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# Gibraltar's 1804 Yellow Fever Scourge: The Search for Scapegoats

LAWRENCE A. SAWCHUK and STACIE D. A. BURKE

Mrs Baynes was obliged to put both Mr Frome [the garrison chaplain] and his wife in their coffins, not having any creature near her, nor could she get them buried till the Governor ordered some men who were then in the street to be pressed for that purpose. How the town is to be cleansed we can scarcely tell, we fear dead bodies are at this moment shut up . . . our men at the sick lines need to be for ever running to the main guard to beg them to remove the dead from our street, there being six persons lying there, and there was no other chance of getting their dead buried but by doing so. Miss Fletcher, who is now a very pretty young woman, was seen . . . throwing her dead father out of the chamber window . . .<sup>1</sup>



WHEN yellow fever reached Gibraltar in 1804, its effects were devastating, spawning unprecedented mortality, fear, havoc, and economic disruption, and irreversibly tearing at the social fiber of the community. Episodes of abrupt and rapid increases in mortality, known as crisis mortality, have recurred frequently in human history,<sup>2</sup> acting as powerful agents of social and demographic

1. Sir William Jackson, *The Rock of the Gibraltarians: A History of Gibraltar* (Grendon, Northants: Gibraltar Books, 1990), pp. 196–97.

2. Alberto Palloni, "Assessing the levels and impact of mortality in crisis situations," in Jacques Vallin, Stan D'Souza, and Alberto Palloni, eds., *Measurement and Analysis of Mortality: New Approaches* (Oxford: Clarendon Press, 1990), p. 194–228.

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change with far-reaching and long-standing implications.<sup>3</sup> The focus of this study is the small colonial fortress of Gibraltar and its first great yellow fever epidemic. Gibraltar's status as a garrison town, Mediterranean port of call, and commercial center provides a unique backdrop to witness the effects of an epidemic on a population.

We begin by examining how the virulent organism was first received into the population and why the epidemic took such a deadly toll. The short- and long-term consequences of the yellow fever epidemic are then examined, with special attention to their influence on changing local conditions, including the development of public health and government-driven sanitary reform, the enforcement of more stringent immigration legislation, and the altered social fabric by which the civilian community was bound. This article stresses the significance of disease in shaping the character and identity of early Gibraltar, establishing its own effects alongside the powerful forces of colonization and immigration.

#### HISTORICAL EPIDEMIOLOGY

According to Carrigan, a "delicate balance" of conditions is necessary for epidemic yellow fever to emerge.<sup>4</sup> The virus must first be introduced into a population either through the arrival of an infected human or an infected mosquito. Second, because *Aedes aegypti* is the vector or carrier of the yellow fever virus, local ecological conditions must be suitable for it to breed and bite. Further, an epidemic requires that a considerable number of nonimmune persons be concentrated in an area in which *A. aegypti* is active. If virus-harboring mosquitoes arise in a community but bite only those who are immune, or if the mosquitoes die before biting susceptible persons, the disease will not spread. If an infected person enters a community and is not bitten by a female mosquito within the first three or four days of illness, the disease will not spread. As we shall demonstrate, all of the condi-

3. Sherburne F. Cook, "The significance of disease in the extinction of the New England Indians," *Hum. Biol.*, 1973, 45, 485-508; Henry F. Dobyns, "Disease transfer at contact," *Annu. Rev. Anthropol.*, 1993, 22, 273-91; Charles D. Laughlin, and Ivan A. Brady, "Introduction: Diaphasis and change in human populations," in Charles D. Laughlin and Ivan A. Brady, eds., *Extinction and Survival in Human Populations* (New York: Columbia University Press, 1978), pp. 18-19; William H. McNeill, *Plagues and Peoples* (New York: Anchor Press, 1976).

4. Jo Ann Carrigan, *The Saffron Scourge: A History of Yellow Fever in Louisiana, 1796-1905* (Lafayette, La: Center for Louisiana Studies, University of Southwestern Louisiana, 1994), p. 5.

tions for this delicate balance were met in Gibraltar late in the summer of 1804.

*Shipping and Migration: How the Virus Came to Gibraltar*

It should come as no surprise that Gibraltar's strategic position in the Mediterranean invited the periodic introduction of "new" diseases from the outside. During the 1800s Gibraltar's free port served as an important node in a trade and military shipping network. Trade came to represent an epidemiological danger, however, to the economic benefits of being linked to the global market. Gibraltar was no longer a small, isolated, and protected garrison town. Its residents were interconnected on an almost daily basis with residents of other towns, cities, and ports of call hundreds of miles away in Europe, the Mediterranean, Africa, Asia, and the Americas. This situation was not peculiar to Gibraltar. According to Curtin, the movement of people and goods efficiently and effectively facilitated the emergence of a global pattern of disease transmission, where countries linked by shipping became one large reservoir of potential hosts for infectious disease.<sup>5</sup> The interconnection of communities along the Spanish coast is well illustrated by the pattern of yellow fever epidemics in the early 1800s. Though yellow fever appeared to be endemic to the south of Spain due to its frequent recurrences, it is likely that the virus was imported yearly by ships that carried tobacco and sugar from Cuba.<sup>6</sup> The vector *A. aegypti* proved to be a worthy shipboard traveling companion: an infected mosquito had at its disposal the crew for blood meals and water storage barrels for breeding—an epidemic in the making.<sup>7</sup> On the emergence and implications of large-scale shipping, McNeill has commented that "a person seemingly in good health at the time of embarkation might fall sick en route and communicate his illness to others on board. Shipboard travel could therefore easily carry an infection from one port to another, across hundreds or thousands of miles of water."<sup>8</sup>

5. Philip D. Curtin, *Death by Migration: Europe's Encounter with the Tropical World in the Nineteenth Century* (Cambridge: Cambridge University Press, 1989); see also Mary J. Dobson, "Mortality gradients and disease exchanges: Comparisons from Old England and colonial America," *Soc. Hist. Med.*, 1989, 2, 259–97.

6. Tito Benady, "The Jewish community of Gibraltar," in R.D. Barnett and W.M. Schwab, eds., *The Sephardi Heritage, vol. II. Essays on the History and Cultural Contributions of the Jews of Spain and Portugal* (Grendon, Northants: Gibraltar Books, 1989), pp. 144–179.

7. C.E. Gordon Smith and Mary E. Gibson, "Yellow fever in South Wales, 1865," *Med. Hist.*, 1986, 30, 322–40.

8. McNeill, (n. 3) *Plagues and Peoples*, p. 96.

The first major lower Iberian yellow fever epidemic occurred in 1800 when yellow fever wreaked havoc in a number of Spanish cities and culminated in a death toll of more than 60,000 people.<sup>9</sup> The next major Spanish epidemic took place in 1804, when more than 51,000 people died. The Spanish port settlements of Málaga (11,486), Cartagena (11,445), and Cádiz (2892) each reported substantial losses during this epidemic. It is coincident with this period of yellow fever epidemics that relations between Spain and Gibraltar improved because Britain and Spain had joined forces in the Peninsular War of 1793–1815 against France so that Spanish ships could call at Gibraltar ports for refitting, and land passages were reopened over the Gibraltar isthmus, also known as the Neutral Ground (Fig. 1). Not only was travel by foot between Spain and Gibraltar now possible, quarantine restrictions were removed from ships calling between Spain and Gibraltar. Socially and epidemiologically, these two countries had never been so communicable since Britain claimed Gibraltar for its own in 1704.

It is not surprising, therefore, that the first reported victim of the 1804 Gibraltar yellow fever epidemic had recently returned from a trip to one of the Spanish port cities afflicted with yellow fever. Medical authorities reported, “a shopkeeper, named Santo (a resident of Gibraltar) arrived from Cádiz on the 28th of August, 1804, and was taken ill on the 29th; he had lodged in a house at Cádiz, where some persons died of the then prevailing fever.”<sup>10</sup> Santo was probably bitten by a mosquito carrying the yellow fever virus while in Spain and imported the virus into Gibraltar via his infected blood. Timing is crucial since the outbreak of yellow fever in nearby Málaga had already prompted the enactment of a Gibraltar government proclamation, dated 27 August, which ordered that “commencing with tomorrow and until further orders all communications with Spain both by Land and Sea shall be cut off.”<sup>11</sup> The impulse to close the open border was wise, though unfortunately too late, as Santo had just made his way back into Gibraltar. Under the threat of yellow fever, Santo appears to be one of the last to travel between the two

9. G. Augustin, *History of Yellow Fever* (New Orleans: Searcy & Pfaff, 1909), p. 484.

10. W. Pym, *Observations upon Bilam, Vomito-Negro or Yellow Fever* (London: John Churchill, 1838), p. 21.

11. Thomas Dodd, Secretary, Proclamation, Headquarters of Gibraltar, 27 August 1804, p. 26. Gibraltar Government Archives, Gibraltar (referred to hereafter as GGA).



Fig. 1. The location of Gibraltar relative to Spain, the two countries linked at the Neutral Zone. From Thomas Walsh, *Journal in the Late Campaign in Egypt, Including Descriptions of the Country and of Gibraltar, Minorca, Malta, Marmorica, and Macti* (London: Jan T. Cadell and W. Davies in the Strand, 1803).

countries, though allowances were made for “King’s workmen, or people with carts, mules, or borricos loaded, or going for, stones, sand, or water.”<sup>12</sup> While Santo was reported by medical authorities as the first victim, it is quite possible that others also imported the virus in a similar manner.

12. Ibid.

*Cisterns, Housing, and the Domestic Mosquito*

The ability of the yellow fever virus to be passed to subsequent victims depended largely on the presence of the mosquito vector. In this respect, Gibraltar's perennial drinking water dilemma played a prominent role. Access to potable water was a constant source of anxiety for Gibraltar's inhabitants during the hot, dry summer months. No well water was available because Gibraltar's limestone bedrock prevented wells from being sunk to adequate levels, and only brackish water containing large quantities of mineral and organic matter could be drawn from their shallow depths.<sup>13</sup> As a result, rainfall was the only source of clean, drinkable water native to Gibraltar, a resource which marked annual and seasonal fluctuations made unreliable.

The lack of any coordinated development for a centralized water supply was greatly complicated by the fact that naval, military, and colonial authorities acted more or less independently, each with their own separate spheres of influence and attention. As a result, civilians were left to their own ingenuity and resources to capture and store rainwater. According to a return of May 1818, however, only 105 private underground cisterns appeared to be in the garrison<sup>14</sup> and were, for the most part, amenities of the wealthier classes. The poorer classes relied on smaller and less expensive means of capturing rain, such as buckets and earthen jugs or *tinajas*.<sup>15</sup> It was this dependence on storing water in tanks and containers that ultimately contributed to the spread of yellow fever by creating suitable breeding grounds for the mosquito vector. Though typically found in wet climates, *A. aegypti* can adapt to dry climates by breeding in large or small caches of water in the urban environment.<sup>16</sup> Barrels, jugs, and cisterns were ideal, providing clean water harboring no natural mosquito larvae predators such as fish. In the absence of this important source of

13. J. Sutherland, *Report on the Sanitary Condition of Gibraltar with Reference to the Epidemic Cholera in the Year 1865* (London: George Edward Eyre and William Spottiswoode, 1867).

14. John Hennen, *Sketches of the Medical Topography of the Mediterranean comprising an account of Gibraltar, the Ionian Islands, and Malta; to which is prefixed, A Sketch of a Plan for Memoirs on Medical Topography* (London: Thomas and George Underwood, Fleet Street, 1830), p. 18.

15. Sam Benady, *Civil Hospital and Epidemics in Gibraltar* (Grendon, Northants: Gibraltar Books Ltd., 1994).

16. J.D. Goodyear, "The sugar connection: a new perspective on the history of yellow fever," *Bull. Hist. Med.*, 1978, 52, 5-21, p. 12; Robert Shope, "Global climate change and infectious diseases," *Environ. Health Perspect.*, 1991, 96, 171-74, p. 172.

predator competition, *A. aegypti* was able to breed and proliferate unfettered.

Gibraltar's overcrowded and unregulated housing conditions also contributed to the spread of yellow fever. At the time of the epidemic, the combined civilian and military population was approximately 18,000. Because Gibraltar's total land mass is only 1.88 square miles, and the town proper a mere 0.25 of a square mile, the population density was 72,000 individuals per square mile in the town. Further bound by stringent military regulations on the size, height, and placement of civilian housing and the limited habitable land on the limestone outcrop, overcrowding became a way of life. Although overcrowding is not a direct risk for vector-borne diseases, as it is with infectious diseases, it does make the mosquito vector's task of locating blood meals easier, especially for *A. aegypti*, which is not a strong flier, bounded by a flight range of only a few hundred meters.<sup>17</sup>

Due to this overcrowding, the majority of Gibraltar's inhabitants lived together under the so-called patio system of residence, analogous in some ways to tenements. A dominant theme of patio living was the sharing of communal resources such as privies, cisterns, wells, stairs, and courtyards, typically among three or four families. Domestic mosquito feeding behavior of biting at dawn and dusk coincided with the time at which most residents of the patios would be inside their dwellings, which only increased the potential for spreading mosquito-borne diseases. The houses lacked glass windows or screens, and mosquitoes could easily make their way through the wooden shutters. In addition to providing large concentrations of potential susceptibles within a confined area, patios offered an ideal niche for mosquito breeding, as courtyards were often poorly paved, had poor drainage, and were shut off from strong winds and direct sunlight.<sup>18</sup> Further, the daily washing and drying of clothes in these shaded and inadequately ventilated courtyards produced pools of water that often did not dry out even during the summer droughts. The long-standing concern over the relationship between mosquito breeding and wooden washing barrels persisted well into the twentieth century.<sup>19</sup>

17. Jean Slosek, "Aedes aegypti mosquitoes in the Americas: A review of their Interactions with the human population," *Soc. Sci. Med.*, 1986, 23, 249-57, p. 251.

18. Sutherland, (n. 13) *Report on the Sanitary Condition*.

19. G. Dansey-Browning, *Annual Report on the Public Health of Gibraltar* (Gibraltar: Garrison Printing Press, 1915).

Communal living and the ambiguity of responsibility for public hygiene contributed to a highly localized pattern of unsanitary conditions which negatively influenced the health of patio residents. In Gibraltar, the perception of public and private space was culturally mediated: areas outside the living quarters were seen not as the responsibility of the tenant but of the landlord or government authorities. As a result, the common courtyard was often unkempt and had a "junkyard" appearance. According to Hennen, both a physician and the military hospital inspector, "water-butts, old mats, oil jars, and lumber of all descriptions" littered patio courtyards.<sup>20</sup> Sayer reported that "whole kennels of dogs and even mules and asses" were sometimes kept in the courtyards.<sup>21</sup> Without proper scavenging and regulatory systems for the disposal of waste, organic and nonorganic refuse were simply deposited in the courtyard. Under such conditions, favorable breeding sites were created for *A. aegypti* as well as for flies and other pests living in close proximity to Gibraltarians.

The arrival of the yellow fever virus in Gibraltar during the late summer coincided with other environmental conditions favorable to the rapid proliferation of the yellow fever vector. September marked the return of the first heavy rains, reviving any dormant *A. aegypti* eggs which had survived the summer drought.<sup>22</sup> The hot, humid climate, typical of August and September,<sup>23</sup> provided ideal support for the critical number of mosquitoes required to initiate and maintain an epidemic of yellow fever.<sup>24</sup> Higher ambient temperatures are associated with shorter intervals between blood meals, and higher relative humidity increases the life expectancy of each mosquito vector.<sup>25</sup> All of this is consistent with Hennen's observations that, during Gibraltarian summers, mosquitoes "swarm in myriads, and greatly increase the apparent heat of the atmosphere, by the state of irritation in which they constantly keep the skin."<sup>26</sup> Owing to marked seasonal fluctuations in temperature, however, the mosquito vector was unable to breed and bite year-round in Gibraltar, especially when tempera-

20. Hennen, (n. 14) *Sketches*, p. 71.

21. Frederick Sayer, *The History of Gibraltar and of Its Political Relation to Events in Europe*, 2nd ed. (London: Chapman and Hall, 1865), p. 477.

22. Goodyear, (n. 16), p. 10.

23. Hennen, (n. 14) *Sketches*, pp. 27, 30.

24. Goodyear, (n. 16), p. 10.

25. Smith and Gibson, (n. 7), p. 332.

26. Hennen, (n. 14) *Sketches*, p. 60.

tures fell below 68.5°F.<sup>27</sup> As a result, attacks of yellow fever were restricted to an epidemic pattern rather than an endemic one, occurring only when the virus, the vector, and susceptible people were present simultaneously in Gibraltar.

For the domestic mosquito, Gibraltar's highly crowded urban environment with suitable breeding sites and no natural predators presented a veritable feast. Under normal conditions, mosquitoes would have been a nuisance, but once *A. aegypti* became host to the yellow fever virus they became a threat to human life: it was not until the late nineteenth century that the female *A. aegypti* mosquito was recognized as the critical link in the transmission of yellow fever among susceptible people.<sup>28</sup> Mosquitoes first ingest viruses in blood meals from infected individuals and then, after an incubation period that varies from four days to two weeks, depending on environmental temperature, pass the virus on to another victim. Those infected show symptoms of fever, body ache, headache, nausea, and prostration within three to six days of being bitten, and death can occur as quickly as one to a few days after the onset of symptoms. Death is not necessarily imminent, however; the majority of those infected survive the disease.

#### *Who Was Susceptible to the Yellow Fever Virus?*

From an immunological perspective, in the first decade of the nineteenth century Gibraltarians represented a virgin soil population in which a large number of individuals had never been exposed to the yellow fever virus. Lacking vaccines against it, the majority were susceptible; only prior exposure to the virus protected against infection. Hennen reports that only twenty-eight civilian adults in the

27. Slosek, (n. 17), p. 251.

28. According to Smith and Gibson, Carlos Finlay first published his findings on the role of *A. aegypti* in the transmission of yellow fever in 1881 (Smith and Gibson, [n. 7], p. 336). However, as Löwy states, "little attention was paid to it. Nowhere were concrete steps taken in order to eradicate the mosquito or to isolate the yellow fever patient from flying insects" (Ilana Löwy, "Yellow fever in Rio de Janeiro and the Pasteur Institute Mission [1901-1905]: The transfer of science to the periphery," *Med. Hist.*, 1990, 34, 144-63, p. 151). The combined work of Finlay, Sternberg, Carter, and the Reed group eventually helped to restructure the methods of microbiology, leading to a more definite understanding of the yellow fever virus, which had been a long-standing thorn in the side of microbe hunters (Ibid.; Harold M. Malkin, "The trials and tribulations of George Miller Sternberg [1838-1915]—America's first bacteriologist," *Perspect. Biol. Med.*, 1993, 36, 666-78; Theodore E. Woodward, "Epidemiologic classics of Carter, Maxcy, Trudeau, and Smith," *J. Infect. Dis.*, 1992, 165, 235-44).

town did not present symptoms of yellow fever in 1804, so it is clear that the majority had never been exposed to the virus.<sup>29</sup> The military, on the other hand, seemed to have established some degree of immunity; only 1200 of the garrison's 4200 troops and families showed symptoms of infection.<sup>30</sup> The military population was not stationary, however; soldiers and their families moved several times during their service under the Crown and their tours in other countries prone to yellow fever outbreaks probably served to dampen the infection rates among these families.

Following Santo's arrival in Gibraltar, it appears that many of his immediate neighbors in the Boyd's Buildings patio, located in the center of the town, were the first to be struck by yellow fever. Medical reports indicate that

Mrs. Fenton [wife to Bombardier Fenton of the Royal Artillery] was the second person attacked; she was taken ill on the 3rd of September, her husband and a child of the name of Roland, were taken ill on the 8th, and died on the 12th. Mrs. Boyd, who had visited Mrs. Fenton, was taken ill on the 13th, and died on the 19th; her husband was taken ill on the 14th, and died on the 16th: all those families were neighbors.<sup>31</sup>

Though "the disease was confined for some time to this particular part of the town, and to those who had intercourse with them,"<sup>32</sup> it soon made its way through the town, infecting both military and civilian individuals alike. As the result of communication for domestic and military purposes between the town proper and the south district of Gibraltar, Dr. Pym noted that yellow fever soon crossed over the fortress walls: "An inhabitant of the name Estrico [a neighbor of Santo's], alarmed at the mortality, moved his quarters to the south district, where he was taken ill, and from him the disease was communicated to his new neighbors, and rapidly spread to all the inhabitants. On the 12th of September . . . they amounted to about fifty, most of them resided in Boyd's Buildings, the place where Santo was taken ill."<sup>33</sup>

29. Hennen, (n. 14) *Sketches*, p. 109.

30. David Barry, *On the Sanatory Management of the Gibraltar Epidemic Fever* (London: Thomas Wilson, 1830), p. 8.

31. Pym, (n. 10) *Observations*, p. 21.

32. *Ibid.*

33. *Ibid.*

Two weeks later, the fever raged with such violence that it was necessary to force civilians to help remove the dead. The daily toll was so great that "as soon as life was extinct" the dead were piled in carts because coffins could be produced fast enough for only one out of every four corpses.<sup>34</sup> H.E. Trigge, the Lieutenant-Governor of Gibraltar at the time, wrote to the Treasury Chambers in London asking for money to pay those who were burying the dead, as he was concerned that the unburied bodies would "necessarily have occasioned a Pestilence more fatal than the disease we have experienced."<sup>35</sup> In his memoirs, Reverend James McMullen noted that "half-infected soldiers were seen reluctantly patrolling the panic-struck natives to carry out the corpses of the poor, whether relatives or strangers, and drop them promiscuously into trenches, opened day by day to receive the multitudes of dead."<sup>36</sup>

The people's misery continued to grow. The *Gibraltar Chronicle* reported that there were "repeated instances" of the sick poor who, unable to continue paying rent or feared by their neighbors, were turned out into the street, even in the dead of night. The commander-in-chief warned that public examples would be made of any who dared to commit such heinous acts. By October, reports of looting were commonplace, and nightly patrols were established to protect the property of the sick and the dead. Reverend McMullen condemned the lower classes for "hiring themselves, at exorbitant rates, to perform for the sick those offices which humanity should have rendered spontaneously, [supplying] their surviving companions in misery with insufficient morsels and scanty draughts, at arbitrary and daily-increasing prices."<sup>37</sup>

### *Who Died?*

After four months of anguish and suffering, the yellow fever epidemic had run its course, leaving in its wake more than 5000 dead and many more incapacitated. It was reported that some 4864 civilians and 869

34. Hennen, (n. 14) *Sketches*, pp. 108-9.

35. Thomas Trigge, General and Governor of Gibraltar to Mr. Stuges Bourne, Esquire, Secretary of the Treasury, Treasury Chambers, London, 20 October 1804. Correspondence in the *Treasury Book*: June 1803 to July 1830, p. 29, GGA.

36. Reverend W.H. Rule, *Memoir of a Mission to Gibraltar and Spain, with Collected Notices* (London: John Mason, 1844), pp. 16-17.

37. *Ibid.*

military perished during the course of the epidemic.<sup>38</sup> The meticulous recording of deaths characteristic of the Roman Catholic registers was abandoned during the epidemic. Their entries took on the appearance of a body count as deaths occurred so rapidly that only the name or initials of the deceased could be transcribed, with no information on age or sex of the individual. For this reason, it is difficult to identify with certainty those who died during the epidemic. The large number of orphans observed in the aftermath of the epidemic<sup>39</sup> suggests that deaths were less frequent among the young than among adults. In other populations, women have been found more likely to survive yellow fever than men.<sup>40</sup>

The comprehensive census taken thirty years later attests indirectly to the composition of the population of Gibraltar just after the 1804 epidemic. The census reveals, rather dramatically, the effects of the epidemic in that the average age of the native-born segment of the community was only 15.8 years in 1834, while the immigrants averaged 38.4 years. The reduction in the number of native-born individuals, as is evident in the distorted population pyramid in Fig. 2, meant that immigrants of the early 1800s played a major role in restocking the postepidemic population, making a more significant contribution to the marriage and gene pool than they might have if Gibraltar had not suffered the devastation of 1804. This does not mean that immigrants did not die as readily in the epidemic, however, but that the immigrant population was being constantly replaced following the epidemic. Garratt believes "seedy adventurers" of all sorts were constantly attracted by the allure of Mediterranean ports.<sup>41</sup> As a result of their fluidity, the immigrant population pyramid is not susceptible to the same long-term distortions that we see in the native-born segment.

While yellow fever visited Gibraltar in 1810, 1813, 1814, and 1828, mortality in those epidemics was never as great as in 1804. The reduction in the mortality rate beginning with the 1810 epidemic is likely attributable to some degree of immunity built up among the

38. According to Benady, the number of civilian deaths is probably somewhat exaggerated inasmuch as when Sir Thomas Triggs, the Lieutenant-Governor, returned to England a few months following the epidemic, "he organized a collection for the orphans of 'upwards of 2,200' inhabitants who had died" (Benady, [n. 6], p. 162).

39. *Ibid.*

40. Goodyear, (n. 16), p. 6.

41. Geoffrey T. Garratt, *Gibraltar and the Mediterranean* (London: J. Cape, 1939), p. 110.

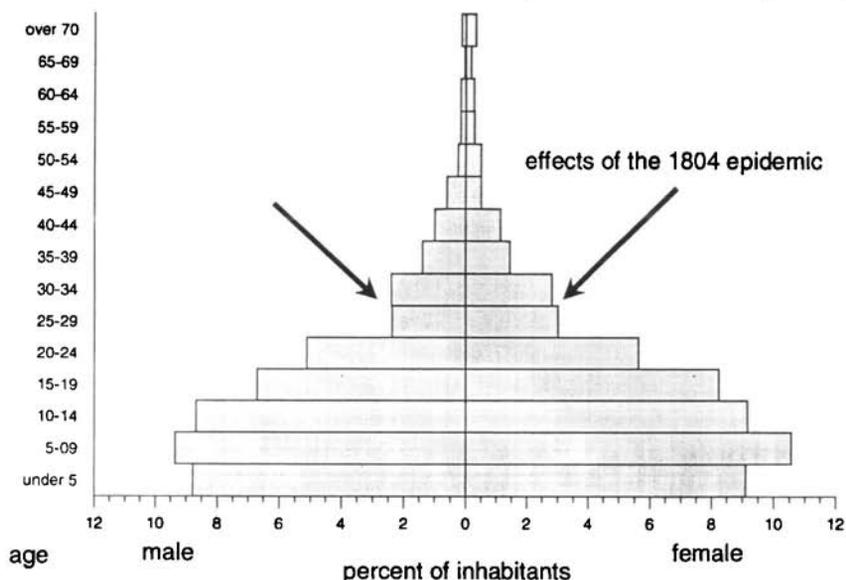


Fig. 2. Native-born residents of Gibraltar, 1834.

inhabitants since 1804. The survivors of that epidemic were rewarded with an acquired life-long immunity against the virus, and many new immigrants, from Spain in particular, would have passed through similar epidemics either in their native countries or while in transit. The resilience conferred by immunity is also significant in that those previously infected can no longer transmit the virus; in other words, they cannot act as a reservoir for the yellow fever virus in future epidemics.<sup>42</sup> This phenomenon was observed in 1804, and in subsequent epidemics Gibraltarians made it a practice to expose their young children to yellow fever in the hope of minimizing their risk of dying from it. According to Barry, one of the garrison's doctors, "as older members of the family have generally acquired immunity for themselves, by having had the disease in some former epidemic, they are averse to their children being deprived of the present opportunity of acquiring similar immunity, knowing that, at their age, the risk of death is less than it will be afterwards, if so exposed to infec-

42. Jonathan B. Pritchett and Insan Tunali, "Strangers' disease: Determinants of yellow fever mortality during the New Orleans epidemic of 1853." *Exp. Econ. Hist.*, 1995, 32, 517-39.

tion.”<sup>43</sup> This local practice was a shrewd strategy because yellow fever is less likely to be fatal when contracted during childhood, the majority of those infected suffering only mild or subclinical cases,<sup>44</sup> and life-long immunity against the disease is acquired. Because the postepidemic population was immune to yellow fever, it was mainly those children who were born in the intervals between epidemics who were susceptible to infection, and their increased chances of surviving yellow fever served to dampen the overall mortality rate in subsequent epidemics.

### *People Were Trapped*

Although the biological realities of a largely susceptible virgin soil population increased the likelihood of dying during the epidemic, social factors further increased mortality. Though flight following outbreaks of epidemic fevers was typical of nineteenth century responses to transmissible disease,<sup>45</sup> Gibraltarians did not have that option. Unlike other populations, Gibraltar was first and foremost a military outpost overseen by a military governor under the War Department. Characteristic of a fortress, the garrison had “limited permission of ingress, egress, and residence.”<sup>46</sup> With the garrison bounded by the fortress walls, the only way into or out of the town was through designated gates, continually guarded by soldiers (see Fig. 1). Opened at daybreak and closed at dusk under normal conditions, these gates probably interfered with any attempts by the civilian community to leave during epidemic crises.

It is likely that there were additional pressures to retain obedience among troops during the time of the yellow fever epidemic and to keep up the appearance of an impregnable garrison, resulting in strict regulation of population movement during the epidemic. Maintaining orderliness and obedience was challenging even at the best of times, however, as garrison soldiers were characterized as poorly disciplined and subject to behavioral excesses. According to one early nineteenth-

43. Barry, (n. 30) *On the Sanatory Management*, p. 13.

44. K. David Patterson, “Yellow fever epidemics and mortality in the United States, 1693–1905,” *Soc. Sci. Med.*, 1992, 34, 855–65.

45. See Curtin, (n. 5), *Death By Migration*, pp. 68–70; John H. Ellis, *Yellow Fever and Public Health in the New South* (Lexington: University Press of Kentucky, 1992), p. 41.

46. Solly Flood to His Excellency General Sir W. Fenwick Williams, Bart., Governor, Gibraltar. Correspondence, 12 May 1871, p. m., GGA.

century traveler's journal, "drunkenness is no crime in the garrison, except in those who are on duty; and every man coming off a working party is ordered to be paid eight-pence on the spot, which he immediately proceeds to spend in a kind of bad wine, called black-strap."<sup>47</sup> Common soldiers were seen as "desperate and dissolute characters" who had gone so far as to mutiny under the governorship of the Duke of Kent.<sup>48</sup> By Garratt's account, the problem was not one of bad treatment, as much as the fact that Kent was a strong disciplinarian who, unlike previous and suspect governors, refused to keep "the army in a state of alcoholic contentment."<sup>49</sup> Labeled as an agitator, Kent was recalled to London in May 1803 and Trigge assumed all local authority in his role as Lieutenant-Governor, his first move being to undo all of Kent's ill-received reforms. Though Kent retained governorship of Gibraltar until his death in 1820, a succession of Lieutenant-Governors and temporary commanders held down the fort, so to speak, in his absence.

There is no indication that permission to leave or leniency of any kind was granted to the garrison's civilian population and, at the first appearance of the 1804 epidemic, fear drove whole families into the numerous caves which dot the Upper Rock, while others lived in tents under the cliffs. Even though they could not escape from Gibraltar altogether, they tried to get as far from the fever-ridden town as possible.<sup>50</sup> Those unable or unwilling to leave the town reacted by shutting themselves into their homes. The government then proclaimed that "inhabitants should have the Doors and Windows of their Houses open from Sunrise to Sunset" and any refusal or neglect to obey this order would result in their opening by force,<sup>51</sup> perhaps out of fear that neighbors would be decomposing in their sealed apartments. From our perspective, the shutting-in reaction may have been somewhat advantageous for keeping mosquitoes out, while

47. Thomas Walsh, *Journal of the Late Campaign in Egypt Including Descriptions of that Country and of Gibraltar, Minorca, Malta, Mannonica and Macri* (London: Jan T. Cadell, and W. Davies in The Strand, 1803), p. 7.

48. *Gibraltar and Its Sieges with a Description of Its Natural Features* (London: Thomas Nelson and Sons, 1900), p.112-114.

49. Garratt, (n. 41) *Gibraltar and the Mediterranean*, p. 110.

50. George Palao, "The great epidemic Pt. I, Gibraltar, our forgotten past" #15," *Gibraltar Chronicle*, 1977, p. 3.

51. Thomas Dodd, Secretary, Proclamation, Headquarters of Gibraltar, 28 September 1804, p. 38, GGA.

TABLE I

## Percent Contribution to the Civilian Population by Birthplace

<i>Country Of Origin</i>	<i>1777</i>	<i>1834</i>	<i>% Change</i>
Native of Gibraltar	52.4	62.4	+10.0
Genoa, Italy	17.6	8.0	-9.6
Portugal	3.9	4.5	+0.6
Spain	4.7	16.5	+11.8
England	9.2	4.2	-5.0
Barbary	7.4	2.5	-4.9
Other	4.8	1.9	-2.9
Total Population Size	3201	15,008	

the government's orders kept the population exposed to incoming mosquitoes. Still others of high military rank took refuge aboard a hulk which remained anchored in the bay.<sup>52</sup> Because total flight from yellow fever in Gibraltar was impossible, the impact of yellow fever was even more dramatic, running through the entire population.

*Long-Term Impact on Mortality and Population Structure*

Unfortunately, few detailed demographic records documenting the rebuilding of Gibraltar following the first great fever have survived. Gibraltar government census returns for 1777, the closest measure made before the 1804 epidemic, show that Genoa was the major source of immigrants to Gibraltar; Spain and Portugal together contributed half as many immigrants to the town. By 1834, however, the relative contributions changed dramatically: the number of Genoese immigrants was markedly reduced, while the number of Spanish immigrants had increased dramatically. Table 1 clearly testifies to the changing contribution of various countries to Gibraltar's social and demographic composition.

One of the more interesting aspects of the massive wave of immigration to Gibraltar following the epidemic was the range of differences in sex ratios (SR) among religious groups. Among Roman Catholics,

52. Tito Benady, "The Jews of Gibraltar after the Great Siege," Lecture delivered to the Jewish Historical Society of London, 5 June 1978, p. 15.

the sex ratio in immigrants from Spain was 61.2 or, in other words, for every 100 women there were only 61.2 men. By contrast, a male-dominated pattern is observed among immigrants from Genoa (SR = 225.2) and Portugal (SR = 163.7). English Protestants had a sex ratio slightly favoring males, (SR = 111.7). Among Jews, the sex ratio was an incredible 751 men for every 100 migrant females, probably the result of the head tax imposed on immigrant Moroccan Jewish women by the Sultan of Morocco. The majority of all immigrants were young, with a median age of just under twenty, and a very small percentage over fifty years of age. Immigration to Gibraltar was clearly a young person's decision. The first great fever had not only removed a large number of the town's inhabitants, it had also changed the nature of successive generations, first by providing the opportunity for a large wave of continuous immigration and second by controlling differential immigration. In addition, Gibraltar faced a sudden and dramatic loss of local and historical knowledge from the generations of people who had survived the Great Siege and other major events of the eighteenth century.

By the 1830s Gibraltar had seen the last of its yellow fever epidemics; at the same time, but only coincidentally, large-scale immigration had virtually come to a halt.<sup>53</sup> The combination of factors that led to the decline in immigration to Gibraltar included more effective and enforceable immigration legislation, a downturn in the local economy, the high cost of living in the garrison paired with an acute shortage of affordable housing, and, finally, the development of the nearby Spanish border town of La Linea.<sup>54</sup> Because Spain and Gibraltar enjoyed good relations at this point, the convenience of an open frontier and the easy walking distance to Gibraltar attracted a vast pool of laborers to settle in this shanty town and cross the border daily to work in the garrison. While Gibraltar's population did not grow appreciably from 1830 to 1880, the town of La Linea doubled

53. The decline in immigration corresponds well with the observations that by the 1830s the halcyon days of trade in Gibraltar were waning, shipping was declining, and Gibraltar was being used more often simply as a port of call. Immigration came to a virtual halt following a drop in commercial activity coupled with a decline in the strength of the garrison. See Lawrence A. Sawchuk and D. Ann Herring, "Historic marriage patterns in the Sephardim of Gibraltar, 1704 to 1939," *Jewish Soc. Stud.*, 1988/1993, 50, 177-200.

54. George Hills, *Rock of Contention: A History of Gibraltar* (London: Robert Hale and Company, 1974), p. 381.

in size. It became Gibraltar's suburb of the working poor, absorbing would-be immigrants to Gibraltar through the attraction of available housing and cheaper rents.

#### CONTENDING THEORIES ON YELLOW FEVER ETIOLOGY

The high mortality and great fear associated with yellow fever were linked in part to a lack of knowledge regarding the actual cause of the epidemic. The susceptibility of Gibraltar and other settlements along the Iberian peninsula to sporadic and unpredictable patterns of yellow fever outbreaks left medical personnel puzzled time and time again because "no unusual atmospherical phenomena were observed during the epidemics of yellow fever; the disease could neither be traced to rain, heat, nor wind; all nature appeared to smile; the flowers and plants looked as beautiful as ever; there was nothing unusual in the atmosphere; and the 'sea rolled on as it rolled before;' man alone seemed to wither and die."<sup>55</sup> Much has been written on the debates over the cause and transmission of yellow fever before its true mode of transmission was discovered around the turn of the nineteenth century. Because of the far-reaching implications of the disease, medical officers, politicians, economists, and religious leaders were involved, though each came at the dispute over etiology from different vantage points.<sup>56</sup>

Nineteenth-century European medicine was sharply divided between contagious and noncontagious theories of disease causation, the former seeing disease arising and carried within an individual, the latter attributing disease to its victims' environment.<sup>57</sup> A contagionist, therefore, saw danger in contact with infected persons, while noncontagionists feared contact with filth, rotting matter such as garbage, and offensive odors, all capable of generating miasmas, or substances capable of causing illness that were carried in the air. The first noncontagionist theories of the 1804 yellow fever epidemic in Gibraltar

55. E.F. Kelaart, *Flora Calpensis: Contributions to the Botany and Topography of Gibraltar and Its Neighbourhood: With Plan, and Views of the Rock* (London: John Van Voorst, 1866), p. 36.

56. Pernick's work on yellow fever in Philadelphia illustrates this concept, see Martin S. Pernick, "Politics, parties, and pestilence: epidemic yellow fever in Philadelphia and the rise of the first party system," *Wm. Mary Q.*, 1972, 29, 559-86.

57. See Curtin, (n. 5), *Death by Migration*; William Coleman, *Yellow Fever in the North: The Methods of Early Epidemiology* (Madison: University of Wisconsin Press, 1987).

attributed it to tainted melons, contaminated drinking water, and a fume-spewing lime kiln in the town.<sup>58</sup>

To better appreciate the convictions of the noncontagionists, we must consider the quality of life in early nineteenth-century Gibraltar. As we would expect, urban population life expectancy at birth then was not high, averaging a mere 24.97 years during the period 1800–1803.<sup>59</sup> Infant mortality, or the number of deaths of children under the age of one year, averaged 203.2 per 1000 live births. According to Roman Catholic parish death registers, “fever” was the leading cause of death prior to the 1804 epidemic, representing some 37 percent of all deaths.<sup>60</sup> Deaths attributed to fever were most frequent in the summer and fall; 41 percent occurred from July through September. Given the time period, cause-specific mortality was poorly defined and based largely on symptomatic classifications. While it is impossible to identify their causes precisely, “summer fevers” were probably the result of enteric or gastric pathogens. The ill-defined category encompassed a variety of poorly defined illnesses that accounted for 29 percent of all deaths.<sup>61</sup> Infectious diseases (for example, measles and smallpox), problems associated with the chest, and violent and accidental deaths accounted for 12, 11, and 8 percent of deaths, respectively. It is clear that Gibraltar, even before the yellow fever epidemic, was already carrying a considerable disease and mortality burden.

By the beginning of the nineteenth century, Gibraltar was heralded as the dirtiest garrison under the British crown,<sup>62</sup> its notoriety generated by its filth and lack of paved streets, garbage collection, or adequate sewer facilities.<sup>63</sup> According to Hennen, Gibraltar was “without everything that was requisite for ordinary purposes of public cleanliness.”<sup>64</sup> Stables and sheds for the laboring cattle and horses were mixed with civilian housing and, in the hot summer months,

58. Barry, (n. 30) *On the Sanatory Management*, p. 8.

59. Life expectancy at birth varied between 21.72 and 30.15 years; the periods of greatest mortality were associated with epidemics of measles (1800) and smallpox (1802).

60. Raw data were collected by Dr. D.A. Herring under the guidance of Monsieur Caruana.

61. Ill-defined causes of death include diagnoses such as madness, cough, and “suddenly.”

62. Hennen, (n. 14) *Sketches*, p. 82.

63. The needs of the military encroached on the civilian population in areas of health owing to new defensive works which were constructed without any regard for their effects on Gibraltar's existing sanitation infrastructure (sewage and aqueduct); see *Gibraltar Chronicle*, 21 February 1868.

64. Hennen, (n. 14) *Sketches*, pp. 81–82.

visitors were often greeted with the stench of rotting garbage and human waste. When Major-General Pilkington arrived in Gibraltar in 1819, complaints were raised that “the stench was almost intolerable, and so diffuse that it was experienced in his own quarters, in the very center of the town, at a distance of several hundred yards” from its probable source.<sup>65</sup>

Noncontagionists thought it no coincidence that the first cases of yellow fever in 1804 occurred among the inhabitants of the Boyd’s Buildings patio, regarded by many as the filthiest buildings in Gibraltar. Because the patio was both large and densely packed with people, Hennen writes that “the vegeto-animal matters which were allowed to accumulate in and around [its buildings] afforded, under a tropical temperature, an abundant supply of fibric miasmata.”<sup>66</sup>

According to Humphreys, noncontagionists concerned themselves with identifying features of the air which were consistent with increases in heat, moisture, and rotting.<sup>67</sup> Some specific local environmental conditions peculiar to Gibraltar were especially convincing for local noncontagionists who focused on miasmas. The *levanter* is a heavy moisture-laden and localized cloud which hangs above Gibraltar, forming as easterly winds crest over the top of the peninsula. Its arrival in 1804 made many Gibraltarians fear it would make a bad situation worse.

The seasonal arrival of such easterly winds was always quickly recognized by local inhabitants because of its perceived effects on the body. According to Sayer’s description, “dull, aching pains creep through the bones, the tongue is parched and dry, while the atmosphere is saturated with a sticky dampness; appetite vanishes, energy leaves you, and an oppressive languor paralyses both mind and body . . . persons suffering from sickness relapse, and wounds or sores refuse to heal.”<sup>68</sup> The last issue of the *Gibraltar Chronicle*, published in the early days of the 1804 epidemic before it was forced to shut down, linked yellow fever with the *levanter* since, “owing to the unfavorable state of the atmosphere, and the continuance of the Easterly wind, the sickness continues . . . we have every reason to hope, that the

65. *Ibid.*, p. 46.

66. *Ibid.*, p. 47

67. Margaret Humphreys, *Yellow Fever and the South* (New Brunswick, New Jersey: Rutgers University Press, 1992), p. 19.

68. Sayer, (n. 21) *History*, pp. 479–80.

first favorable change in the weather will put an end to the sickness.”<sup>69</sup> While responsible for an almost oppressive humidity, the easterly winds also caused the stench from the crude sewers to blow through instead of away from the town.<sup>70</sup> While the odors were offensive to all, noncontagionists were particularly concerned with the sickness they would bring.

To identify a relationship between climate and yellow fever, careful recordings were made of daily temperature. Hennen reports that

The last death among the troops took place on the 28th December [1804], and on the 31st the sick in the hospital were reduced to one. The thermometer at this time, for several preceding days, had seldom risen to 60°F. By the 2d January, it sunk to 51°F at noon, and on that day, the last person taken ill of the prevalent disease was attacked. Immediately after this, the garrison became remarkably healthy, and continued so without any unusual or alarming disease until 1810.<sup>71</sup>

The disappearance of yellow fever that winter is now predictable, because *Aedes* can feed only when the temperature is above 59–63°F.<sup>72</sup> Europeans and North Americans were quick to associate yellow fever with air temperature, and some communities plodded through the misery of an epidemic just “waiting for the frost.”<sup>73</sup> Even before this epidemic, however, Gibraltarians were probably aware that hot summer temperatures brought with them sharp increases in diseases such as “fever” and the risk of death among infants. The reason for this association, however, remained unknown.

Noncontagionists also feared things which were dead and rotting because of their noxious and sickness-inducing emanations. As a result, town residents were ordered to keep their dogs at home after reports of widespread perishing in the streets. Following the warning, guards were instructed to shoot all strays.<sup>74</sup> Any horses, mules, or asses found wandering the streets were sold and the proceeds directed to a fund for the poor.<sup>75</sup> In hopes of purifying the hot, humid, and

69. *Gibraltar Chronicle*, 22 September 1804.

70. Pym, (n. 10) *Observations*, p. 21.

71. Hennen, (n. 14) *Sketches*, p. 110.

72. Patterson, (n. 44), p. 855.

73. Ellis, (n. 45) *Yellow Fever*, p. 55.

74. Thomas Dodd, Secretary, Proclamation, Headquarters of Gibraltar, 5 October 1804, pp. 38–39, GGA.

75. Thomas Dodd, Secretary, Proclamation, Headquarters of Gibraltar, 8 November 1804, pp. 43–44, GGA.

stinking atmosphere, noncontagionists saw bonfires and discharges of artillery as their arsenal against the air-borne miasmas causing the epidemic. Hennen noted that these practices had just the opposite effect, however, as they simply increased the heat in the already stagnant environment and the level of fear and chaos in the streets.<sup>76</sup>

Gibraltar's Medical Officer of Health, Dr. Nooth, was one of the garrison's leading supporters of the noncontagionist theory of yellow fever causation.<sup>77</sup> As one who believed sickness was carried through the air, Nooth visited all of the worst cases of yellow fever, not backing down from his conviction that the disease was not spread by personal contact.<sup>78</sup> Unlike Nooth, later noncontagionists adopted the idea that miasmas could travel with people through pockets of air trapped in luggage and clothing.<sup>79</sup> While Nooth recommended blood letting for treating patients, local remedies also emerged. Having survived yellow fever, Diego Parody offered a perspiration-based therapy involving bed-rest, hot foot baths, and hot sugar drinks. He recommended that fourteen hours after getting into bed, with proper nursing, the perspiration process should be completed; then, with an ounce of English salt and a beverage, the patient was free to get up.<sup>80</sup> Owing to his faith in therapeutics, Nooth contracted yellow fever early on in the 1804 epidemic and died shortly after. He was quickly succeeded by Dr. Pym as the garrison's Medical Officer of Health. Pym clearly held different views on the nature of yellow fever.

Though strong arguments were made by the noncontagionists, the civil authorities also heeded the warnings of contagionists, including Pym, that any contact with individuals from infected Spanish cities was a threat to Gibraltar. This was the basis for the initial quarantine and border closure between the two countries. Gibraltarian government decrees made when yellow fever broke out in Cartagena and Málaga probably nourished a fear of strangers among Gibraltarians. Initially, the Neutral Zone, the isthmus connecting Gibraltar and Spain, became a place of apprehension, a place where yellow fever could be contracted. The government ordered that "no person whatever is to hold conversation with Spaniards on the Neutral Ground"

76. Hennen, (n. 14) *Sketches*, p. 109.

77. Barry, (n. 30) *On the Sanatory Management*, p. 8.

78. Hennen, (n. 14) *Sketches*, p. 96.

79. Coleman, (n. 57) *Yellow Fever*, p. 55.

80. Mr. Parody of Malaga's Cure for the Fever, 4 October 1813, GGA.

and fishermen were not permitted to fish on the Neutral Ground unless accompanied by a health guard.<sup>81</sup> Ten days after this initial order, Gibraltar's commander-in-chief directed that "no person whatever under pain of severe punishment, or being immediately compelled to quit the garrison, shall conceal or harbor any stranger in his house, or elsewhere who is not provided with a regular permit of residence signed by the secretary or town mayor."<sup>82</sup> It is clear that these measures were undertaken to satisfy the garrison's contagionists, though one might question the perceptions of the civilian community who were not immersed in the debate over yellow fever's origins, and among whom possessing or not possessing a permit of residence became an issue in the generation of yellow fever. That is, immigrants, especially those without permits, were to be feared by Gibraltarians as harbingers of disease.

When it became apparent that these measures were ineffective (97 deaths occurred during the first fifteen days of September), the government modified its strategy to include shipping.<sup>83</sup> On 17 September a proclamation denied incoming ships pratique, or permission to enter the port, to unload or load their vessels, and to have "free intercourse with the community."<sup>84</sup> Foreign ships were not even permitted to simply remain in Gibraltar's bay.<sup>85</sup> The government was making strong attempts to stop any renewed importation of the disease into the community.

It was Pym, however, who insisted that quarantine measures must also be undertaken within the garrison itself, and not limited to those between Gibraltar and other countries. Under his guidance, the military hospital had admitted 1348 servicemen and family members by mid-epidemic,<sup>86</sup> though the civilian population proved problematic as there was no civil hospital at the time. Contagionists argued that there was no cure for those infected. As one doctor commented, "whenever medical men have tried to check the destructive march

81. Thomas Dodd, Secretary, Proclamation, Headquarters of Gibraltar, 27 August 1804, p. 26, GGA.

82. Thomas Dodd, Secretary, Proclamation, Headquarters of Gibraltar, 6 September 1804, p. 29, GGA.

83. Extract from the *Gibraltar Chronicle*, 22 September 1804.

84. Barry, (n. 30) *On the Sanatory Management*, p. 4.

85. Thomas Dodd, Secretary, Proclamation, Headquarters of Gibraltar, 17 September 1804, pp. 31–32, GGA.

86. J.G. Coad, *The Royal Dockyards, 1690–1850* (Aldershot: Scholar Press, 1989), pp. 318–20.

of this disease by merely attempting to cure those attacked by it, or by purifying the spot occupied by the sick, they have invariably failed, and most miserably too. It seems to laugh at remedies, and but too often destroys both the patient and his doctor. *The prevention of attack is the only source of safety.*<sup>87</sup> Remaining in Gibraltar as the Medical Officer of Health, at the outbreak of the next epidemic in 1810 Pym was determined not to allow the disease to spread through the community as it had in 1804. By this time his ability to establish quarantine and prevention had become more organized so that,

tents were pitched during the day, on the neutral ground, as if for military purposes; and in the dead of the night, when the air was cool, and the streets deserted, a cordon of troops was thrown round the infected district . . . . The contaminated district was kept in strict quarantine for fourteen days, and its inhabitants inspected daily, by a medical officer. Persons showing symptoms of the disease, of whom there were several within a few days . . . were, of course sent to the lazaretto, whilst their houses and effects were made to undergo suitable expurgation.<sup>88</sup>

*Lazarettos* were places of quarantine, meant for the isolation of diseased individuals. Although effective for controlling the spread of some infectious disease, they would have been less successful in the yellow fever epidemic because mosquitoes can easily transport the virus across lines of quarantine.<sup>89</sup>

By the 1828 epidemic some medical personnel, Dr. Barry in particular, were becoming more vocal in their opinion of noncontagionism: "let no time nor labor be thrown away, at this most important crisis, on cleansing drains and privies . . . experience has already proved, . . . the perfect inutility, nay, the absolute mischievous tendency of this measure."<sup>90</sup> A board of inquiry, consisting of Barry and the well-known French Medical Commissioners Chervin, Louis, and Trouseau,<sup>91</sup> described some of the strategies adopted by the local community in attempts at avoiding yellow fever in 1828, including changing clothing upon returning from shopping at the village market, sending servants into town to do the shopping, dousing mail in vinegar, not

87. Barry, (n. 30) *On the Sanatory Management*, p. 18 (emphasis added).

88. *Ibid.*, pp. 18–19.

89. Daniel M. Fox, "The history of responses to epidemic disease in the United States since the 18th century," *Mt. Sin. J. Med.*, 1989, 56, 223–29.

90. Barry, (n. 30) *On the Sanatory Management*, p. 20.

91. For a comprehensive review see Coleman, (n. 57) *Yellow Fever*.

receiving visitors into the home, speaking through or by windows, and not taking anyone by the hand.<sup>92</sup> These behaviors seem to be in line with acceptance of the contagionist theory as people feared both their neighbors and miasmas as transmitters of the disease. While some of these measures would have been protective in cases of some infectious diseases, they were of little use in preventing the bite of a virus-harboring mosquito. This debate over the origins and etiology of yellow fever, as documented by Coleman for the 1828 epidemic, persisted in Gibraltar for several decades.<sup>93</sup>

#### IMMIGRANTS AND OTHER SCAPEGOATS

During the dispute over the nature of yellow fever among members of the medical community, the business sector took special interest in the 1804 epidemic and its effects on the garrison. Gibraltar's economy, based largely on shipping, was at particular risk during the course of the epidemic. From the beginning of its outbreak, all vessels from Málaga and any places within a three-mile radius of Málaga were denied entry into Gibraltar's harbor.<sup>94</sup> Only vessels "from the Eastward of Carthagenia and Westward of Tarifa" were granted *pratique*. Outgoing ships were also restricted; only those carrying tobacco, a commodity which outweighed all others in Gibraltar,<sup>95</sup> were permitted to leave the port. Even tobacco ships, however, were under orders to export only to ports west of Gibraltar or to ports east of Gibraltar beyond Spain's Cape de Gata, or the port city of Almeria. Bond had to be given that ships would not enter any port along the Spanish coast before Cape de Gata, and no tobacco ships could return to Gibraltar in less than six weeks of their departure, after which time they were perceived as safe if yellow fever did not break out.<sup>96</sup>

The business sector suffered great anxiety over the effects of the epidemic on trade. Some of Gibraltar's most powerful businessmen and respectable inhabitants volunteered to serve the governor during

92. Messrs. Chervin, Louis, Trousseau (French Medical Commissioners), and David Barry (English Army Physician), *Documens de la Commission Médicale Française Envoyée à Gibraltar pour Observer l'Epidémie de 1828* (Paris: Imprimerie Royale, 1830).

93. Coleman, (n. 57) *Yellow Fever*.

94. Thomas Dodd, Secretary, Proclamation, Headquarters of Gibraltar, 27 August 1804, p. 26, GGA.

95. Benady, (n. 52), p. 8.

96. Thomas Dodd, Secretary, Proclamation, Headquarters of Gibraltar, 28 August 1804, p. 28, GGA.

this crisis under the auspices of the Committee for the Preservation of Public Health. Though later expanded to eleven, the committee was originally made up of five men at the beginning of the yellow fever epidemic. The names Ross, Smith, Sweetland, Allerdycce, and Rankine clearly attest to their English origins. In a letter to His Excellency Trigge, dated 17 December 1804 (near the end of the epidemic), the expanded committee summarized what it believed to be the cause of yellow fever's "rapid propagation and unparalleled devastation."<sup>97</sup> In general, the perceived effects of immigration laid the foundation for their argument and solutions.

According to their report, the problem was one of uncontrolled immigration and its accompanying overcrowding, for "in those confined houses and sheds built in consequence of the overgrown population of the Rock disease has raged with uncommon Virulence."<sup>98</sup> They felt it only "extraordinary that respiration could in them go on from the want of circulation of air—of sewers in their neighborhood to carry off their filth and the habits of their inhabitants inclining them to prefer living surrounded by carrion."<sup>99</sup> Immigrants were viewed by most of the established locals and military as second class, peripheral citizens. The committee argued that "the number of Foreigners, many of the worst description that have obtained admission into the Garrison, has been very great and those People have all been of the poorest classes of Catholics and Barbary Jews habituated to live in Filth in their own Countries."<sup>100</sup> No matter what the businessmen argued, however, immigrants were critical to the development of Gibraltar's flourishing economy as well as its labor force before the epidemic and were therefore regarded as a necessary evil.

Seeking refuge, steady employment, higher wages, or the opportunity to make quick fortunes, large numbers of foreigners entered Gibraltar daily,<sup>101</sup> taking many jobs seen as undesirable by the locals such as coaling ships, working in the garrison's gardens and running stalls in the town market. Even Gibraltar's Police Magistrate, who

97. Committee of Public Health to His Excellency Sir Thomas Trigge K.B., Commander in Chief of Gibraltar, 17 December 1804, correspondence, GGA.

98. *Ibid.*

99. *Ibid.*

100. *Ibid.*

101. Lawrence A. Sawchuk, "Societal and ecological determinants of urban health: A case study of pre-reproductive mortality in 19th century Gibraltar," *Soc. Sci. Med.*, 1993, 36, 875-92.

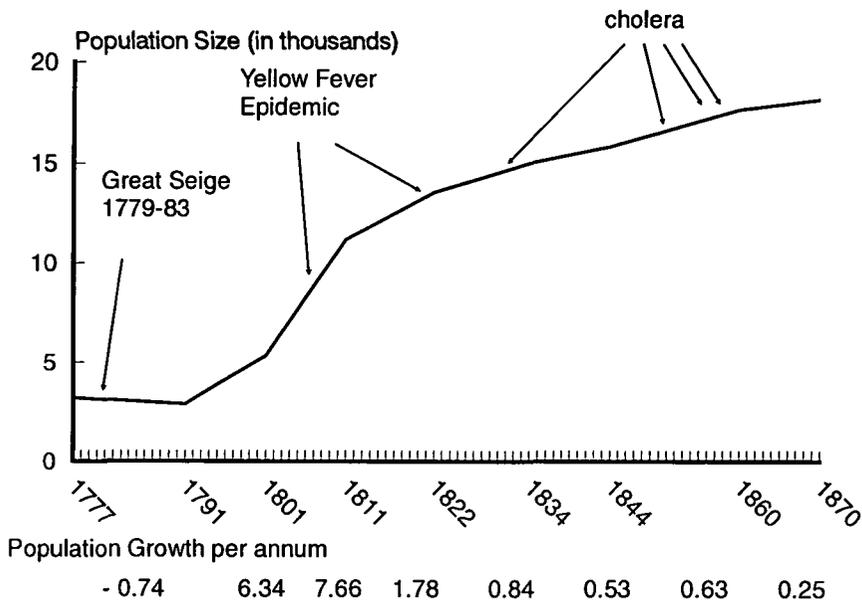


Fig. 3. Gibraltar's civilian population, 1777-1870.

was most closely linked to control over immigrants, argued that “to drive them out is to paralyze the public service.”<sup>102</sup> To this day, the native Gibraltarian tends to avoid positions of servitude and manual labor, relying heavily on foreigners to engage in such tasks.<sup>103</sup>

Such was Gibraltar's attraction, however, that the number of civilian inhabitants swelled to more than 5000 in 1800, nearly double the figure for the previous decade, and the numbers continued to grow (Fig. 3). As the businessmen were acutely aware, the garrison had difficulties coping with this unbridled immigration. Thus, the impact of abysmal housing conditions on the high risk of disease was seen as a recurrent problem and the committee argued that

The Town, not sufficiently large to contain properly such an Encrease of population, has consequently been crowded to a degree unequalled and

102. Frederick Solly Flood, Gibraltar Police Magistrate, Correspondence to the Colonial Secretary, 13 April 1866, p. 28, GGA.

103. Lawrence A. Sawchuk, “Historical intervention, tradition, and change: A study of the age at marriage in Gibraltar, 1909-1983,” *J. Fam. Hist.*, 1992, 17, 69-94.

the avarice of House and Landholders, mostly aliens, has led them not only to erect Houses and Sheds in the most confined unhealthy Situations wherein to lodge those Strangers, but they have even let rooms to them by the Night in which they are assured that sometimes upwards of twenty have spent thereby infecting one another if disease happened to be among them which their filthy state was enough alone to generate.<sup>104</sup>

While the committee reported on the impact of immigration on Gibraltar's health, they went on to single out a particular group as a reservoir of disease that fed the yellow fever epidemic: Gibraltar's Jewish community. Jewish merchants from Morocco, Malta, Leghorn, London, Portugal, Italy, and Spain (Marranos) had figured prominently in the founding of the civilian community, establishing themselves in trade opportunities soon after Gibraltar was captured by England in 1704. In their letter, however, the businessmen argued that few Jewish families had any "visible means of subsisting" and that, as a result, they tended "by an increased Consumption to enhance the price of necessaries of Life and in the event of Scarcity would occasion its being more fatally felt."<sup>105</sup> In times of summer drought the cost of potable water, in particular, escalated, sometimes making its acquisition so difficult for the poor that they were suspected by medical officers of consuming sanitary well water, contaminated to the point that it was intended only for washing cooking utensils and clothing.<sup>106</sup> The cost of most food staples in Gibraltar was, in fact, considerably higher than in other British outposts,<sup>107</sup> making life particularly arduous in times of crisis.

The committee further reproached Jews for "their habits and uncleanliness" which they believed not only kept up but also propagated the 1804 yellow fever epidemic.<sup>108</sup> Such views were not isolated; Garratt cites one source who, many years after the epidemic, wrote of "the Gibraltar fever, about which doctors have disagreed so much, the patients dying in the meanwhile . . . it is nurtured in Hebrew

104. Committee of Public Health, (n. 97).

105. *Ibid.*

106. Major H. Tulloch, *Report on the Water Supply and Sewage System* (London: Waterlow and Sons Limited, 1890), p. 13.

107. Based on market prices for a variety of food items, wine, oil, and washing, Gibraltar's cost of living was 123 percent higher than that of Malta and 115 percent higher than that of Corfu (R.M. Martin, *History of the British Possessions in the Mediterranean* [London: Whittaker & Co., 1837], p. 93).

108. Committee of Public Health, (n. 97).

dirt, fed by want of circulation of air, and offensive sewers at low tide.”<sup>109</sup> The focus on Jewish contamination occasioned much dispute, even outside Gibraltar. According to Benady, one Gibraltarian, “Phineas Toledano, then living in London, felt constrained to write to the *Morning Post* objecting to the references that had been made about Jewish dirt being the cause of the yellow fever epidemic, and [recounted] a letter from his friend Henry Cowper in Gibraltar which said that the standard of hygiene of the Jews of Gibraltar was such that they were less affected by the disease than their neighbors.”<sup>110</sup> The businessmen took liberties to berate the Jews for their perceived behavior during the scourge of the epidemic arguing “how little Government can depend upon them in Case of Emergency.”<sup>111</sup> Jews were accused of not “carry[ing] away their Dead and clear[ing] their Houses of filth.”<sup>112</sup> The committee claimed to have inspected Jewish houses and wrote that in one “they found the Body of a man in a high state of Putrefaction; five more breathing their last and one at the Point of Death at the street door, the above place exhibited a scum of Filth scarcely to be described, and . . . the Christian assistants cannot be [persuaded] to enter those houses.”<sup>113</sup> Early in October, Trigge had empowered the committee to “direct the Jewish Elders, and Heads of this People to worm daily from among themselves twenty persons, who will attend at the Spanish Church . . . for the purpose of removing their dead.”<sup>114</sup>

The location of the Jewish cemetery in the south district of the garrison also roused government attention, even though it was somewhat isolated, there being only a single soldier's barracks nearby. Though a Christian burial ground, called Trafalgar Cemetery, literally on the doorstep of the garrison gates, was in use in 1804, it appeared to escape the scrutiny which the Jewish burial ground endured. Fearing the possibility of yellow fever transmission from miasmas arising from newly buried Jewish corpses, on 16 October the Gibraltar

109. Garratt, (n. 41) *Gibraltar and the Mediterranean*, p. 110.

110. Benady, (n. 52), p. 14.

111. Committee of Public Health, (n. 97).

112. Report by the Committee of Public Health to Major General Burnett, Commandant, 4 October 1804, in Tommy J. Finlayson, Gibraltar Government Archivist, *Stories from the Rock*, unpublished manuscript, GGA.

113. *Ibid.*

114. Thomas Dodd, Secretary, Proclamation, Headquarters of Gibraltar, 5 October 1804, pp. 39–40, GGA.

government enacted a proclamation forcing Jews to abandon their traditional burial ground. They were instructed, instead, to bury their dead alongside the Protestants and Roman Catholics in the Neutral Zone until further orders<sup>115</sup>—but such orders never materialized. Forty years after the 1804 epidemic a large group of Jewish businessmen calling themselves the “Memorialists” wrote petition after petition to the governor, pleading for the re-instatement of their traditional cemetery in the south.

At first the Memorialists structured their arguments along compassionate grounds, “That the piece of ground proposed to be allotted to your Memorialists in exchange for the place where the Bones of their Fathers lie is on the sandy isthmus at the North Front in the whole of which water is found . . . religious observances of your Memorialists people make it highly offensive to their religious sentiments to Bury their Dead in wet soil.”<sup>116</sup> Furthermore, there were discoveries that the land passed to the Jews had been host to the trench-fulls of dead during the 1804, 1813, and 1814 yellow fever epidemics. The ground was also believed to harbor the bodies of executed felons and hanged murderers, all of which horrified the Memorialists.<sup>117</sup>

The Memorialists addressed many noncontagionist health issues, the central concern of which was the same production of effluvia or miasma by corpses which had initially stopped them from using their traditional cemetery in 1804. The Memorialists argued that the placement of the cemetery near Windmill Hill was ideal for actually *preventing* sickness since there were “winds that almost always blow . . . [rendering] it impossible that any effluvia could collect or become offensive.”<sup>118</sup> The soldier’s barracks farther down from the cemetery, they argued, was not at risk because “such effluvia as is well known rise to a higher and not descend to a lower level.” Distinct Jewish burial practices, deemed beneficial to the reduction of effluvia, were

115. Tommy J. Finlayson, Gibraltar Government Archivist, *Stories from the Rock*, unpublished manuscript, GGA.

116. Joshua Benoliel, Isaac Cardozo, M. Cansino, and other members of the Memorialists (31 names in all), Gibraltar, 31 March 1848, Letter to the Right Honourable Earl Grey, Her Majesty’s Secretary of State for the Colonies, GGA.

117. Joshua Benoliel, Isaac Cardozo, M. Cansino, and other members of the Memorialists (31 names in all), Gibraltar, 16 June 1848, Letter to the Right Honourable Earl Grey, Her Majesty’s Secretary of State for the Colonies, GGA.

118. Benoliel et al., (n. 116).

also discussed. Because bodies were buried without coffins, corpses decayed speedily, while the stones and mortar under which the body lay reduced the chances that any dangerous stench could arise from the grave. As an important aspect of Jewish faith, it was further argued that both the rich and the poor would receive this comprehensive burial rite. All of these petitions were in vain, however, as the 1804 decision endured and Jews never were permitted to reopen the south district cemetery.

HOW THE BUSINESSMEN PROPOSED  
TO PREVENT FURTHER DISEASE

As far as the businessmen were concerned, the most effective move would be “to transport therefore to their own Countries at the Public Expence . . . all the Families of those Foreigners that are not useful and all the Barbary Jews and their Families that are not established in business and when Citizans are wanted to admit them only without their Wives and Families [since this] would be a further means of keeping the Garrison in a cleaner State and more healthy also by being less crowded.”<sup>119</sup> According to their plan, the resulting vacancies were to be filled by “a Hundred Gallicians” from Spain or Portugal, whom they perceived as a “hardy, faithful and industrious race” willing to leave their wives and families behind, to stock the largely destroyed working population in post-epidemic Gibraltar. This endeavor to strategically construct Gibraltar’s working population was a persistent phenomenon, critiqued as late as 1876 by a government committee addressing the “alien question”: “The pretension that the population of a town should remain stationary and that it should be composed solely of those who are absolutely necessary for its indispensable works to the exclusion of externs or Aliens, is at once utopian and absurd.”<sup>120</sup>

The targeting of the Jewish population was not all that unexpected given that some members of the garrison had long been host to antisemitic feelings, stemming primarily from the large number of Jewish men engaged as traders in the economy. Serving as middlemen, Jews facilitated the procurement of essential foodstuffs, liquor, and

119. Committee of Public Health, (n. 97).

120. John B. Scandella et al., *Report on the Alien Question, most Respectfully Submitted to His Excellency General R.C. Lord Napier of Magdala, Governor of Gibraltar* (Gibraltar: Garrison Library, 1876), p. 3.

tobacco from other countries and, in doing so, made themselves invaluable to the garrison. With this power, however, came associated feelings of hostility from the troops, and none so much as following the Great Siege in 1783. As Drinkwater observed three years later, "the extreme distress, to which the soldiers had been reduced by mercenary conduct of the hucksters and liquor-dealers, in hoarding or rather concealing their stocks, to enhance the price of what was exposed for sale, raised amongst the troops a spirit of revenge."<sup>121</sup> Russell refutes claims such as these, explaining that Jews "were brokers because prejudice allowed them to be little else, and if they charged a high rate of interest for their money it was because the borrowers were dishonest, not the lenders."<sup>122</sup> Wealthy Jewish families, along with similarly successful Catholics, came to own a substantial quantity of Gibraltar's real estate. As a result, as early as 1749 English "governors of Gibraltar had been instructed to get the properties in Gibraltar out of the hands of Jews and Papists."<sup>123</sup>

The Protestant businessmen's identification of scapegoats is interesting in that their arguments borrowed from both the contagionist and noncontagionist theories. From their perspective, Gibraltar itself was not inherently unhealthy; it had become so only via uncontrolled immigration and from the immigration of Jews and poor Catholics in particular. As a result, the town became unhealthy when pushed beyond its capacity for population expansion, with filth and sewage-induced miasmas resulting. Civil authorities were comfortable with this perspective, since they feared that an admission of indigenous origins of yellow fever would damage the garrison's commercial prosperity and, as a result, "a predetermination existed that no such fatal theory could be admitted."<sup>124</sup> An argument based solely on local origins would also precipitate a next step, an expensive investment by the government in sanitation and other reforms.<sup>125</sup> The businessmen, on the other hand, wanted a solution which would not interfere with their shipping enterprises in Gibraltar. Having felt the effects

121. John Drinkwater, *A History of the Late Siege of Gibraltar* (Dublin: Printed for Messrs. Colles, White, Byrne, McKenzie, and Moore, 1786), p. 191.

122. Jack Russell, *Gibraltar Besieged, 1779-1783* (London: Heinemann, 1965), p. 29.

123. Benady, (n. 36), p.165

124. Sayer, (n. 21) *History*, p. 483. See also *The Report of the Barrack and Hospital Improvement Commission on the Sanitary Condition of the Mediterranean Stations. Part I, Gibraltar* (London: George Edward Eyre and William Spottiswode, 1862), p. 6.

125. This point is raised by Ellis, (n. 45) *Yellow Fever*, p. 80.

of quarantine on shipping over some four months of epidemic in 1804, it is likely that they were not enthusiastic supporters of the contagionist theory.<sup>126</sup> As a result, the committee took the intermediary position that the disease emerged in Gibraltar only because overcrowding combined with the personal habits of immigrants and Jews. According to this argument, if the unnecessary immigrants and the Jews not established in business were removed, Gibraltar would once again become a healthy garrison.

The committee capitalized on the effects of the epidemic to promote the removal of persons they deemed unnecessary to Gibraltar's overall welfare and economy. Though by proclamation it was put forth that whatever the businessmen's committee "shall think proper to order for the Preservation of the Health of the Inhabitants be immediately obeyed and carried into execution" with the full support of Gibraltar's governor,<sup>127</sup> the recommended deportation was not carried out, though the issue of immigration and its effects on the garrison did not escape the attention of government officials. On 9 January 1805, only seven days after the last reported victim of yellow fever, the government ordered that "all Spaniards and other subjects of His Catholic Majesty male and female now in the Garrison are to attend at the Secretary's Office . . . where their names and places of residence will be registered."<sup>128</sup> The general warning went out that anyone who did not turn out to register would be considered a spy and punished accordingly.

There are several possible reasons the government did not fully implement the recommendations of the committee. Because of the high degree of solidarity among Jews living in Gibraltar, any attempt by the government to simply banish poor or unemployed Jews from the garrison was likely to meet with resistance from their wealthier and employed brethren, a situation which the government surely realized they could not afford. Unlike other Gibraltarians, the Jews had strong ties to Morocco, where Tetuan was viewed as a spiritual center and Tangier as a significant mercantile hub. According to Russell, "without them there would have been no private stores in

126. Quarantine imposed many difficulties on shipping-based economies. For North American experiences, see Ellis, (n. 45) *Yellow Fever*, and Humphreys, (n. 67) *Yellow Fever*.

127. Thomas Dodd, Secretary, Proclamation, Headquarters of Gibraltar, 27 September 1804, p. 37, GGA.

128. Thomas Dodd, Secretary, Proclamation, Headquarters of Gibraltar, Headquarters of Gibraltar, 9 January 1805, p. 49, GGA.

Gibraltar to feed the townspeople, [and] little contact with, and therefore few shipments of food from, Morocco.”<sup>129</sup> The uneasy relations between Gibraltar and Spain and the fact that Gibraltar possessed none of the natural resources required for supporting an urban population, left Morocco as a crucial resource to the garrison. If the mercantile network were to fail or if relations were strained with Morocco in any other way, Gibraltar would have to depend on England in the event of a Spanish siege, a situation not even entertained given England’s distance from the colony.

DID REFORMS IN RESPONSE TO THE YELLOW FEVER CRISIS  
REALLY OCCUR?

The widespread mortality of the 1804 epidemic caused many to reflect on the overall unhealthy conditions of the town. Acting under the recommendation of Gibraltar’s governor, eight men including Major General Drummond (who would assume temporary command of Gibraltar in 1806), three local doctors, including Dr. Pym, and Messrs. Smith, Ross, Allardyce, and Rankine (of the businessmen’s Committee) formed the Board of Public Health. Their main objective was to prevent the outbreak of destructive diseases such as yellow fever in the future. The board proposed nineteen comprehensive recommendations to this end, which can be segregated into four categories. We are cautious in not contending that any miraculous reformations occurred in Gibraltar, but this unmerciful awakening to the threat of fatal disease did result in the first formal discussions of how to improve the garrison’s responses to future crises. It would take several more decades and outbreaks for conditions to actually change.

Following Gibraltar’s first bout with a destructive epidemic, these were aspects of the garrison which the Board of Public Health felt most needed to be implemented:<sup>130</sup>

1. *Sanitary Measures*: “white wash with hot lime all rooms, huts or sheds where individuals have died; town should be divided into districts and appoint ‘inspectors’ to wash all bedding and other clothing; an area for the sweepings and other dirt and filth be

129. Russell, (n. 122) *Gibraltar Besieged*, p. 29.

130. Major General Drummond (President), Drs. Bolton, Fellowes, and Pym, and Messrs. Smith, Ross, Allardyce, and Rankine, Board of Public Health, *Report on Sundry Queries and Suggestions Laid Before them by Command of His Excellency*, 8 January 1805, Gibraltar, GGA.

carried by carts or borricos at the expense of the government; a public sewer ought to be immediately made by the government; the curing of hides should be performed outside the walls of the town . . . cattle should not be kept in the town."

2. *Overcrowding Regulations*: "inspector of the districts to be directed to be watchful of crowding . . . a room of 12 feet square with ventilation should only contain 4 persons to sleep in."
3. *Medical Procedures*: "all medical practitioners, Roman Catholic priests and heads of the Jews to give the earliest information on every occasion of sickness; [Catalan Bay, located outside the Town, was seen as a proper place for a lazaretto]; floating lazaretto for reception of the Sick from vessels in the Bay be established; the lazarettos recommended will be fully sufficient to meet all expected exigencies; the inspector of health or medical visitor should always have a boat at his command; no civilian should be allowed to establish himself as a physician, surgeon or apothecary without a certificate from the inspector of health, approved by the lieutenant governor; health guards may be appointed Inspector of Strangers and prevent any persons without a permit for entrance."
4. *Quarantine and Shipping Procedures*: "no vessels be allowed to enter the bay from countries where contagious disease prevails; two health guards be appointed at the different landing places to prevent any improper communication with the shore; the port should not be opened up before . . . [left blank] . . . days after the last appearance of the fever; the Governor should be made aware of the arrival of all vessels large and small for the information of the public in general; until the lazaretto is built at Catalan Bay fishing boats should have the liberty to go there; the master boatman should make an exact list of all boats and lighters."

Because consensus on the actual cause of the yellow fever epidemic was far from being reached, these recommendations are inherently broad, embracing the concerns of both contagionists (e.g., quarantine and shipping procedure) and noncontagionists (e.g., sanitary measures) alike. Unlike the Committee for the Preservation of Public Health, the Board of Public Health was more concerned with amending policies and facilities than the outright replacement specific populations. This response is in agreement with Fox's observation that "after an initial period of denial or of panic, rational policies have been established during each epidemic, almost always by a coalition

of business and government leaders, with support from prominent members of the medical profession.”<sup>131</sup>

While we see Pym’s influence in the establishment of quarantine and lazarettos in the 1810 epidemic, many of the suggested changes in sanitary measures and overcrowding were not enacted until nearly a decade later during General George Don’s tenure as Gibraltar’s Lieutenant-Governor from 1814 to 1832. Following the same strategy adopted by those in the 1804 epidemic, Don was one among a group of high-ranking officers who sequestered themselves aboard a hulk in Gibraltar’s harbor during the 1814 yellow fever epidemic. It was during this time of quarantine that Don first became interested in the quality of life in the garrison, driving him to conduct a comprehensive inquiry on the matter. During his tenure from 1814 to 1832, Don gained his reputation as the “builder of Gibraltar,” focusing his attention particularly on issues of sanitation and immigration.<sup>132</sup>

Shortly after becoming governor, Don directed the establishment of Gibraltar’s Sanitary Commission, consisting of five officials and twelve local members. While this post was created with all good intentions in 1815 and expanded following the cholera epidemic of 1865, it actually accomplished little in the way of ensuring the health and safety of Gibraltarians: the commissioners introduced only one bylaw before 1892.<sup>133</sup> In 1815 Don also invested £15,000 of government resources in the construction of an extensive sewage system. The system was later criticized as ineffective, however, as little was known of the principles on which towns should be drained, and there was no means by which to flush out the large, flat-bottomed sewers.<sup>134</sup> Thus, instead of improving matters, inspectors found that “the drainage [was] as bad as possible . . . the sewers were the cesspits of the whole population. Every shower of rain increased fermentation in their contents, and foul air was poured into all the small courts and houses through the open gulley grates. The condition of the sewers was such that even rats died in them.”<sup>135</sup> Based on their observations of poor drainage, housing inspectors charged that “the whole

131. Fox, (n. 89), p. 224.

132. Benady, (n. 15), *Civil Hospital*, p. 81–88.

133. As Major Tulloch exclaimed, “how can a town exist under proper sanitary conditions unless the officials of the local governing body are armed with special powers in their respective departments?” (Tulloch, [n. 107] *Report on the Water Supply*, p. 3).

134. Sutherland, (n. 13) *Report on the Sanitary Condition*, p. 19.

135. *Report of the Barrack and Hospital Improvement Commission*, (n. 124), p. 6.

population was as thoroughly prepared for the yellow fever epidemic of 1828 before it appeared as dry wood is for fire,"<sup>136</sup> clearly an argument for miasmatic origins. It was only in 1866 that a system of daily garbage collection was inaugurated,<sup>137</sup> greatly facilitated by the recent construction of a number of foot roads, ramps, and flights of steps which for the first time allowed direct communication between the lower and upper (and poorer) parts of the Rock.

Commercial prosperity flourished during the Don era for the first time since the yellow fever epidemic. Through a series of ordinances prohibiting the selling of wares and merchandise at stalls or benches at corners of streets, Don began to encourage a more settled life based on shops.<sup>138</sup> Numerous reforms were also made in Gibraltar's housing stock so that by 1830 Hennen could observe that "the low ill-ventilated sheds, which incumbered the surface of the ground have been removed; premises of a more permanent nature have been repaired, and the quality improved, and in several instances, the whole of the former buildings have been razed, and edifices of a very superior character have been erected."<sup>139</sup>

Though noncontagionists argued strongly for local change after the 1804 epidemic, and Don had acted on many of these suggestions, it is obvious that serious problems persisted well into the late 1800s. A housing inspection during this bout with yellow fever brought forward some of the underlying problems in the garrison, as external appearances belied nothing of what lay on the inside of some houses. Overcrowding continued to be a problem; for instance, "100 persons were found in one house fixed by police regulation for only 20,"<sup>140</sup> while many homes were dirty and poorly ventilated. No doubt contributing to this problem was the fact that sanitary authorities did not have the power of entry into civilian patios and were unable to enforce paving, draining, or cleaning recommendations. Gibraltar's public health system was "at the mercy of landlords, some of whom [were] non-resident, and [appeared] to care very little about their property or its tenants. The interiors of the poorer class of houses [were] miserable in the extreme; the great evil being want of sufficient

136. Ibid.

137. *Report of the Proceedings of the Sanitary Commissioners of Gibraltar, for the Year 1867* (Gibraltar: Garrison Library Printing Press).

138. Sawchuk, (n. 101), p. 879.

139. Hennen, (n. 14) *Sketches*, p. 46.

140. *Report of the Barrack and Hospital Improvement Commission*, (n. 124), p. 6.

light and air. They are dirty, the walls moldy, and the people wretched.”<sup>141</sup> Only rarely did a tenant tenure a house directly from the Crown; they were forced instead to sublet largely through landlords who were focused on generating profit.<sup>142</sup> The only organization representing the vulnerable civilian population was the Exchange Committee, set up in 1817 by local merchants. The only articulate civilian group at the time, the Exchange Committee claimed to have no political aims and concerned itself with commercial, social, and welfare functions.

While there was always a concern with immigration, as we have found among the Protestant businessmen, the 1814 yellow fever epidemic sparked renewed concern among the noncontagionists that overcrowding had finally reached its zenith with the arrival of a succession of environmentally induced epidemics. To curtail any future epidemics, the situation clearly had to change, and civil authorities and local businessmen sought to reduce overcrowding and the large accumulations of waste and filth associated with a city already hard-pressed for space. One of the leaders in this movement was Governor Don. Colonial administrators were quickly becoming apprehensive of disease transmission from local inhabitants and resident strangers to the garrison troops, as any threat to the military presence meant a threat to British security on the Rock.<sup>143</sup>

In the interest of health and peace in the garrison, Don made immigrant legislation one of his priorities, beginning with numerous proclamations designed to combat the rising flood of immigrants. Among the first of these was a proclamation, dated 12 November 1814, which ordered the issuance of permits that would curtail the indiscriminate entry of foreigners into the garrison: “it is . . . hereby ordered and directed that no person of any description whatever be

141. *Ibid.*, p. 7.

142. *Special File: Gibraltar Estates. Messrs. Lofis and Warner's Report* (London: Berkeley Square, 13 December 1886), p. 2, GGA.

143. In the early 1830s Gibraltar's governor even hesitated to give sixteen Spaniards and their wives and children permission to reside in the garrison for thirty days for a theatrical exhibition:

I am not disposed to object to allow [the locals] the occasional indulgence of a species of recreation which has been engrafted into the habits of civilized society, but as I should be unwilling on the other hand to give sanction to any measures which might tend to *consolidate the alien character of the population of Gibraltar*, I must express my hope that the performance of Spanish Plays will not become an established public amusement (Extract A No. 36 of Dispatch from His Majesty's Government dated 12 July 1832, GGA [emphasis added]).

in future suffered to establish himself in this Garrison without a permit signed by the Lieutenant Governor and countersigned by the Town Major [the head of the military police].”<sup>144</sup>

By 1822 Don had divided the garrison into twenty-eight administrative districts, each with its own inspectors chosen from the “most respectable” inhabitants, to control the city populace, report illegal residents, and watch over the health of the inhabitants. In that same year, the licensing of marriages was placed under the control of the Civil Secretary and, on looking back on the implications of this step, Gibraltar’s police magistrate reported that “no marriage could take place in Gibraltar without his license, he refused to sanction the marriage of any alien male, except upon the condition of his leaving Gibraltar within three months.”<sup>145</sup> Strategies of the time, based on the issuing of permits, were ineffective, however, for two reasons. First, they contained no fixed premise on which to either admit or reject immigrants. As a result, “this omission engendered the idea that every case of refusal of a permit of residence was a wrong capable of being remedied by persistent demand.”<sup>146</sup> Second, many immigrants succeeded securing, in a number of ways, permits that were not valid but were nevertheless accepted, such as permits passed from father to son. As a result, these attempts to curb population growth ultimately failed. As at the beginning of the century, “the native population continued . . . rapidly to increase, the garrison became still more overcrowded, and again was devastated in 1828 by a fearful [yellow fever] epidemic.”<sup>147</sup> It was only because of the repeatedly perceived link between immigration and disease that a more complex immigrant permit system finally evolved to meet the military, labor, and commercial needs of the garrison, culminating in the controversial “Aliens Order in Council” of 1873.

When the English government initiated a review of garrison posts in 1860s, a commission headed by an English doctor named Sutherland was sent to evaluate the health and living conditions in Gibraltar’s military community. His report, published in 1862, describes the many ways in which Gibraltar was deplorably inadequate. When

144. Proclamation, Headquarters of Gibraltar, Headquarters of Gibraltar, 12 November 1814, GGA.

145. Flood, (n. 46), p. 3, point number 26.

146. Flood, (n.46), p. 4, point number 30.

147. Ibid.

cholera killed some 408 people between August and October 1865, Sutherland was recommissioned to identify the factors leading to the outbreak. At the same time, a revised sanitary commission was formed. Despite all Don's efforts and the destruction caused by yellow fever, it was only under the guidance of this commission and the cholera crisis that substantial improvements were finally made to the quality of life in Gibraltar.