting rotund bellies, accompanied by the caption: 'After Using'. 'We're living it easy,' the animals tell us with their satisfied smiles.

As the quarantine was lifted in the absence of further human cases, it was now viewed as ridiculous that the city's fate had rested on the survival of animals that had been 'fed' with microbes that may not have killed them anyway. The activities of the laboratory are viewed as suspicious; perhaps even wrong-headed. Not only did the animals survive until day three after they had supposedly been infected, but this caricature implies they were even nurtured in the experience. The whole façade had been a waste of time and money.

Alongside this cartoon, the paper's commentator F.W. van Reynekom was willing to believe a supposed existence of plague had occurred in the city, but not a medical one. He called the events a 'bubon-political' plague, and argued for the 'extermination' of the Board of Health, which had ruined the reputation of the city in

light of these infamous allegations.⁴³ The laboratory animals had become symbols of the Board of Health's activities, squandering resources to set up costly and - in the opinion of the *Call* - entirely unnecessary containment measures.

⁴³ *San Francisco Call*, 8 March 1900, 12.

FED ON BUBONIC PLAGUE MICROBES BY PHELAN'S



BEFORE USING.

I DISAGREE with the majority of the people on this question of there being a plague in the city. I recognize the presence of a plague, but it is not bubonic; it is "bubon-political," and of a most dangerous character. The only remedy that I know of at the present time is to confine the entire Board of Health in an airtight room in the basement of the City Hall and administer a supply of "Formaldehyd," and not withdraw the application until every germ of the disease is effectually killed in the systems of the men that have been guilty of perpetrating this attempted outrage on the people of this city. Of course the application, administered in the way I allude, would necessarily leave some vacancies in the medical fraternity and also in the Health Department. But these could be filled with great advantage to the community by at least men of ordinary intelligence if they be not "doctors." A greater outrage never has been attempted on the people of this city than that which, thanks to the masly stand taken by certain of the morning papers, was exposed before the evil had been permitted to injure the good name of San Francisco.

F. W. VAN REYNOM,
President Mission Improvement Club.



AFTER USING.

I created by the Board of Health not hesitate to state, because if you blockade a portion of a city the large must feel its destructive effect Francisco for a number of days, an opportunity to study the situation close tent our commercial interests have b matter closely and endeavor to repair

OPINION PRESIDENT

THE effects of the recent plague been most serious. It would of damage done, so great has reputation of our city. Strangers h rumors, although they have been p tion, will, I fear, have a lasting eff I consider that the action of th mature. When so much is at stake creating scares and allowing impres is possibly in our midst.

PRESIDENT MERCHANT

THE plague scare, as started b done irreparable injury to tra happened, and the extent to w never be estimated. This is a time to visit this place, but thousands h rumors and their money spent else and trade organizations of the city take as clearly as possible, so that and recover a little of what we have
Pre

BOARD OF HEALTH.

Figure 3 'Fed on Bubonic Plague Microbes by Phelan's Board of Health', San Francisco Call, 8 March 1900

Connecting the issue of the Board of Health's expenditure with a characterization of the laboratory procedures at Angel Island in images of a rat, a guinea pig and a monkey presents a distinctive visual formulation of public critique. The alleged waste of tax revenue for a wrong-headed public health procedure is captured in the humanization of the laboratory animals. Their treatment has been elevated above the needs of humans. Gestures, facial expressions, tobacco and jewellery have turned the suffering animals into the thriving benefactors of the board of health. The animals prosper while the public suffers.

Hansen has commented that caricatures of laboratory animals became an established characterization of scientific work in the late 1880s.⁴⁴ Indeed, these caricatures mark a new focus on laboratory medicine, which experimented on animals to advance human welfare. With reference to the spectacular treatment of American children with rabies by Pasteur in Paris, Hansen argued that 'it was the uncritical wave of enthusiasm for Pasteur's apparent triumph in saving children's lives that normalized the use of animals in medical research for Americans in general.'⁴⁵ Suggesting that the use of animals in the laboratory had become by 1900 perhaps too normalized, the *Call's* caricature accuses the Board of Health of being played by its own animals. Kinyoun and his Angel Island laboratory were symbolized through the depicted animals, the accusation was that he and his collaborators in the

⁴⁴ Since the rabies spectacle, which required rabbits for various stages in the development of the vaccine, Hansen describes a series of cases in which the laboratory animal has become a central motif of picturing the laboratory and the new kind of medicine. Hansen, *Picturing Medical Progress*, 77.

⁴⁵ *Ibid.*, 7.

city's Board of Health had benefited from the quarantine; just like the animals had benefited from their feeding of harmless microbes.

The 'political bestiary,' as Gombrich calls the long tradition of depicting political issues through animal characters, acquired widespread popularity in the nineteenth century. The meaning many animals inhabited could be easily exploited to convey strong messages and almost always suggested degradation.⁴⁶ The animals in this case are both representations of bacteriological science and of a type: the lower animals. Mark Twain's note on the 'Lowest Animals', written in 1896 might have been influential to the caricaturist. Twain, who had been a writer for the *Call*, comments in his essay that the noble behaviour governed by natural law is found among all, including the lower animals.⁴⁷ But man is driven by greed, by revenge and guilt and has thus descended to being the lowest animal.⁴⁸ The Board of Health, and with it the practice of bacteriology, put the city at the mercy of these lower animals and their survival. This was a precarious position, which was subsequently depicted as the vices of men becoming identified with those of these vermin.

As Barde has shown, in the months leading up to the eventual outbreak the *Call* was among a group of San Francisco newspapers to maintain a strong alliance with the Republican party and their Californian Governor, Henry T. Gage. Indeed, the paper demonstrated that it would take 'a priori positions based on political affiliation.'⁴⁹ But

⁴⁶ Gombrich, 'The Cartoonist's Armory,' 136.

⁴⁷ Risse, *Plague, Fear, and Politics in San Francisco's Chinatown*, 105.

⁴⁸ Mark Twain, *What Is Man? And Other Philosophical Writings* (Berkeley: University of California Press, 1973).

⁴⁹ Barde, 'Prelude to the Plague,' 163. Risse describes the *Call* as a 'mouthpiece for its owner's interests in foreign trade and transportation.' Risse, *Plague, Fear, and Politics in San Francisco's Chinatown*, 105.

its reluctance to accept the possibility of plague in San Francisco can be also associated with the *Call's* editorial preference for a sanitarian perspective on plague. The Governor and a number of medical experts shared the view that the majority of San Francisco was immune to the plague, as the disease was strongly associated with specific cultural customs and a lack of sanitary standards. The paper invited the expertise of doctors, who stated a firm belief that there was a discrepancy between living conditions in the USA and Asia, and this difference was so great that the disease could not possibly overcome quarantine procedures.⁵⁰

The *Chronicle*, also committed to the Republican party and critical of Major Phelan, also chose to depict the members of the Board of Health as 'tax eaters.'⁵¹ The background to these accusations was a series of events in the last decade of the nineteenth century when the Board members became known as 'political doctors'. They were seen to be making money from their prominent positions and structuring sanitary intervention to further their own economic and political interests. But as Risse has argued, the new Board, established in January 1900 by Major Phelan to clean up previous corruption, was in fact confronted with drastic funding cuts. This monetary shortage led to acting officers carrying out sanitary inspection work without financial compensation. Kinyoun and his federal bacteriological laboratory were asked to assist the local authorities when confronted with the possible arrival of plague due to the lack of funds and the board's inability to carry out these procedures alone.⁵²

⁵⁰ See Health Officer William Lawlor in the *San Francisco Call*, 27 June 1899, 4.

⁵¹ SF Chronicle, cited in Risse, Plague, Fear, and Politics in San Francisco's Chinatown, 90.

⁵² Kinyoun, Letter, dated 21 June 1901, Kinyoun Papers, MS C 464, History of Medicine Division, National Library of Medicine, 7.

'The journalists spoke too soon,' the historian Kalisch has pointed out.⁵³ In a second note in Angel Island's registry on the 12th of March, Kinyoun wrote that '[T]he Guinea pig died sometime during the night of the 11th, the rat at 11 am, Mar 12, & the monkey was quite sick.'⁵⁴ The monkey indeed died a few days later. After Kinyoun inspected the carcasses he believed he had sufficient proof to inform his federal superiors of the presence of plague in the city. In the bacteriologist's own words, 'It therefore became my duty, under the law, to report these facts immediately to Washington.'⁵⁵ Convinced of his scientific method, Kinyoun believed his diagnosis was flawlessly credible.

Once these bacteriological procedures were concluded and the diagnosis declared, critical polemics moved away from questioning scientific procedure to target Kinyoun himself. Meanwhile, several more cases had appeared since the official declaration of plague. In response, Kinyoun, on order of General Wyman, instigated a travel ban and later a second quarantine on Chinatown. The quarantine was finally installed on 29 May and was, as Mayor Phelan emphasized, a 'precautionary' measure. Risse ascribed this controversial decision to mounting pressure from several other American states which were considering whether to impose an embargo on Californian merchandise if the state would not comply with federal law.⁵⁶

In reaction to the drastic impact these policies had on Chinese life in the city, the looming threat of encampment and the absence of compensatory measures, the

⁵³ Kalisch, 'The Black Death in Chinatown,' 117.

⁵⁴ Registry Book of the Angel Island Quarantine Station, 1900, San Francisco Marine National Park Library, Marine Hospital Service Records, entry of 12 March 1900.

⁵⁵ Kinyoun, Letter, dated 21 June 1901, 7

⁵⁶ Risse, Plague, Fear, and Politics in San Francisco's Chinatown, 133.

Chinese went to court. Jew Ho, a business man, filed a lawsuit that accused the city of discriminatory measures. An immediate restraining-order against the city was instantly set in motion and prevented citizens being removed from their homes to detention camps. Food supplies were no longer blocked from Chinatown. The trial to decide whether the quarantine would continue became a public spectacle with Californian governor Henry T. Gage as its 'star-witness'. Gage delivered testimony that plague had always been absent in San Francisco. On 15 June, the judge ruled in favour of the plaintiff, declared the quarantine to be unlawful and demanded Kinyoun as well as the Board of Health to accept the power of the state court as exclusive authority to which their actions were liable and therefore to remove the quarantine.⁵⁷

⁵⁷ Jew Ho v. Williamson et al., 103 F. 10 (N.D. California, 1900)



Figure 2 'Judge Murrow's Verdict,' San Francisco Call, 19 June 1900, 5

A caricature prominently placed on page five in the *Call* on 19 June portrayed Kinyoun standing alongside the city's bacteriologist, Kellogg, before Judge Murrow. Escalating their campaign against Kinyoun, the *Call* sharpened their visual criticism of the federal officer. Fuelled by Murrow's decision against the bacteriologist's policies, the paper mobilized efforts to 'Oust the bubonic board'⁵⁸ and remove Kinyoun from his position, saying he had a 'buboe on his brain'.⁵⁹ Citing lines from the judgement, the caricature shows Kinyoun belittled in physical size and reputation. He appears as a plump, dwarf-like figure, emphasising his lowly stature, as well as showing cowardice on receiving the sentence from the judge. The

⁵⁸ *San Francisco Call*, 20 June 1900, 3.

⁵⁹ *San Francisco Call*, 18 June 1900, 5.

decisive hand gesture replicates that of a schoolmaster to an errant pupil. We see the return of the familiar three animals from previous drawings - the guinea pig, the rat and the monkey – which are also present and also culpable.

In a commentary accompanying the image, Kinyoun was reportedly 'rebuked, discredited and repudiated by his official superiors,' and was portrayed as a shamefaced official stripped of his spurious powers to turn his bacteriological expertise into political power. In the company of his laboratory animals, Kinyoun is portrayed at once a representative of his profession and reduced to their bestial lowliness. The paper states that Kinyoun now 'may return to his Angel island menagerie to take consolation with his guinea pigs, monkeys and rats.'⁶⁰ While the court's verdict against Kinyoun and the City Board of Health has been generally understood as the reinstatement of state authority over federal interference, the caricature in accordance with the *Call's* rhetoric suggests that not only Kinyoun, but with him bacteriological expertise in the round, was being stripped of its authority and subordinated by the law. Science was effectively deprived of its capacity to influence the politicised public health landscape, it's diagnostic capacities firmly rejected.

On 22 June, the Chinese San Francisco Newspaper *Chung Sai Yat Po* took on the caricature from the call and edited it slightly before it was printed on the paper's front-page. Judge Murrow continues to look over the scene with his finger pointing at Kinyoun, and two other doctors can be recognized in the right-hand background and seem to be developing buboes on their heads. Kinyoun, falling backwards on a chair, is being injected in the head by a Chinese man. Kinyoun, again depicted in the company of a guinea pig, seems to receive a dose of his own medicine. Sentiment

⁶⁰ *San Francisco Call*, 19 June 1900, 5.

against the federal doctor had escalated in the paper since his first plague diagnosis in March. He had been called an impetuous busybody on 8 March, and accused of making too much fuss about an ambiguous patient case.⁶¹ Kinyoun's diagnosis of Chinatown as an infected place was considered venomous, and he was called a scoundrel who was guided by his own desires. Morally corrupt, Kinyoun was declared to be incapable of leading measures relating to the health of the general public and particularly the local Chinese population. Until June the Chinese press steadily radicalized its descriptions and judgements about the federal health officer before condensing their criticism into the damning visualization in this caricature.⁶²

The injection into his brain is a playful take on the *Call*'s accusation that Kinyoun had buboes in his brain because his actions were considered to have been out of any reasonable proportion. The injection is likely to signify Waldemar Haffkine's serum which was administered as a compulsory prophylaxis to all inhabitants of Chinatown since the first plague case appeared. Due to the shot's considerable side-effect profile it was met with resistance.⁶³ The caricature on the Chinese newspaper's front-page emphasised the Chinese community's relief about Murrow's judgement, and the public acknowledgement of their unfair discrimination. But as the *Chung Sai Yat Po* adopted the visual metaphors of the *Call*, they too visualized a relationship between science (the laboratory animal), medicine and the public as a contested field, in which apparently disproportionate and unjustified actions were met with legal

⁶¹ *Chung Sai Yat Po*, 8 March 1900, translation from 'Risse Papers', San Francisco Public Library, no call number.

⁶² The Chinese word used referred to a 'royal doctor', or the 'doctor of the emperor.' See translator's note to *Chung Sai Yat Po* translation for 8 March 1900, in 'Risse Papers,' San Francisco Public Library, no call number.

⁶³ Kinyoun, Letter to Bailhache, 37.

as well as natural justice. The doctors have succumbed to their own plague of Kinyounism, and guided by the judge's authority, the painful medicine would now be dispensed to the doctors by the Chinese public.



Figure 3 Caricature on the title page of *Chung Sai Yat Po*, 22 June 1900

Kinyoun himself would later complain in a letter to his aunt and uncle that the court's decision shifted the foundation of official measures regarding plague from the medical sphere to the realm of politics and commercialism.⁶⁴ As the court order demanded Kinyoun to stop interfering with the Chinese and Japanese populations of the city, he received an order from General Wyman to extend his measures and to apply a travel ban more widely and generally. Paradoxically, he argued, the court's decision resulted in even greater administrative powers directed into Kinyoun's hands. 'Just as I choose [...] I could deny the right of any one whom I knew or felt has been exposed to the infection of plague,' he boasted.⁶⁵ But, Kinyoun conceded,

⁶⁴ Kinyoun, Letter, dated June 21, 1901, Kinyoun Papers, MS C 464, History of Medicine Division, National Library of Medicine, 14.

⁶⁵ Kinyoun, Letter to Dr. Bailhache, 8.Ackerknecht, "Anticontagionism between 1821 and 1867."

trouble was brewing as the legitimisation of protective measures was now effectively removed from diagnostic procedures. Medical understandings had been subordinated to the motivations of political manoeuvres to discourage other US states from announcing an embargo against California. Kinyoun saw the danger of quarantine practices to be primarily motivated by commercial reasoning rather than reliable scientific expertise. Reminiscent of nineteenth-century accusations against anti-contagionists as supposed mouthpieces of commercial interest, Kinyoun once again saw his own position to have been dedication to apolitical science; a stance which had been tragically misunderstood.⁶⁶

By June 1900, Kinyoun had become the favoured target of public campaigns against the alleged existence of plague. This was for two critical reasons. First, his interference with political matters of the city was a public example of federal intrusion into state politics. From a legal point of view, it is true that Kinyoun was operating in a grey area: the federal law permitted Kinyoun to regulate only inter-state matters. He was supposed to advise on necessary measures to stop pathogens from crossing state borders within the US, but its intra-state jurisdiction was less clear. How this regulation and federal authority was to be applied within a local context was left deliberately vague and relied on cooperation and mutual understanding between states. His contribution was supposed to be guided by reliable scientific expertise. But more importantly for the authors and caricaturists at *The Call*, Kinyoun was the federal bacteriologist who came to symbolise the entirety of his profession: he was the local figure-head of the new international science of bacteriology which searched

⁶⁶ Kinyoun, Letter, dated June 21, 1901, Kinyoun Papers, MS C 464, History of Medicine Division, National Library of Medicine, 7.

for resolutions of public health crises beyond the established systems of well distributed medical and political authority.

For Kinyoun, legal concerns were secondary to the apolitical nature of his scientific approaches. Neither legal nor political means were supposed to govern the sense of a quarantine and comparable prophylactic public health measures and only the laboratory was capable of delivering the necessary scientific truth. 'The *sine qua non* in plague prophylaxis,' Kinyoun wrote in 1903, 'is the diagnosis.'⁶⁷ Clinical appearances can be as diverse and misleading as climatic conditions, varying from outbreak to outbreak. Kinyoun insisted instead on the absolute significance of 'bacteriologic examinations'⁶⁸ to arrive at firm evidence upon which to build prophylactic measures. Kinyoun had arrived in San Francisco as a successful and respected bacteriologist, a firm believer in the scientific exactitude and authority of his profession. Looking back on the series of events that would eventually lead to his early departure from San Francisco, he hoped his contributions would be respected by posterity as an example of a scientist sticking to his principles despite political interference. His service to the city had been overshadowed by what he described as 'the clutches of the great organized combination of commercial and political interest [...], and so the story of plague in San Francisco would be remembered as 'a travesty of civic decency.'⁶⁹

With Murrow's sentence, Kinyoun had lost further authority and legitimacy in the eyes of the city's newspapers. They moved to their final verdict on 22 June as

⁶⁷ J.J. Kinyoun, 'The Prophylaxis of Plague.,' *Journal of the American Medical Association* 1904, XLII, (3), 145.

⁶⁸ J.J. Kinyoun, 'The Prophylaxis of Plague.,' *Journal of the American Medical Association* 1904, XLII, (4), 232–39.

⁶⁹ *Ibid.*, 238.

commentators reframed the alleged crisis of plague explicitly as a disease called Kinyounism.⁷⁰ The federal officer had become the epitome of autocratic, high-handed and unauthorized politics of public health, which itself had been an infecting force on the health of the civic body. Instead of enthusiasm and celebration for progress, the symbols of laboratory medicine were turned into characterisations of an elitist practice, far removed from accepted perspectives on the plague. Instead Kinyoun had based his work in a mysterious procedure that coupled the city's fate to that of rodents.

These polemical attacks had precedent in an old epistemological conflict that re-emerged in this first American public health crisis of the twentieth century. The caricatures of bacteriology did not after all allude to the scientific accuracy of the emerging laboratory practice. They ridiculed not the bacteriological principle itself, nor did the *Call* deny the existence of pathogens or the general purpose of bacteriology. The 'hardened metaphors'⁷¹ the caricatures presented questioned the legitimacy of scientific practice being translated into a political stance, they attacked the epistemic authority of the laboratory and its stubborn practitioner. Primarily, these metaphors identified the bacteriological practice with its experimental, lower animals to draw a picture of selfishness and greedy business. Second, pictures of the judge's verdict rejected scientific expertise as a framework that might exceed local jurisdiction. And thirdly, the notion of injecting Kinyoun with his own medicine symbolized a rejection of his science as justification of public health intervention, including the imposition of quarantine and preventive treatment with Haffkine's serum. At stake in these characterizations was the particular conduct of science and

⁷⁰ *San Francisco Call*, 22 June 1900, 3.

⁷¹ Gombrich, 'The Cartoonist's Armory.' 127.

Kinyoun's rigorous belief that practices of prevention initiated to safeguard public health were to be founded exclusively on scientific principles and thus consequently on the life or death of lower animals. According to Warner, such scientific practice was seen as the rise of 'professional mystery' of medical expertise, accessible only through a new class of experts, which in this case was embodied by a stubborn, federal outsider to the city.⁷² The laboratory on Angel Island was too far removed from the 'patient' as a place of diagnostic confirmation. Bacteriology's opaque processes which then asked the public to rely on the death of lower animals as proof made the new science vulnerable to attacks motivated by commercial, political and - in the case of denouncing Kinyoun's anti-Chinese sentiment – just causes. But Kinyoun failed not only to convince the public about the rationale of his practice. He also missed the 'diplomatic touch' which Roseneau had exercised to unify the local medical profession behind his believe in diagnostic confirmation.⁷³

Medical Polemics and the Caricature of Bacteriology

To further understand why Kinyoun failed to establish the authority of his laboratory, it is helpful to extend the scope of this argument briefly to the medical discussions about plague in San Francisco in the months after the damning campaign against Kinyoun. The concluding section of this paper introduces opinions voiced among San Francisco's medical profession which supported the satire and caricature aimed

⁷² Warner, "The Fall and Rise of Professional Mystery."

⁷³ Barde, "Prelude to the Plague," 168.

at Kinyoun and which perceived his bacteriology as a caricature of medical science. From July 1900 onwards, two medical factions engaged in a dispute over the accuracy of Kinyoun's practice, the conditions needed for diagnosing bubonic plague and the desired position of bacteriology within the existing architecture of medical knowledge production.⁷⁴ The doctors working with the Board of Health supported Kinyoun, his views and his principles. The majority of these doctors were members of the San Francisco Medical Society and published their contributions on plague in the *Occidental Medical Times*. Most of the physicians opposing Kinyoun and the Board of Health belonged to the private medical school, whose faculty and graduates made up the San Francisco Clinical Society, responsible for the publication of the *Pacific Medical Journal*.

The July editorial in the *Pacific Medical Journal* began the controversy with a list of conditions that meant the alleged arrival of plague had to be impossible. A clinical history suggestive of plague was never reported for any of the cited cases, no living case was observed by the doctors involved in the proposed diagnosis and the death rate of suspicious cases had been comparably low to what was expected from precedents of plague in India and China. Finally, the society complained that evidence for plague had relied solely on bacteriological identification, which should have been 'confirmatory evidence' rather than conclusive proof in its own right.⁷⁵

Kinyoun's practice was openly opposed from a 'sanitary standpoint.'⁷⁶ A detailed contribution by the physician G. Kuhlman argued for the enduring value of clinical

⁷⁴ For a detailed portrayal of the medical controversy, see Risse, 'Science Contested.'

⁷⁵ Editorial, *Pacific Medical Journal*, 1900, 44, 518-520.

⁷⁶ Chas S. Craig, 'The Bubonic Plague from a Sanitary Standpoint,' *Pacific Medical Journal* 1900, 44 , 577 – 587.

histories. Based on his own experience dealing with plague as a doctor in Bombay and Calcutta, he argued that post-mortem examination should be supplemented with detailed clinical histories. Furthermore, he stressed the variety of underlying diseases which could lead to the appearance of buboes and pointed out the number of 'cocco-bacilli' regularly invading the body after death which could easily be mistaken for the characteristic shape of the plague pathogen.⁷⁷

In the August issue of the *Pacific Medical Journal*, attacks against the board of health were accompanied by accusations against the 'incompetent bacteriologist.' Clinical histories, the editors emphasized again, if they were observable, would not leave room for doubt, as plague had always presented itself in pronounced clinical and definitive pathological forms. But doctors on the opposing side made sure not to be mistaken with those who denied the very existence of pathogens and the general legitimacy of bacteriology in medicine. 'We believe in the germ theory of disease,' they write, "but that is no reason for believing that bubonic plague exists in San Francisco because incompetents have claimed to have found the germ of bubonic plague."⁷⁸

Among the dissenting physicians was Dr. Pillsbury, a local pathologist and bacteriologist with his own private laboratory. In the introduction to his contribution to the *Pacific Medical Journal* he used a quote from Cabot: 'I am sometimes appalled when I see how innocently, how literally, how trustfully, physicians accept laboratory verdicts as decisive.'⁷⁹ Accordingly, Pillsbury questioned the validity with which

⁷⁷ The same letter was published a month later in the *Journal of the American Medical Association*: Kuhlman C.G., 'No Evidence of Plague in San Francisco,' *Journal of the American Medical Association* 1900, XXXV, (1), 40–41.

⁷⁸.Editorial, *Pacific Medical Journal*, 1900, 44, 601-604.

⁷⁹ Cabot cited in: Pillsbury, 'How Bacteriology Fails to Prove Plague in San Francisco,' 499.

laboratory findings were presented in debates about the presence of plague. Pointing out similarities between plague and many other bacteria, and citing uncertainties between Yersin's and Kitasato's descriptions of the plague bacillus, he demonstrated the possible vulnerability of bacteriological findings. Using exemplary cases from San Francisco, he showed that bacteriological diagnosis could be inconclusive and relied on further investigation, to align clinical history and pathological findings to arrive at a distinctive clinical picture. Pillsbury concluded that '[a]ll the evidence so far presented to prove a diagnosis of plague, may be summed up in the microscopical[sic] appearance of the bacillus, and the fact that the microorganism is pathogenic to the lower animals.' His argument suggested that the mere presence of microorganisms extracted from human tissue is not sufficient proof of plague, as several possible agents could present similarly. Reminding his colleagues of Koch's postulates, he demonstrated that the harmful effects of bacteria in lower animals serve only as evidence if the initial speculative diagnosis is based on a clear clinical appearance.⁸⁰

A similar argument was made by H. D'Arcy Power, a lecturer of medicine who emphasized the relevance of clinical observation, and argued for a corroboration between clinical history, pathological conditions and laboratory verification of pathogenic organisms. In his paper he argues that clinical history and pathological constitution both had traditions as medical sciences. Both ways of understanding disease should therefore be considered trustworthy, yet bacteriology should not simply be granted the authority to overrule the former. Given the circumstances that neither clinical history nor pathological conditions on their own were understood to

⁸⁰ *Ibid.*, 503.

enable a doctor to arrive at a final judgement about a disease, D'Arcy Power asked why bacteriology should be able to claim a position of diagnostic autarchy. The existence of plague in San Francisco was unproven, D'Arcy Power continued, as none of the clinical histories nor any of the pathological conditions provided reliable or consistent evidence.⁸¹

Kinyoun understood the criticism from these doctors as politically motivated attacks on his person. In his correspondence he described Winslow Anderson, the editor of the *Pacific Medical Journal*, as 'a man who is absolutely devoid of professional honour, and is considered one of the slickest citizens this state offers.'⁸² He accused Pillsbury of having tried to bribe another city doctor into agreeing with Pillsbury's negative plague diagnosis, but 'of course, Dr. Craig resented, as he was a gentlemen.'⁸³ Californian dangerous politics, so Kinyoun, would justify exclusion of California from future general national elections. Control of epidemics should not be impacted by political power struggles, Kinyoun argued, but seen rather as matters pertaining to public health, trumping local and state interests. On a bitter concluding note, it appeared to Kinyoun 'that the commercial interests of San Francisco are more dear to the inhabitants than the preservation of human life.'⁸⁴ For the bacteriologist, there was no medical controversy. The elevated and exclusive position of bacteriological science was indisputable, and every statement made by dissenting doctors was evidence of their disregard for professional duty. He saw all

⁸¹ Power, 'The Alleged Existence of Plague in San Francisco.'

⁸² Kinyoun, Letter to Dr. Bailhache, 6.

⁸³ Kinyoun, Letter to Dr. Bailhache, 7.

⁸⁴ Letter to Dr. Bailhach, 68.

of their arguments as political expressions of self- or, even worse, commercial interest.

Throughout the partisan and sometimes violent polemics that might well have been influenced by political alliances, members of the Clinical Society also raised serious objections in their publications. Predominantly, their concerns were directed at a kind of bacteriological autarchy, which they believed was personified by Kinyoun. They were not denying the value or accuracy of bacteriological analysis, but they objected the overarching and exclusive significance of bacteriological results to legitimate intrusive public health policies, such as quarantines. The dissenting doctors believed in the lasting significance of clinical diagnostics and epidemiological characteristics, referring to bacteriology as a confirmatory but not in itself conclusive science.

Through the public forum of the *Call*, these physicians were cited with statements reminiscent of the old sanitarians: the microbe in itself was not conceived of as a danger, but the circumstances in which it might flourish needed to be considered with at least equal care.

Conclusion

Looking at the ways bacteriology and the chief bacteriologist were visualized and mocked in San Francisco brings us closer to the assumption that undergirds the integration of the laboratory into medical diagnostics at the turn of the century. With both the medical profession as well as the public in disarray about Kinyoun's conduct regarding plague diagnostics, the San Francisco case illuminates competing and changing norms about medical authority. More generally, Kinyoun's reputation offers a window onto the roles science and expertise played in public.

Kinyoun's diagnosis of the first case of plague on the American mainland seems to have rapidly undone the benevolent image of bacteriology that Hansen has described. Plague was largely perceived as a sanitary challenge that paralleled the living conditions of San Francisco's Chinatown with those of the epidemic's foreign origins. Before Kinyoun started his work, the epidemic's arrival had already revived an old opposition between sanitarians and bacteriologists. The removal of filth and stench stood in opposition to practices of quarantine, fumigation and treatment with Haffkine's serum. Arguably, bacteriology had to prove its capacity to stave off plague with appropriate measures, and demonstrate to the American public that the resolution of a plague crisis could be facilitated by the laboratory. The measures to protect the American people should be solely legitimized through a bacteriological understanding of the diseases. Plague, as Cunningham has suggested, presented an appropriate challenge to demonstrate the laboratory's capacities, as the century-old scourge had famously been turned into a laboratory disease just six years earlier. But both the lab bench identification of plague as well as the authority of bacteriology had been widely overestimated by Kinyoun.

The ensuing plague controversy showed that although bacteriology was widely accepted as a scientific method, it was disputed on grounds of its authority in public legitimation of intrusive public health measures. Kinyounism as a caricature of bacteriology demonstrates that clinical diagnostics at the bedside and pathological analysis in the morgue were better suited to accommodate the persistent perception of plague as a disease driven by filth and obscure concepts of cultural backwardness. While accepted by the American public as an advisory science, attached to occasional public excitement about breakthroughs and vague conceptions of medical progress, bacteriology lacked in 1900 San Francisco the

capacity to overrule common conceptions and widely held beliefs on the grounds of scientific expertise. The case thus illuminates fundamental questions, which were raised with the emergence of bacteriology regarding the appropriate place of science in politics and of scientific expertise in the public.

Caricatures draw attention to the metaphorical ways in which the conduct of 'mysterious' laboratory practices found their way into the political landscape. The notion of a new plague science in San Francisco was portrayed through drawings of laboratory animals, while the laboratory itself was characterized as a place of politics and vested interest. This depiction of Kinyoun's practice complements Hansen's claim that representations of the bacteriological laboratory have been seen predominantly as indications of progress which celebrate scientific rigor. It also points beyond the narrative of a successive, linear establishment of the laboratory in service of public health exposing the limits of what Warner has called the science's 'legitimate complexity.' Instead, caricature inscribed a picture of Kinyounism as a politicized science in which unedifying motives guided diagnostics, while Kinyoun stood accused of applying his scientific procedures in support of partisan political interests, trumping local law with federal rule.

Between March and September of 1900, Kinyoun left the realm of the remote quarantine laboratory on Angel Island and became a central political protagonist. The principles of the laboratory, identification of diseases and containment of an epidemic were to Kinyoun aspects of scientific practice to which politics and commercial interests were necessarily opposed. He assumed a position of command, both in his evaluation of the value his laboratory findings could contribute to medical practice, as well as positioning his expertise within the fragile political frameworks of federal, Californian and local political circumstances. The second caricature (Figure 4)

emphasized particularly the apparent rejection of scientific authority beyond the law, morals and political institutions, relegating both the bacteriologist and his laboratory to an advisory role, merely supportive of the city and the state's determination of public health measures.

Caricatures are not often messages of reasoned criticism, nor do they show us a truth claim about bacteriology. What caricatures add to the historical archive are tangible expressions of the circulating imaginations that surrounded Kinyoun and his professional practice in the 1900 plague crisis of San Francisco. Through the polarized lens of caricature, we can grasp how bacteriology was seen as a science that formulated its judgements through experiments with animals, not in the treatment of people. Bacteriology could be easily seen to be a wasteful expenditure of public funds, a practice that asserts natural laws and artificially established findings under the microscope and in lower animals over the authority of public and legal contracts. Effectively, bacteriology could not justify quarantine nor coerce the acceptance of preventative therapies. The skilful exploitation of these 'hardened metaphors' allowed the opposing physicians to establish themselves as caring doctors, as well as a group of politicians and businessmen as being concerned with the fate of the city and its public goods.

Where the laboratory animals were icons of a shifting image of medicine in the 1880s and 1890s, they took in San Francisco the shape of vermin and pest. The medical laboratory was stripped of its progressive potential and instead appeared as an infliction of damage on the public good. The attacks on bacteriology might have been to Kinyoun's allies an element of the concerted campaign to avert the economic fallout of a positive plague diagnosis, but historically it stands as a case in which bacteriology – even for a brief period - was successfully portrayed as a menace to

public health. The extremism of its authoritative claim to structure the city's response to the epidemic, supported by federal intervention into state matters, led to the science's largest image crisis in its young history in the United States.

The polemical rejection of such 'bacteriological extremism' found its echo in the medical literature of the time. The insistence of those rejecting the presence of plague that concordant principles had not aligned - bacteriological findings with clinical appearance - was another way of shrinking bacteriology back down to size, while claiming a position of public responsibility. Such issues are at the heart of the formulation of modern public health, where care for the public good rests inescapably on deliberation of scientific principles, medical ethics and the public interest.

Kinyoun's claims to epistemological supremacy and his positioning of scientific rigor as a politic beyond politics made his public health conduct vulnerable to ridicule and, more importantly, made his expertise widely ineffective. Kinyounism should not stand in history as the hagiography of an imperturbable man committed to truth beyond politics, but might be best reconsidered as a cautious tale about the limited capacities of high-handed scientific expertise in epidemic crisis.