SANITARIANS IN THE nineteenth century saw public health as clearly divided into two major arenas. *Internal* hygiene, they thought, would stop the generation and spread of disease in the city, and they attempted to prevent accumulation of filth, the decay of which was thought to give rise to disease. *External* hygiene, on the other hand, was directed against the introduction of disease from outside. The jurisdictions most concerned about external hygiene were port cities, and restrictions were most often applied against sea traffic. The history of external hygiene, or port quarantine, is thus inextricably bound up with the history of oceanic commerce and the great transatlantic migration to North America.

Prevention of disease importation was central to public health activity in Philadelphia since the eighteenth century. In response to periodic outbreaks of yellow fever, Pennsylvania’s colonial legislature adopted a series of quarantine acts intended to protect the city and its port; and not long after the founding of the new republic, following the devastating yellow fever epidemic of 1793, Philadelphia had its first

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permanent health office. State legislation enacted in 1806 and 1818 established the Board of Health of the Port and City of Philadelphia, and gave the Governor power to appoint the Board’s members and its principal staff officers.¹

The Board operated a quarantine station, known as the Lazaretto, which was located on the Delaware about ten miles below Philadelphia. The station occupied a ten-acre site, with a river front of 926 feet. Its physical plant included residences, stables, kitchens, and a hospital consisting of a three-story, fifty-foot square central portion and two wings.² Each year from June through September, the Lazaretto Physician examined the crew and passengers of all vessels arriving at the Lazaretto and the Quarantine Master inspected each ship and its cargo. If there were any sickness aboard, the two would detain the vessel and remove the patients to the Lazaretto hospital. If all were in order, they would grant the ship a certificate of health. From October to May, the Port Physician, working out of the Board’s city office, was responsible for inspection, detention, and health certification.³

The 1854 Act of Consolidation which incorporated the entire county into the City of Philadelphia caused a loss of autonomy for the Board of Health. Before 1854 the authority of the Board had stretched across several jurisdictions. Consolidation transformed the Board into a city bureau having no fiscal independence. The resulting municipal control of quarantine prevailed from 1854 until 1893, when the Board gave up operation of the Lazaretto and the city relinquished responsibility for external hygiene. Significantly, this period coincides with the renewal of the medical profession’s interest in contagion and the subsequent acceptance of microbes rather than decaying filth as the cause of most epidemic diseases.

Belief in contagion seemed to justify port quarantine—which, as a form of restraint on trade, was repugnant to liberal economic and po-

litical philosophy. In his important lecture on anticontagionism during the early and middle nineteenth century, Erwin Ackerknecht contended that opposition to contagionist theories was simply the medical expression of the liberal political ideology of the dominant merchant class and that the revival of contagionism was a corollary of the decline of liberalism in the 1850s and 1860s.  

Without attempting to confirm Ackerknecht’s specific hypothesis, this essay will show that the rebirth of contagionism and the subsequent use of bacteriology as a rationale for port quarantine policies cannot be fully understood without examining the social interests of those involved in the use and control of the port. Thus the first portion of this essay discusses the evolution of quarantine practice up to the closing of the Lazaretto in 1893. A second section briefly analyzes this evolution and develops some conclusions about the nature of medical knowledge and public health practice.

Yellow fever took a heavy toll at the Lazaretto in the summer of 1870; by the first week in August, the Quarantine Master, the Lazaretto Physician, and the Steward’s wife were all dead. The Board of Health attributed the Lazaretto outbreak to a ship in the process of disinfection and publicly denied the existence of any cases in the city. The infected ship, the brig “Home,” would remain in quarantine until the coming frost.

Within a few weeks of the deaths at the Lazaretto the disease appeared in Philadelphia, but the Board blamed the new outbreak on filthy streets and alleys rather than on the infected ship. As more cases and deaths were reported, the Board acted to sanitize the affected district, to isolate the victims and disinfect their personal belongings, and to diminish any possibility of new importation. But yellow fever lingered. When the cool weather set in and the outbreak finally passed, the Port Physician prepared a list of the cases of their outcomes. Board member Rene LaRoche assumed the responsibility of analyzing these data and deter-
mining what exactly had occurred.⁶

LaRoche, a physician with an international reputation as a yellow fever expert, was an extreme anti-contagionist.⁷ He had perhaps most succinctly articulated his anti-contagionist position in an article published in 1853.

The annals of yellow fever. . . abound in facts tending to establish beyond the possibility of doubt the local origin of the disease. . . and its complete independence of a contagious principle or virus emanating from the sick and transmissible from one individual or place to another, through means of personal intercourse with them or through the indirect agency of fomites.⁸

The Board’s quarantine policies during the middle of nineteenth century become clear as LaRoche, almost two decades after this classic article, described Philadelphia’s 1870 outbreak of yellow fever. His description of this 1870 epidemic can be taken as a mature statement of the anti-contagionist position.

LaRoche believed that a ship could carry yellow fever victims and itself be free of the disease. Yellow fever victims arrived at the Philadelphia Lazaretto almost every year but only when ships were infected, he believed, was there the possibility of infection’s spreading. Therefore, the ship’s condition was more relevant to him than the death of two crewmen at sea; and the late Lazaretto Physician had reported that the “Home” was the filthiest vessel he had ever inspected. The situation was clear to LaRoche:

In a word, the “Home” was in a most efficient condition for the production of yellow fever poison, or for aggravating the malignity of that morbific agent it received on board at an infected port.⁹

As was customary in such cases, the cargo (which was generally assumed not to be infected) had been unloaded onto small barges. The

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⁶ BHMin September 6, 8, 9, 10, 13, 14, 22, 29, 30, November 22, 29, 1870, January 3, 1871
⁷ See LaRoche’s comprehensive 1300-page treatise, Yellow Fever Considered in its Historical, Pathological, Etiological and Therapeutic Relations. . . (Philadelphia, 1855), 2 vols
⁸ LaRoche, “Facts and Observations on the Origin of Yellow Fever from Local Sources of Infection, as Illustrated by Occurrences on Board of Ships,” American Journal of Medical Science (1853), XXV, 316-355.
⁹ LaRoche, Remarks. . . , 19-21
Lazaretto Physician detained the passengers and crew. Soon yellow fever had stricken the Lazaretto and nearby homes and had killed eighteen people; LaRoche, agreeing with the original opinion of the Board, attributed these cases and deaths to emanations from the ship spread by the wind. On August 4, the ship, disinfected and reloaded, had been allowed to leave the Lazaretto, but it had been recalled before having the chance to dock in the city. On August 8, the first verified case of yellow fever had appeared in the city—in the waterfront district where every earlier outbreak of yellow fever had begun, and where, according to LaRoche, crowded streets and alleys were still capable of giving rise to yellow fever under appropriate weather conditions.

LaRoche denied that the “Home” could have caused this or any of the subsequent city cases. First, the earliest case appeared only four days after the “Home”’s visit to the port—and yellow fever had a six-day incubation period. Second, the ship had already been “carefully cleaned, fumigated and whitewashed.” Third, it had not even approached a wharf before being recalled to the Lazaretto. Finally, the “Home” had been downwind from the infected neighborhood during its whole time in port. LaRoche did not mean to suggest that yellow fever was never imported, but that an infected ship could carry only a limited amount of poison and that decaying filth alone could generate an outbreak of the disease regardless of the presence of such a ship. He believed that, if anything, more careful inspection of ships from yellow fever ports was imperative; but it was futile to destroy bedding or clothing, to prohibit public funerals, or to quarantine individuals, since all of these were based on the erroneous notion that yellow fever could be passed from person to person or by fomites (i.e. items deemed capable of absorbing and transmitting infectious material). For LaRoche, prevention of yellow fever was primarily a matter of keeping the city free of the decaying matter which generated the poison.

The Board of Health dealt rather differently with cholera, the other deadly tropical disease to strike Philadelphia during the nineteenth century. When the last global cholera pandemic to reach Philadelphia threatened in September, 1865, the Board initiated a clean-up cam-

10 Ibid., 21-23.
11 Ibid., 59-70.
12 Ibid., 84-85.
campaign, the object of which was to mitigate the severity of a possible outbreak. At the same time, it made no attempt to avoid an epidemic entirely by special preparations at the Lazaretto.\textsuperscript{13} No outbreak occurred that year, but as the warm weather approached in 1866, the Board showed renewed interest in sanitary conditions and also opened the Lazaretto one month early. The first confirmed cholera case was reported on July 10, and two days later the Board informed the press of several deaths. By the close of the summer, 910 people had died of cholera in Philadelphia. The outbreak ended with no extraordinary quarantine activities.\textsuperscript{14} Philadelphia has since recorded no cholera deaths or cases.

Yellow fever and cholera, the two most important nineteenth-century justifications for port quarantine, presented somewhat different faces to health authorities. Yellow fever is now understood to be transmitted only by mosquitos of the genus *Aedes*. Cholera can be carried by milk, food, or, more frequently, water which has been contaminated by the excreta of patients or carriers. Following John Snow's 1854 epidemiological findings, the notion of cholera as water-borne gained increasing currency. By the 1880s health authorities correctly expected ultimate confirmation of some bacterium as its cause. On the other hand, even though Philadelphia-trained Carlos Finlay first proposed the insect vector hypothesis for the spread of yellow fever in 1880, the idea was not taken seriously until the findings of Water Reed et al. at the turn of the century. While there was much debate about suspected pathogens in the 1880s and 1890s, the viral etiology of yellow fever was not established until 1928.\textsuperscript{15}

These differences suggest that contagionism should have gained favor earlier in the case of cholera than of yellow fever. In fact, anti-contagionism faded at about the same time for both, and in Philadelphia cholera was treated operationally as a filth disease for much longer. This can probably be explained by the different epidemiological characters of the two diseases. Yellow fever was a potential threat almost every sum-

\textsuperscript{13} BHMin September 5, 13, 1865.
\textsuperscript{14} BHMin April 24, July 10, 12, 1866, Philadelphia Board of Health, *Annual Reports 1866*, 45. Hereinafter BHAR 45.
\textsuperscript{15} Wesley Spink, *Infectious Diseases, Prevention and Treatment in the Nineteenth and Twentieth Centuries* (Minneapolis, 1978), 154-157, 162-165.
mer; sporadic cases were not uncommon; and no late-nineteenth century outbreak reached epidemic proportions in Philadelphia. On the other hand, cholera almost always occurred in large-scale epidemics, and local outbreaks were understood to be manifestations of infrequent world-wide phenomena. The mortality rate was similar for both diseases. Each was known by its characteristic repulsive symptoms (yellow fever’s black vomit and cholera’s debilitating diarrhea), but cholera was less familiar, more threatening to the population as a whole, and therefore more fearsome. When it threatened, all possible precautions were considered—even if contrary to accepted medical knowledge.

Although there was no abrupt or self-conscious change in policy regarding yellow fever, within a few years of LaRoche’s report the Lazaretto was functioning as if this disease were contagious. In August, 1873, all ships from certain Caribbean ports were detained. During the 1878 epidemic in the South and the Mississippi Valley, the Lazaretto prevented any cases from entering by sea and those few which arrived in Philadelphia by rail were immediately isolated at the Municipal Hospital. Ten years later, in 1888, another yellow fever epidemic struck the South; the Lazaretto staff detained and disinfected thirteen ships and treated eighteen cases, mainly of malaria and scarlet fever. A man suspected of having yellow fever entered the city by rail and was seized and taken to the Municipal Hospital, and nuisance inspectors searched for other cases in the waterfront neighborhood.¹⁶ Fifteen years after LaRoche’s death, the Board recognized that the waterfront was still particularly susceptible to yellow fever—no longer because of dirty streets and alleys—but because it harbored people who had recently debarked and might be carrying germs of disease.

The cholera pandemic of the middle 1880s never seriously threatened North America and the Philadelphia Board of Health took no special actions against it. It is difficult, therefore, to contrast the practices of the 1880s with those of the 1860s. The situation at that time did, however, inspire President Grover Cleveland to send Philadelphian Edward D. Shakespeare to the tropics to investigate the disease. Shakespeare, an ophthalmologist with a keen interest in bacteriology,
returned a local hero and an acknowledged cholera expert.\textsuperscript{17} Within a few years the Board had good reason to fear cholera again and called on Dr. Shakespeare for assistance. But to understand why the Board's response to the cholera threat of 1892-93 differed from the events of 1865-66, it is necessary first to look at the changing business of the port and the Lazaretto.

Philadelphia's maritime commerce changed drastically starting in 1873, when the organization of the American Steamship line transformed the Quaker City into a major port of entry for eastern European immigrants. Over four thousand passengers were inspected at the station in that year (compared with fewer than five hundred in 1872), and during the following five years the number reached as high as eleven thousand. Immigration took another leap upward in 1879, and quarantine personnel processed over thirty thousand people a year in the 1880s.\textsuperscript{18} When it was still an almost purely commercial port, Philadelphia had received a large number of ships bound from the American South and the West Indies. The expansion of European immigration resulted in a smaller proportion of vessels arriving from the yellow fever zones, and the enormous increase in numbers arriving through the port made smallpox—which is passed by direct contact—a bigger problem.

In 1883 the Port Physician reported that the 21,000 passengers he had inspected during the off-season were more dangerous as potential carriers of smallpox than of yellow fever. In 1889 the Lazaretto Physician concurred that such was the case even during the summer.\textsuperscript{19} Without a formal change in rules, the Board implicitly acknowledged and then used the greater danger of smallpox to justify practices supposedly directed against person-to-person disease transmission. Its policy beginning in the 1880s was to disinfect any immigrant ship on which there had been cases of contagious disease and to disinfect or destroy the personal belongings of sick passengers.\textsuperscript{20}

\textsuperscript{18} \textit{BHAR} (1873), 322, (1874), 781, (1875), 869-870, (1876), 14, (1882), 15
\textsuperscript{19} \textit{BHAR} (1882), 2-3, (1888), 551
\textsuperscript{20} \textit{BHAR} (1882), 3, 19, 26, BHMin, September 4, 1882
In August 1892, cholera appeared in the emigrant ports of Hamburg and LeHavre. The Philadelphia health authorities reacted in a manner consistent with the smallpox model, despite the very different characters of the two diseases. The Board initiated a disinfection program for all baggage, bedding, and clothing belonging to immigrants from cholera districts; it urged steamship companies to disinfect while in transit; it ordered the detention of all vessels bound from European ports; it leased a ship capable of accommodating one thousand passengers and a disinfecting chamber; it required immigrants to take disinfecting baths in corrosive sublimate; and it hired German-speaking watchmen for quarantined vessels. The Lazaretto Physician visited 1106 vessels and inspected 17,510 passengers. Although eighty-four ships were detained, only two people, neither of whom had cholera, were hospitalized.  

Fear of cholera, was the rationale for the Board’s activities; yet the few suspicious cases which appeared were all quickly found to be minor intestinal disorders. By late September, the cholera control apparatus was already being disassembled and the Board’s growing leniency belied any pretense of serious concern. Only immigrants were dealt with as if cholera were still a genuine threat; and while the scientific medicine of 1892 might have justified disinfection of their excreta, only the baggage, clothing, and persons of immigrants were in fact treated. The Public Ledger decried the Board’s policy of disinfecting all steerage baggage as destroying valuables while probably doing nothing to suppress microbes. The Board had already countered such criticism by stating that “the personal effects of steerage passengers are not of such character as to suffer from exposure to steam for a short period.” The Lazaretto was finally closed for the season just after Christmas and immigrants were no longer subjected to the arbitrary destruction of their property. When cholera reappeared in Hamburg at the end of June 1893 few Philadelphians were surprised, but no one could feel fully

21 BHMin, August 24, 25, 26, 29, September 2, 6, 7, 8, 12, 16, 27, 29, October 3, 27, 1892, BHAR (1889), 528, (1890), 668, (1891), 691, (1892), 1049 
22 BHMin September 20, 22, 23, 26, 28, 29, October 3, November 18, 1892. After the 1892 scare had passed, the Board proposed that a one-year suspension of immigration would be the best prophylactic measure. BHAR (1892), 761, 821. 
24 BHMin December 10, 12, 14, 16, 27, 1892. BHAR (1892), xlviii
confident that the disease would not strike the Delaware River me-
tropolis. As it turned out, Philadelphia was blessed with good fortune
(if not good quarantine procedures), and, along with the rest of North
America, it escaped cholera’s last surge of the century.

By the middle of the nineteenth century, several states and localities
had established quarantine stations and bodies to supervise them. Each
port tended to fear that other ports would be too lenient in their
quarantine practices and would thereby increase the risk of disease im-
portation while unfairly drawing commerce away from the communi-
ties more stringent in their enforcement. Boards of health in several
port cities (including Philadelphia) joined with local boards of trade to
sponsor a series of National Quarantine and Sanitary Conventions
which discussed, among other things, the advisability of a national
quarantine agency which would guarantee consistency from port to
port.²⁵

Until 1879 there was only one federal agency whose mission was
associated with maritime health—the Marine Hospital Service, which
provided hospital beds for merchant sailors. In that year yellow fever
raged through the South, threatening the entire country for the second
successive year. Congress considered making the Marine Hospital
Service responsible for national quarantine enforcement. Instead it
established the National Board of Health (NBH) but limited the
Board’s functions to paying for local activities.²⁶

The federal agency more relevant to quarantine work in Philadel-
phia’s port was the Customs Bureau, to which the Philadelphia Board
occasionally appealed in its attempts to keep representatives of local
lodging houses from boarding inbound ships before they reached the
Lazaretto. In 1879 the Customs authorities forwarded such an appeal to
the NBH which proposed establishing a new quarantine station far
downstream at the Marine Hospital on the Delaware River breakwater.

²⁵ National Quarantine and Sanitary Association, Committee on the Utility of Wet Docks in
Connection with Quarantine and the Propriety of Placing the Entire Establishment under the
²⁶ “National Legislation in Regard to Public Hygiene” (editorial), PMT, January 18, 1879,
IX, 182-183; “The National Board of Health” (editorial), PMT, August 30, 1879, IX,
574-575.
The Philadelphia Board opposed a breakwater station at this time as a possible hindrance to local commerce, and the NBH gave up the idea a few months later.\textsuperscript{27}

The NBH served Philadelphia's port only as a source of federal funds for immigrant vaccination during the early 1880s\textsuperscript{28} and Congress allowed the agency to expire within a few years. Not long after the demise of the NBH, however, a new division of labor developed between federal and municipal activities, when the breakwater Marine Hospital finally did assume some of the functions of a quarantine station.\textsuperscript{29} In 1887, the Philadelphia Board of Health required that all vessels coming from infected ports or carrying sickness on board stop at the federal station, and the Lazaretto Physician started a file of federal certificates of inspection. The Board regarded the federal station as responsible for the small number of cases seen at the Lazaretto in 1889. It referred to the good quality of federal apparatus, too, in a plea to City Council for funds to upgrade the Lazaretto's disinfection equipment.\textsuperscript{30}

The Lazaretto itself was a valuable piece of real estate by this time. Situated on one of the few pieces of high ground along the river downstream from Philadelphia, it was adjacent to a trunk line of the Baltimore and Ohio railroad and interfered with suburban development. Also, the Lazaretto's location was too far upstream to serve most of the Delaware River port region.\textsuperscript{31} These liabilities and the existence of the federal station far downstream at the entrance to the bay enabled land developers to force the Board of Health to abandon the Lazaretto.

The formal anti-Lazaretto campaign began at the 1891 legislative session, when State Representative Ward Bliss introduced a bill to end municipal control of the Lazaretto and relocate the station. The Philadelphia Board of Health responded quickly, appealing to City Council

\textsuperscript{27} BHMin May 20, July 25, September 8, 1879, January 6, May 4, 1880, September 24, 1881.

\textsuperscript{28} BHMin, February 14, 21, March 7, 14, April 11, 18, 1882; BHAR, (1882), 16.

\textsuperscript{29} "An Act to Perfect the Quarantine Service of the United States (Extract from the Quarantine Act of August 1, 1888)", \textit{PMT}, September 1, 1888, XVIII, 737-738.

\textsuperscript{30} BHMin August 9, 12, 1884, August 18, 25, 1885, June 22, November 8, 1887, August 30, 1888; "The New Quarantine Station at the Entrance to Delaware Bay", June 8, 1889, XX, 143; BHAR, (1889), 524, 532.

\textsuperscript{31} Benjamin Lee, "Memoranda of Visits to the Quarantine Stations of the Middle Atlantic Coast made during the Summer of 1888," \textit{Public Health Papers and Reports}, 1888, XIV, 104; "War Over a Yellow Flag," Philadelphia \textit{Press}, 8 February 1891.
and Philadelphia's representatives in Harrisburg and even printing a 
handbill for general distribution. Most importantly, it called upon 
local commercial interests to come to its aid. In response, the Board of 
Trade, the Maritime Exchange, the Commercial Exchange and other 
business groups spoke out in opposition to the Bliss bill.  

Hearings featured testimony by Philadelphia Board President Wil- 
liam H. Ford and by Henry Leffmann, who was awaiting confirmation 
of his appointment as Port Physician. Ford was apprehensive that the 
federal government might not live up to its commitments and that the 
state might fail to find a suitable alternative location. Leffmann sup- 
ported the Bliss bill, but he advocated carrying out all quarantine ac-
tivities in the city. He explained that this was already the case for eight 
months each year and that diseases more often striking during the cold 
weather, such as diphtheria and smallpox, posed the real problem. 
Having served as Port Physician once before, he was accustomed to 
sending shipboard cases having these diseases to the Municipal Hos-
pital, which he regarded as the appropriate place for all contagious 
diseases, whether or not imported.  

The 1891 bill was defeated and the debate continued outside the 
legislature; but both sides had to consider a new factor when it became 
evident early in 1892 that North America would soon face the possi-
bility of cholera. The Philadelphia Board insisted that the Lazaretto was 
the only facility capable of keeping cholera out, while its opponents 
claimed that a consistent federal policy was needed. Finally, in Feb-
uary, 1893, after one summer spent in fear of cholera, and in antic- 
ipation of another, Congress delivered the coup-de-grace to the Phila-
delphia Lazaretto by guaranteeing indefinite support for the federal 
stations. With much less debate than in 1891, the state legislature 

32 "War Over a Yellow Flag," Inquirer, January 31, 1891; Ledger, March 9, 1891; Media 
American, April 22, 1891; BHMin January 6, 1891. A copy of the handbill is pasted into the 
Board's minute book with the entry for January 29, 1891; Record, April 15, 1891. 
33 BHMin, April 28, 1891; BHAR (1891), 734. 
34 Ledger, May 6, 1891; Press, May 6, 1891. Leffmann was one of a few late nineteenth 
century Port Physicians (including Benjamin Lee and Edward Shakespeare) with an inde-
pendent reputation. 
35 Times, May 14, 1891; Ledger, May 21, 1891; BHAR (1891), 40; (1892), xlix, 742, 749, 
752-9.
passed a new Bliss bill, and municipal control of quarantine ended on June 30, 1893.\textsuperscript{36}

The city still owned the Lazaretto, one of the better-equipped quarantine stations in America. Its lease to the new State Quarantine Board would continue only until a new quarantine station was built. Once the State Board vacated the Lazaretto in 1895, the Philadelphia Board proposed converting it into a city tuberculosis hospital. The City Council ignored the Board’s resolutions and sold the property days later for seven thousand dollars. Independent estimates placed its value at about six times that figure.\textsuperscript{37}

Six years after the end of municipal control of quarantine and four years after the Lazaretto’s abandonment, yellow fever again threatened Philadelphia during the war with Spain. The Philadelphia Board of Health had only a minor role to play, but the State Quarantine Board’s response was very much in the Philadelphia tradition: it required that all vessels be scraped and the scrapings examined under a microscope in an attempt to identify the unknown pathogen of yellow fever.\textsuperscript{38} No one knew quite what to look for. The conceptions put forth by Rene LaRoche thirty years earlier still prevailed, although they were dressed in bacteriological garb. Even as medical science was about to recognize the role of the mosquito vector, the Commonwealth of Pennsylvania still regarded the hull of the ship as the locus of the specific yellow fever poison. As LaRoche had pointed out, the germ theory was not relevant.

Despite yellow fever’s raging in several southern ports and the discovery of some cases in New York harbor, Philadelphia remained untouched until the very end of the 1899 season when one case was identified.\textsuperscript{39} The end of the season did not signify the end of the danger of disease importation, though, and the Philadelphia Board of Health had one final opportunity to intervene in quarantine affairs during the nineteenth century. When the “Aragonia,” an immigrant vessel bound

\textsuperscript{36} U.S. Marine Hospital Service, \textit{Abstracts of Sanitary Reports}, XII, no. 6, February 11, 1893; \textit{Laws of Pennsylvania} (1893), 293-300; BHMin, June 30, 1893.

\textsuperscript{37} BHMin October 6, 20, 1896.

\textsuperscript{38} Telegram, July 31, 1899; \textit{Public Ledger}, August 19, 1899; \textit{Inquirer}, August 21, 1899; \textit{Press}, August 24, 1899.

from Antwerp, arrived on October 15, 1899, carrying two fever victims, Philadelphia doctors determined that they were suffering from highly contagious typhus fever and sent both patients to the Municipal Hospital. Board of Health inspectors located thirty other passengers and kept them under guard in tents at the Municipal Hospital while the Board’s disinfection corps visited waterfront lodging houses likely to be occupied by recent immigrants.40

Erwin Ackerknecht concluded his lecture on the direct relationship between anticontagionism and political liberalism with a plea for modesty. He reminded his audience that much of the evidence left from the early and mid-nineteenth-century epidemics remained puzzling even in 1947. Still, contemporary observers such as LaRoche had succeeded in explaining these phenomena to a greater or lesser degree. Ackerknecht theorized that the natural world was only one among several factors which determined what physicians believed and what health authorities enforced. The new acceptance of contagion preceded, and perhaps spurred interest in, the germ theory; the laboratory findings came after the change in mentality. Moreover, the germ theory did not necessarily mean the end of all practices previously seen as contingent on the filth theory—in many instances it merely provided new and seemingly more scientific rationales for them.

There is a problem with Ackernecht’s specific hypothesis. He dated the triumph of anti-contagionism at 1821 and suggested that skepticism about contagion arose in America even earlier—perhaps most early in Philadelphia, where Benjamin Rush adopted a local origin hypothesis during the 1793 yellow fever epidemic.41 Yet the fundamental statute outlining the quarantine responsibilities of the Philadelphia Board of Health was passed in 1818 and never significantly revised until 1893. Thus, just at the start of the age of anti-contagionism, the quarantine function of the Philadelphia Board of Health was reaffirmed and it was never diminished throughout the entire anti-contagionist period.

This gap between theory and practice can be partially explained by the fact that there existed non-contagionist justifications for port quar-

40 Inquirer, October 16, 1899, Ledger, October 16, 1899, BHAR (1899), 209.
41 Ackerknecht, 575.
42 Rosenberg, The Cholera Years (Chicago, 1962), 81.
antine, but a more important reason was that the lay population continued to believe that diseases were contagious. The best that the Board of Health could do—faced with a constituency that held "outmoded" ideas—was to tolerate infractions of rules and be lenient in quarantine enforcement. During the 1850s the Board wished to maintain its authority while permitting abrogation of its rules; because so many matters required that rules be suspended, the Board found itself occupied with the most trivial decisions connected with quarantine. In 1859, when the Board was obliged to "respectfully ask the hearty cooperation" of the Lazaretto Physician, Quarantine Master, and Steward in maintaining order at the Lazaretto, its resolution had a rather gentle tone. Reconciliation with the Lazaretto staff was easily achieved because the Board did not regard most breaches of discipline or derelictions of duty as threatening to public health.

The resurgence of contagionism, therefore, demanded no changes in law or regulation, and the contagionist offensive took the form of criticism of laxity or corruption. During the 1860s and 1870s, petty local debates on these matters took the place of the medical debate on contagionism, and by 1880 the Board was committed to enforcing quarantine rules and maintaining discipline at the Lazaretto. The irony of the situation is that the new stringency had little effect on commerce or on the diseases which quarantine was originally intended to combat.

The formal rationale for any port quarantine practice lies in some theory of disease etiology and transmission, but it is a mistake to assume unquestioningly that there is a logical progression from medical ideas to public policy. It is necessary to consider the social factors that interact with disease theories and public health practice in order to understand how disease theories are redefined and public health practices revised. Ackerknect's paper was short and global; therefore, he was able to suggest only the broadest patterns based on generalizations about the economic and political history of the period he considered. The case

43 BHMin August, 13, 30, October 27, 1858, April 6, July 1, August 2, 1859. See BHMin October 11, 1854, June 1, August 6, 9, 1855, May 25, 1859, June 21, 22, 1860 for occasions when Board action was necessary for seemingly trivial matters, or when it displayed leniency
44 See, for example, BHMin June 27, 30, 1871
45 For instances of stringency that would have been impossible fifteen years earlier, see BHMin August 14, 1882, July 14, 1883, June 30, 1884, or August 23, 1883
study approach utilized here permits a more precise delineation of the interests at work while providing an overview of general trends in medical opinion as reflected in the utterances and activities of local actors.

The most significant figures in Philadelphia port quarantine were the members and staff of the Board of Health. Statute required that members of the Board of Health be city residents, and Board members tended to represent local interests. The Lazaretto Physician, the Port Physician and the Quarantine Master were nominally responsible to the Board, but they were appointed by the Governor and need not have been residents of the Philadelphia area. As patronage appointees (much of whose income came from fees) with no strong local affiliation, their approach was likely to differ from the Board's; and personal financial concerns as well as possible political corruption could further affect quarantine practice.

As early as 1860, the National Sanitary and Quarantine Conventions had proposed that the unquestionably contagious smallpox and typhus fever would be much more susceptible to control by quarantine than the more ambiguous tropical diseases. A report signed by Wilson Jewell of the Philadelphia Board stated that quarantine was at least as important in the winter as in the warm months. Yet cholera and yellow fever remained the main justification for quarantine and operation of the Lazaretto for at least the next two decades. This was because they were tropical diseases, rare and perceived as inappropriate in an industrial city—and therefore understood as preventible through effective quarantine. By whatever means smallpox may have arrived in Philadelphia, cases of it could be dealt with by isolation and its spread check by vaccination. Moreover, as ugly and deadly as smallpox was, it was neither as quick nor as efficient a killer as yellow fever or cholera.

The Quarantine Conventions of the 1850s and 1860s were primarily the work of public health authorities in cooperation with business groups. At that time, quarantine—even if it dealt with matters of disease and health—was perceived to be in good measure a commercial rather than medical question, and it took a physician member of the Philadelphia Board with some breadth of vision even to suggest that the

46 National Sanitary and Quarantine Association, Committee on External Hygiene, Report (Boston, 1860).
medical community ought to play a role in quarantine. Thirty years later, the Philadelphia Board was exchanging information on ship movement with the Philadelphia Maritime Exchange—the trade organization of the port and the embodiment of the commercial interests the Board was supposed to be regulating. That such cooperation was not regarded as scandalous is not surprising. It underscores the point that quarantine was still understood in economic terms. When land speculators attempted to get the Board to give up its quarantine station and its quarantine authority, the Maritime Exchange naturally stood with the Board until local business saw that it could reach a satisfactory accommodation with federal quarantine officials.

The relationship between commerce and disease theory can be untangled somewhat by returning to the case of Rene LaRoche. LaRoche may have been perceived as an aging reactionary in 1870, but he had good reason to regard himself as representative of the scientific medicine of his day. He accepted the possibility that yellow fever might be caused by a living microscopic particle. He merely insisted that this did not imply that the disease could be passed directly from person to person. He dismissed as old fashioned the common mid-century idea that yellow fever occupied the malignant pole on a continuum of intermutable malarial fevers. He had no means, though, of explaining how specific organic poisons or microbes could be generated by rotting matter but not be elaborated in the course of disease processes within the body. He did not regard these as central questions.

Any discussion of the social dimensions of the debate about contagion must recognize that LaRoche's anti-contagionism did not imply a rejection of quarantine. LaRoche himself believed that ships with yellow fever had to be quarantined because they might be carrying or generating a poison that could be transmitted atmospherically. For LaRoche, the infective principle resided in the ship itself, never in the crew or passengers and rarely in the cargo. The modern observer should take

47 BHMin, February 11, 1857.
48 BHMin June 4, 1889, July 10, August 9, December 9, 16, 30, 1890, and BHAR (1890), 601. For information on the Maritime Exchange during the nineteenth century, see Encyclopedia of Philadelphia (Harrisburg, 1926), 871.
49 In fact, LaRoche has been proven correct in this regard.
50 LaRoche, Remarks, 5, 54-55.
particular note of where LaRoche located the source of infection, because his ideas about this prevailed long after his general theory was discarded. The ship was most easily detained and disinfected. The cargo could be sent to the consignee. And the people—hardest to control and by empirical evidence innocent of spreading the disease—free to go their own ways.

Of course, the theory that decaying filth generates airborne poisons also implied that cargo can bear disease in the form of these poisons, just as the germ theory implies that freight can carry disease in the form of minute pathogens. Restraints on imports were thus justified both before and after the contagionist revival. Yet, it was almost exclusively importers of rags for use in the paper mills which lined the Schuylkill and Wissahickon who felt any fetters on commerce. In the late 1860s the Board of Health was motivated by the filth theory of disease when it ordered the inspection of rag shipments; in 1883 it was Dr. Joseph Richardson, an authority on bacterial diseases, who proposed to the Board that the quarantine master take particular care to inspect rags from Egypt and Italy, since both countries were cholera-ridden. Two years later, the Board resolved that rag imports were responsible for introducing smallpox into the United States and banned the landing of rags which had not been disinfected according to procedures intended to kill germs. Rags were collected from the poorest of the poor by the very poor. The Board of Health’s fascination with their pathogenicity—regardless of what disease theory was in vogue—reflects the degree to which it associated disease with poverty, especially in countries inhabited by dark-skinned people.

By 1890 there was no doubt that the diseases which immigrants might bring to Philadelphia were smallpox, scarlet fever, and other childhood infectious diseases. What seemed necessary in the case of smallpox—disinfection of the baggage, clothing, and persons—had been seen as useless by the anti-contagionists of the 1850s and 1860s.

51 BHMin August 10, 1867, August 27, 1883
52 BHMin August 10, 27, 1883, December 8, 16, 1885 It was not only Philadelphia rag importers and paper manufacturers who suffered as a result of rag quarantines. Mill operators in the Boston area also complained about the necessity to disinfect rags, and at least one medical writer agreed that heat did not penetrate the bales sufficiently to kill germs, but only enough to “enliven” them. “Notes from Special Correspondents—Boston,” PMT, May 1, 1886, XVI, 572-573
With the growth of contagionism and the increase in immigration, the practice of disinfection was more consistently applied, and by 1890 Board of Health documents display a mania for disinfection at the quarantine station even though there was little empirical basis to judge disinfection effective against smallpox or any other disease.\textsuperscript{53}

The attention given to port control during the cholera scare of 1892 contrasts sharply with the events of the epidemic of 1866, but this cannot be used as a simple measure of the intellectual triumph of contagionism. First, the port was handling a much larger number of immigrants, so the fear of cholera importation was much greater. Second, the activities at the Lazaretto did not occur in isolation, and more time and resources were directed towards the internal hygiene of the city. Finally, bacteriological knowledge had, by 1892, become firmly entrenched in the medical conception of cholera. By engaging Edward O. Shakespeare as Port Physician in 1892, the Philadelphia Board of Health for the first time displayed an interest in bacteriological expertise, yet in practice bacteriology meant nothing in the cholera control effort. Bacteriology provided a rationale for certain quarantine practices, but, more importantly, it served as the justification for an emerging approach to contagious disease control within the city.\textsuperscript{54}

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Ackerknecht was essentially correct in stating that the scientific debate over disease contagion in the early and middle nineteenth century was really a social debate over the right of the state to regulate trade. The

\textsuperscript{53} The Board regularly petitioned City Councils for new disinfecting apparatus at the Lazaretto. See, for example BHAR (1899), 524-532

\textsuperscript{54} This is most clearly illustrated by the situation in New York City, where the world’s first municipal bacteriological laboratory was founded in 1892, ostensibly as a weapon against cholera. See David Blancher, “Workshops of the Bacteriological Revolution: A History of the Laboratories of the New York City Department of Health, 1892-1912” Ph D Dis (City University of New York, 1979), 77. No public laboratory was established in Philadelphia until 1896, but in 1892 the Board did make provisions for bacteriological testing for cholera at several medical school and private laboratories. The Board also arranged to have a new pavilion built at the municipal isolation just as the cholera threat was waning. The pavilion was almost immediately adopted for use in isolating diphtheria cases. This is of particular interest because most of the early work at both the New York and Philadelphia laboratories established was in diphtheria control.
movement of goods into the port of Philadelphia remained central to discussions about medical theory and quarantine policy through the end of the century. But by 1892, acceptance of contagionism did not necessarily imply the hindrance to commerce that had caused such a stir before the advent of the germ theory. In fact, rags and sugar stand out as the only commodities which faced regular quarantine restriction. Because of their association with the lowest strata of society, rags had always been subject to severe restrictions, regardless of their geographical origin or the disease they were suspected of carrying. Sugar, on the other hand, was regarded as a danger only during cholera scares; shipments from yellow fever ports in the tropics were typically allowed to pass into the city perhaps after being reloaded onto a disinfected vessel. Although a scientific conception appropriate to the age of bacteriology developed more quickly for cholera, the Board of Health had inherited an understanding of yellow fever from earlier times. It was this older knowledge which justified regarding only the ships, and not the cargo, as infected with yellow fever. Uncertain about cholera, despite the identification of its bacterial pathogen, the Board took more precautions.

After 1873 the movement of people into the port of Philadelphia became as important as the landing of cargo. By the end of the century, public health authorities around the country agreed that fear of immigrants was the principal motivation for port control.\(^55\) Imputing to immigrants the ability to spread disease, as was precisely the meaning of belief in contagion, justified attempts to control immigrant populations. Disinfection in the port was a purification ritual; it was a display of abhorrence and fear of immigrants. The issue was class, not bacteriology. By the time of the cholera scare of 1892-1893, the Board of Health had embraced bacteriology; but among its preventive anti-cholera measures only disinfection was justifiable by the germ theory.\(^56\) Operationally, contagionism meant the isolation of workers who were handling sugar from North Germany, the seizure of rags for disinf-


\(^56\) Disinfection is a prime example of a procedure which predated the germ theory but was provided extensive technical rationales by the new science
fection if not destruction, and the detention of vessels approaching the port in order to bathe the steerage passengers and disinfect or burn their baggage.

Fear of yellow fever was the primary motivation for the establishment of port control in Philadelphia. From the consolidation of the city in 1854 through the end of the nineteenth century, no new knowledge based on the scientific medicine of the period was added to or substituted for the conceptions of yellow fever enunciated by Rene LaRoche in mid-century. By scraping the hulls of ships to look for an unknown pathogen in 1899, port inspectors in Philadelphia were merely updating LaRoche's fundamental notion of the role of oceanic commerce in the spread of disease: that the specific poison of the disease resided in the ship itself and not in the cargo. Between 1854 and the end of the century, the ship remained the source of disease, the cargo remained generally innocent, and the only real change in quarantine practice was that authorities began treating passengers as potentially pathogenic.

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