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# GHI RESEARCH

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## MODERNIZING THE WATERS: POLLUTION AND POLITICAL IDEOLOGY IN HAMBURG, 1900–1961

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From 1893 to 1960, political leaders in Hamburg completed several ambitious measures to improve the quality of water used by local residents for drinking, cooking, washing, and recreational purposes. Most importantly, they protected the city's drinking water supply from harmful germs by constructing a filtration plant in 1893, at a cost of seven million marks. Hamburg's political leaders also established an entirely new and highly proficient public health bureaucracy, staffed by professional physicians, chemists, and other experts, all charged with monitoring water quality in the River Elbe and recommending laws to protect Hamburg's one million citizens from disease. Such measures—established hurriedly in the wake of a cholera epidemic that killed 8,600 people in 1892—succeeded dramatically, eliminating threats from cholera, typhoid fever, and other illnesses carried in water contaminated by human wastes.<sup>1</sup> Over the next seventy years, the city's political elites also considered policies to make drinking water more palatable for daily use, to protect fisheries from noxious chemical pollutants, and to reduce the discharge of raw sewage into the Elbe. These programs culminated in 1961, when Hamburg's Building Department completed the gigantic state-of-the-art Köhlbrandhöft sewage treatment plant, a facility that some observers considered to be the most advanced in Europe at the time.<sup>2</sup>

Historians often explain such environmental improvements in Hamburg and other European cities as part of a broad modernizing project involving technological breakthroughs, the increasing role of the state in daily life, economic considerations, and the progressive function of professionally-trained municipal elites. There is much to be said for this general constellation of factors. In the late 1800s, successful experiments in the United States and England persuaded politicians in many large Western cities to finance and construct expensive sand-filtrated water supplies. Almost immediately, mortality from typhoid fever and other

diseases fell sharply, vindicating this technological choice. Financial concerns also determined the timing and scale of many projects. In Germany, for example, most cities funded expensive new sewage treatment systems during times of prosperity, especially during the 1950s, when the “economic miracle” filled municipal coffers. Finally, as Brian Ladd, Joel Tarr, and other historians point out, sanitary engineers and public health experts played a crucial modernizing role in the daily administration of large, complex cities like Hamburg, Frankfurt, London, and New York, especially during the early years of the twentieth century. Asserting their competence in municipal administration, professional bureaucrats adopted sophisticated strategies for improving public health by upgrading water supplies, removing sewage from crowded urban areas, and issuing new regulations on hygiene.<sup>3</sup>

More directly related to Hamburg, Richard Evans has argued that this process of modernization coincided with the decline of old styles of amateurish governance and with the erosion of particularistic loyalties among urban elites. Prior to the cholera epidemic of 1892, he charges, a small number of wealthy notables dominated city government, determined to guarantee Hamburg’s prosperity as Germany’s major port city and to limit state spending on any services unrelated to this goal. As a consequence, city government was often incompetent and completely inadequate to deal with typical urban problems like polluted water, crowded slums, and other maladies. According to Evans, to mollify thousands of working-class residents who suffered most from this style of administration, Hamburg’s bourgeoisie promoted a “hegemonic ideology” that emphasized “the paramount importance of trade for the well-being of all Hamburg’s inhabitants.”<sup>4</sup> Consistent with this ideology, all residents were supposed to recognize the benefits of hard work, diligence, and Hamburg’s distinctive economic role as Germany’s preeminent port city.<sup>5</sup> This ideology also reinforced Hamburg’s tradition as a former member of the Hanseatic League and its position as an independent city-state in the German Empire, and reflected a certain animosity toward and autonomy from the Kingdom of Prussia.<sup>6</sup>

The cholera epidemic was one of the primary forces that motivated Hamburg’s governing elites to shed portions of their archaic political system and their sense of local identity. Shamed by world opinion, with its shipping quarantined in the harbor during the outbreak, the city established a modern professional bureaucracy along Prussian lines to deal with public health issues, while accelerating construction of a new filtration system for the waterworks. Over the next ten years, Hamburg modernized other features of government as well, legislating a more streamlined decision-making process in the city council and opening its political system to the city’s more prosperous working class.<sup>7</sup> For the first time,

decisions regarding the most important urban services—like water supply—would be handled exclusively by professional experts rather than unpaid volunteers or merchant councilmen with no administrative training. Furthermore, according to Evans, the adoption of an interventionist, “Prussian” system of municipal government in Hamburg reflected the replacement of long-standing, local allegiances among the city’s bourgeoisie in favor of a national consciousness.<sup>8</sup>

While fundamentally accurate in its emphasis on the modernizing influence of professional elites, Evans’s analysis also demonstrates at least one shortcoming. He suggests that a sense of local identity—emphasizing Hamburg’s distinctiveness from the rest of Germany and expressed through a “hegemonic ideology”—was a retrograde force, impeding progress in political affairs and municipal administration. Evans cites Hamburg’s refusal to establish a Prussian-style civil service prior to the 1890s, a policy that hindered an effective response to the cholera epidemic.<sup>9</sup> Yet recent scholarship by Celia Applegate, Alon Confino, and others challenges this assertion. These scholars argue that regional loyalties, often represented through the concept of “Heimat,” served both to articulate national allegiance and to make the processes of rapid urbanization, industrial development, and environmental transformation comprehensible for residents of the newly-founded German Empire.<sup>10</sup> More recently, Jennifer Jenkins and Maiken Umbach make the same argument for Hamburg, emphasizing the modernist nature of public buildings, warehouses, museums, and urban planning concepts, all of which incorporated elements of Hamburg’s distinctive identity as a center of trade and a traditionally independent city.<sup>11</sup> I would agree with this assessment.<sup>12</sup> Indeed, a sense of local identity among bourgeois elites in Hamburg continued to influence the provision of urban amenities as fundamental as wastewater services well into the twentieth century. Moreover, that sense of identity could either thwart or encourage progressive policies to improve the urban environment.

Debates surrounding the proper method of sewage disposal in Hamburg illustrate the potentially modernizing influence of a distinctive sense of identity among Hamburg’s residents. On one side of this argument stood the Hamburg City Council (comprised of an upper house called the Senate and a lower body called the Citizens’ Assembly) and sanitarians in the city’s Hygienic Institute. As in several other Western cities, Hamburg discharged its sewage into the nearest large waterway with little or no treatment. This policy corresponded with the prevailing belief among sanitary experts that the discharge of raw sewage into a stream was permissible, in some cases, if a city properly shielded its drinking water supply from harmful pathogens through a system of filtration. As stated above, Hamburg protected its own municipally owned water supply

with a sand filtration plant. In addition, experts in Hamburg shared a widely held belief in the ability of large rivers like the Elbe to “self-purify”: that is, to neutralize the noxious presence of raw sewage and other pollutants through exposure to cold water, wave motion, and air. In the early 1900s, a growing number of municipal health experts and engineers in Europe and North America were beginning to accept this approach to drinking water and sewage disposal, especially because it was usually cheaper to protect water supplies at the source than to disinfect raw sewage through advanced treatment.<sup>13</sup>

On the other side of this debate stood a hodgepodge of scientists, commercial fishermen, politicians, and members of the general public concerned about stream pollution. From their perspective, the negative consequences of dumping raw excrement in the Elbe far outweighed any benefits to Hamburg and other cities that chose a similar approach. Referring to riverbanks along the Elbe, one local resident complained of an “ugly, black, rotting, smeared slick, where at the most some reeds but no flowers grow, and where hardly an eel lingers in the stench, let alone any fish.”<sup>14</sup> Local fishermen were especially vocal opponents of the city. Each summer, they alleged, water in the Elbe “blossomed” (*blühte*) as hot weather combined with reeking pools of waste to kill sturgeon, salmon, eels, and other commercially valuable species of fish, many of which floated to the surface or suffocated in nets when towed to shore.<sup>15</sup>

An important lobbying group, the International Society Against the Pollution of Rivers, Soil, and Air, also took up the cause of local fishermen through a notoriously energetic spokesperson, Dr. Georg Bonne. A resident of one small village slightly downstream from Hamburg, Bonne and the International Society generally opposed any use of sewers, arguing that the unchecked discharge of human waste was transforming German waterways from “rivers into cesspits.”<sup>16</sup> According to Bonne, faith in the Elbe’s ability to purify itself of human waste was also misplaced, especially because of powerful tides that surged back and forth through the harbor each day. Bonne also warned local politicians that infectious disease could still spread to the population through Hamburg’s sewer system.<sup>17</sup> As an alternative, Bonne and the International Society usually advocated that cities either recycle all of their sewage as fertilizer through large collecting reservoirs, or that they construct a series of canals and clarifying basins where raw wastes would be exposed to the benefits of fresh air. Once heavier solids settled out, the resulting clarified water would be pumped back into the nearest large river. For that portion of the Elbe near Hamburg, Bonne advocated a single massive system to gather and purify the combined sewage of Hamburg, Altona, and surrounding towns in the Kingdom of Prussia. Only then would residents of Hamburg

be freed from the noxious presence of so much domestic sewage in the Elbe and the fear of infectious disease.<sup>18</sup>

Despite the gravity of these charges, politicians and public health experts in Hamburg maintained their faith in the existing system. From the late 1890s and into the early 1900s, Dr. William Dunbar, Director of Hamburg's Hygienic Institute, conducted numerous scientific studies of bacteriological conditions in the Elbe. The results buttressed Hamburg's official position on sewage treatment, demonstrating that while some local swimmers had contracted typhoid fever by ingesting river water, the threat of disease did not justify constructing an expensive new treatment plant. Water in the Elbe was unobjectionable from a public health standpoint, according to Dunbar.<sup>19</sup> Members of Hamburg's various state ministries agreed: At the height of complaints about sewage in the Elbe in 1911, city legal advisor Karl Friedrich Zellmann reported to the Senate that experts from the Medical Board, Hygienic Institute, and Department for Trade and Shipping all concurred that criticisms of the city by Dr. Bonne were unjustified.<sup>20</sup>

Reflecting their traditional allegiance to Hamburg as a commercially oriented, autonomous city, local officials were also reluctant to construct a large sewage treatment plant if it meant cooperation with municipalities in the Kingdom of Prussia. As Wilfried Voigt pointed out in a history of the region's sewer systems, Hamburg competed economically with the adjacent Prussian harbor cities of Altona, Harburg, and Wilhelmsburg, and this competition thwarted plans to build a wastewater treatment plant for the region.<sup>21</sup> Constructing an expensive new facility would have meant higher taxes in Hamburg and Altona, and Altona hoped to defray those taxes by joining with Hamburg on this project.<sup>22</sup> For their part, officials in Hamburg probably believed that their own taxes would have increased, a policy likely to cost Hamburg its commercial advantage over Altona. Given the traditional determination of local elites to maintain Hamburg's position as Germany's preeminent harbor, politicians in Hamburg had little incentive to cooperate with their Prussian neighbors.<sup>23</sup> Although not explicitly stated, Hamburg's long-standing tradition of political autonomy also contributed to its refusal to participate in such a cooperative scheme. In one 1900 publication, Georg Bonne alleged that "local patriotism" impeded efforts to rid the Elbe of water pollution.<sup>24</sup> Ten years later an angry contributor to the *Hamburger Nachrichten* echoed that sentiment, writing, "The purification of the Elbe is an overall task of the cities in the . . . region," and "city particularism" was impeding efforts to achieve that goal.<sup>25</sup> This was undoubtedly true: Professor Ehrenbaum, one of Hamburg's own professional experts, reminded other officials in the city that Georg Bonne was acting in the interest of Altona and not Hamburg.<sup>26</sup>

In fact, both sides in this argument appealed to notions of local patriotism in order to influence public opinion. Alluding to Hamburg's growing reputation as one of the world's busiest, most prosperous harbors, George Bonne called attention to the crucial role of the Elbe "for world commerce," a role endangered by river contamination.<sup>27</sup> In 1901 he used more provocative language to shame Hamburg's Senate into action, questioning in another publication whether "the old Hanseatic spirit of enterprise of the citizens of Hamburg had made local politicians too absorbed in their large merchant fleet to deal with the administration of a modern city."<sup>28</sup> Lest he be seen as disloyal to the city-state of Hamburg, Bonne referred years later to the Elbe as his "Homeland River" (*Heimatstrom*) and to Hamburg as his "Father City" (*Vaterstadt*), a city he had served faithfully since the cholera epidemic.<sup>29</sup> With these patriotic references and allusions to the catastrophe of 1892, Bonne reminded his supporters, the city, and the public at large that he was both a loyal resident of Germany's greatest seaport and a man deeply concerned about Hamburg's future.

Defending themselves against these charges, Hamburg's own spokesmen appealed even more overtly to patriotism and to the city's commercial tradition. In a notable exchange before the Citizens Assembly in 1912, Senator Arnold Diestel leveled the charge, by then familiar, that Georg Bonne was "exaggerating." He added, "If Dr. Bonne truly considers himself a citizen of Hamburg, then he should pay a little attention to the old English phrase: 'Right or wrong, my country!'" a proclamation that drew loud "bravos!" from the Assembly. Referring to Bonne's warnings about pollution in the Elbe, Diestel indignantly huffed that Bonne "must concede that he [Bonne] is harming his beloved father city in the eyes of the public." Assemblyman Franz Ferdinand Eisse was more blunt, warning that one of Bonne's recent publications could "harm Hamburg as a commercial city (*Handelsstadt*) quite badly. . . ." He then labeled Bonne an "idealist, fantasizer, and fanatic."<sup>30</sup>

By that time, the city's attacks had broken the resolve of Georg Bonne, the main advocate of a new sewage treatment system in Hamburg. Branded an "enemy of Hamburg and a traitor to his fatherland" by the Citizens' Assembly and shamed into silence by the Senate, Bonne gave up his campaign in the region and left the city. He continued his crusade to rid German rivers of pollution elsewhere over the next few years, joining with members of the Association for the Protection of the Homeland (*Bund Heimatschutz*) to lobby for improved sewage treatment in Hildesheim and other regions.<sup>31</sup> For the time being, Bonne's efforts and those of the International Society Against the Pollution of Rivers, Soil, and Air had failed. By 1910, many large cities in Germany and other western nations had already renounced comprehensive sewage recycling

in favor of sewer systems and treated water supplies, and it would be years before those cities were in a financial position to consider a different approach to wastewater treatment.<sup>32</sup> In Hamburg, the decision not to build a new sewage treatment plant was a “modern” decision by contemporary standards, reflecting the latest developments among municipal engineers and the very realistic cost constraints faced by the city.

A long-standing tradition of commercial trade and political autonomy helped to justify Hamburg’s actual approach to this urban environmental problem and its response to critics. While city leaders obviously relied upon scientific experts who claimed there was no real threat of infectious disease in the Elbe, they still appealed to elements of Hamburg’s distinctive identity in order to make their case to the public. Afraid that rumors of another epidemic would devastate the city’s economy, they attacked their main opponent—Georg Bonne—as disloyal to Hamburg’s mission as a *Handelsstadt*. A “hegemonic ideology” may not have been the only factor that influenced a decision not to construct a new sewage treatment plant, but it was certainly the rhetorical device used by city elites to silence their most persistent critics.

During the next fifty years, overt appeals to a well-defined ideology emphasizing commercial trade and political autonomy gradually dissipated in Hamburg. The city’s increasing economic and political integration with the rest of Germany obviously undermined such expressions of particularist loyalty among local elites and the public.<sup>33</sup> Yet elements of a distinctive identity continued to inspire a modern approach to wastewater treatment in the region.

Proposals for the creation of a political entity known as “Greater Hamburg” demonstrate this point. During the 1920s, city elites like the senator (and future mayor) Carl Petersen, the banker Max Warburg, and City Planning Director Fritz Schumacher promoted the annexation to Hamburg of all the surrounding Prussian communities in order to create one large, economically powerful city. Experts in the Building Department portrayed the “Greater Hamburg” plan as a necessary precondition for the city to recapture its commercial preeminence on an international level, shattered by British blockades of German shipping during World War I.<sup>34</sup> Amid public debates on the “Greater Hamburg” concept in 1927, Mayor Petersen lamented Prussian politicians’ resistance to the plan, and remarked, “This is a moment . . . that is of great importance for all Germany, since Hamburg alone carries the burden of the greatest German seaport.”<sup>35</sup>

The “Greater Hamburg” plan also held out the possibility of improving the urban environment through modernizing the local infrastructure. Social Democratic advocates of a “Greater Hamburg” argued that such a large political entity would enhance the lives of local working class fami-



lies by better linking workers and their housing to the dockyards along the Elbe. They also maintained that “Greater Hamburg” would include such advantages as a better drinking water supply, more space devoted to parks, and improved systems of sewage treatment.<sup>36</sup> In a reversal of their position on this issue from ten years earlier, local elites also announced their willingness to consider building a comprehensive wastewater treatment system for the region. Indeed, some officials in the Hygienic Institute now conceded that tidal conditions in the Elbe prevented self-purification from occurring, exacerbating the noxious effect of dumping thousands of kilograms of waste into the river each day.<sup>37</sup>

For a variety of reasons, the city was unable to construct a new wastewater treatment plant during the 1920s. Among other things, the “Greater Hamburg” plan, which promised both to enhance the city’s trade prospects and to improve urban infrastructure, foundered on opposition from Prussia. Politicians from neighboring Prussian communities feared that elites in Hamburg intended to use “Greater Hamburg” to dominate the region commercially and politically.<sup>38</sup> In addition, subsequent discussions with Prussia about building a region-wide sewage treatment plant failed because such a major project would have taken up land needed for valuable harbor development, a cornerstone of Senate policies to restore commercial trade in the late 1920s.<sup>39</sup> Finally, the generally poor economic climate of the 1920s undermined efforts to complete such an expensive infrastructure project.<sup>40</sup>

The construction of such a facility remained on hold during the Third Reich as well, despite some efforts to rejuvenate this idea. In the 1930s and especially after a catastrophic fish die-off in the Elbe during the summer of 1933, officials in the Hygienic Institute became increasingly convinced of the need for a region-wide sewage treatment plant. One of the city’s experts, Dr. Otto Kammann, captured their view when he stated:

As a commercial city of world importance, Hamburg could no longer come to terms with the increasingly poor ability of the river to purify itself of wastes over the years. Rather, for hygienic reasons we must purify the city’s sewage through further treatment such that no harm to hygiene, public health, or the fishery can be expected any longer.<sup>41</sup>

Aside from references to Hamburg’s commercial importance, Kammann’s remarks also reflected a growing consensus among sanitary engineers in Europe and North America that river self-purification had limits, and that for many reasons, cities should employ biological, mechanical, and chemical treatment of human wastes to prevent stream pollution.<sup>42</sup> Due to a variety of factors—but mostly because of the be-

ginning of World War II—engineers in Hamburg were also unable to construct a new sewage plant under the Third Reich.<sup>43</sup>

Nevertheless, the “Greater Hamburg” plan, predicated on guaranteeing the city’s commercial success, held a key to achieving this goal. Attempting to appeal to business elites in Hamburg who opposed Nazi Germany’s autarkic economic policies, and in order to make Hamburg a center of armaments manufacturing and heavy industry, Reich Marshall Hermann Goering proclaimed the creation of a “Greater Hamburg” with the stroke of a pen in 1937. Overnight, the Nazi regime forcibly annexed formerly Prussian cities of Altona, Harburg, and Wilhelmsburg to the city-state of Hamburg, giving Hamburg political and economic domination of the region and adding five hundred thousand citizens to its population.<sup>44</sup>

This political action by the National Socialist regime enabled city planners, engineers, and politicians in Hamburg to more easily conceive of a region-wide system of sewage treatment plants in the period after World War II. Firmly convinced by its experts that Hamburg needed to purify its domestic wastewater, the City Council authorized a 100-million-mark “Ten Year Plan” to construct new sewer lines and to build new treatment facilities across the entire “Greater Hamburg” area.<sup>45</sup> Undoubtedly, the city’s much-improved financial situation also enabled local politicians to conceive of and authorize such a massive program of infrastructure improvement.<sup>46</sup> Yet the political unification resulting from the “Greater Hamburg” plan abolished some of those key factors that impeded such improvements to the region’s sewer system in past years. When Hamburg Building Senator Rudolf Büch proclaimed the in-service date of the giant, highly modern Köhlbrandhöft plant in 1961, it culminated fifty years of intense debates and failed efforts to improve water quality in the River Elbe through better wastewater treatment.<sup>47</sup> By that time, Büch’s action was also fully consistent with both Hamburg’s role as the dominant commercial seaport in Germany and the city’s traditional identity.

Attempts by the city of Hamburg to improve its system of wastewater treatment suggest several conclusions about the modernizing potential of local identities in German history. Above all, elements of Hamburg’s distinctive identity as a major seaport and an independent city-state remained important into the early 1900s, in this case for the provision of sewage treatment services. This implies some revision of Richard Evans’s argument that modernization of municipal government in the 1890s and 1900s mostly ended the influence of old, regional loyalties on municipal administration in Hamburg. These loyalties remained relevant, and they encouraged a solution to the city’s wastewater needs that was modern by the standards of the period before 1914, if not for the

1930s, forties, and fifties. References to such allegiances also enabled local elites to win public support for their decision not to build a new sewage treatment plant.

In later years, Hamburg's identity as Germany's preeminent seaport continued to remain important and to inspire progressive improvements to the region's wastewater treatment needs. The "Greater Hamburg" plan—emphasizing the city's commercial and political domination of the region—also held out the possibility of improving numerous features of the urban environment, including the disposal of sewage for Germany's second largest city. Once created in 1937, "Greater Hamburg" enabled elected leaders and professional experts to modernize their approach to wastewater treatment and to begin the arduous process of cleaning up the River Elbe. From the late nineteenth century to the 1950s, the perception among Hamburg's citizens that they lived in a great harbor city was a force for gradual improvement to the urban environment and for modernization. In this case, an important source of regional identity remained relevant, even for the provision of services that most citizens take for granted.

## Notes

<sup>1</sup> For the best overall history of the Hamburg cholera epidemic and its aftermath, see Richard J. Evans, *Death in Hamburg: Society and Politics in the Cholera Years, 1830–1910* (Oxford: Clarendon Press, 1987), 285–295, 303–306, 372–379, 505, 528–531, 533–550. For improvements to the water supply, see Alfred Meng, *Geschichte der Hamburger Wasserversorgung* (Hamburg: Medien Verlag Schubert, 1993), 135–162, 257–262. For basic information on the size of Hamburg and its relation to the other large German cities, see Brian Ladd, *Urban Planning and Civic Order in Germany, 1860–1914* (London: Harvard University Press, 1990), 14.

<sup>2</sup> From 1900 to 1960, the city of Hamburg completed several major infrastructure projects to improve water quality in the region. For discussion of improvements to the quality of drinking water, see Meng, *Geschichte der Hamburger Wasserversorgung*, 158–165, 174, 253–275. For efforts to control industrial pollution in the harbor, see Dirk Renalder, "Die Ölverschmutzung im Hamburger Hafen," in Arne Andersen, ed., *Umweltgeschichte: Das Beispiel Hamburg* (Hamburg: Ergebnisse Verlag, 1990), 186–198. For construction of the city's major sewage treatment plants in the 1950s, see Umweltbehörde, *150 Jahre Stadtentwässerung* (Hamburg: Umweltbehörde, 1993), 17–33. For evidence that some observers considered Hamburg's wastewater treatment plant at Köhlbrandhöft Europe's most modern, see "Elbwasser soll sauber werden," *Hamburger Abendblatt*, 21. September 1953; "Vom Streitobjekt zum Symbol für die Reinhaltung der Elbe," *Altonaer Nachrichten*, 31. Juli 1986; "Klärwerk seit heute in Betrieb," *Hamburger Echo*, 6. Juni 1961.

<sup>3</sup> See Joel A. Tarr, *The Search for the Ultimate Sink: Urban Pollution in Historical Perspective* (Akron, Ohio: The University of Akron Press, 1996), 179–218; Ladd, *Urban Planning and Civic Order*, 36–76; Evans, *Death in Hamburg*, 533–550. Regarding the influence of cost factors on the development of urban infrastructures, see H. Rhode, "Wastewater Technology in Germany," *Water & Sewage Works*, 106, 4 (1959): 176–181.

<sup>4</sup> For a complete discussion of Hamburg's style of government, see Evans, *Death in Hamburg*, 1–49; See specific quote regarding Hamburg's alleged "hegemonic ideology" at 33. See more complete discussion of this concept at 553.

<sup>5</sup> *Ibid.*, 33–39, 553. For a similar, less critical perspective on Hamburg's ideological tradition, see Richard Comfort, *Revolutionary Hamburg: Labor Politics in the Early Weimar Republic* (Palo Alto, California: Stanford University Press, 1966), 1–19.

<sup>6</sup> Evans, *Death in Hamburg*, 33–34. See also Comfort, *Revolutionary Hamburg*, 1–19.

<sup>7</sup> Evans, *Death in Hamburg*, 273–274, 275–303, 306–308, 500–550; Niall Ferguson, *Paper and Iron: Hamburg Business and German Politics in the Era of Inflation, 1897–1927* (Cambridge: Cambridge University Press, 1995), 83; Beate Witzler, *Großstädte und Hygiene: Kommunale Gesundheitspolitik in der Epoche der Urbanisierung* (Stuttgart: Franz Steiner Verlag, 1995), 1–23, 92–94, 97, 100–101, 109–122, 128.

<sup>8</sup> Evans, *Death in Hamburg*, 566.

<sup>9</sup> *Ibid.*, 566.

<sup>10</sup> See Celia Applegate, *A Nation of Provincials: The German Idea of Heimat* (Berkeley: University of California Press, 1990); Alon Confino, *The Nation as a Local Metaphor, 1871–1918* (Chapel Hill and London: The University of California Press, 1997).

<sup>11</sup> Jennifer Jenkins, *Provincial Modernity: Local Culture & Liberal Politics in Fin-de-Siecle Hamburg* (Ithaca and London: Cornell University Press, 2003); Maiken Umbach, "History and Federalism in the Age of Nation-State Formation," in Maiken Umbach, ed., *German Federalism: Past, Present, Future* (Basingstoke: Palgrave, 2002).

<sup>12</sup> Maiken Umbach, a senior lecturer at the University of Manchester, has suggested to me that Evans's fundamental portrayal of particularistic leanings among Hamburg's governing elites as a retrograde force is a flawed concept. Umbach argues instead that particularism or localist traditions could be very much a part of the project of modernity.

<sup>13</sup> See the various descriptions of Hamburg's sewage system at Georg Bonne, *Die Zustände in der Unterelbe und ihren Nebenflüssen im Jahre 1911* (Hamburg: Druck und Kommissionsverlage von Gebrüder Lüdeking, 1911), 14–28; Thomas Gaumert and Cornelia Riedel-Lorje, *100 Jahre Elbe-Wasser: Eine Studie über die biologischen Verhältnisse in der Elbe von 1842 bis 1943* (Hamburg, 1982), 1–40; Umweltbehörde, *150 Jahre Stadtentwässerung*, 1–19; See also the unpublished technical exam thesis by Wilfried Voigt, "Geschichtliche Entwicklung der Hamburgischen Stadtentwässerung von der Mitte des 19. Jahrhunderts bis zur Gegenwart," Professional Examination Thesis held at the Staatsarchiv, Hamburg (Hereafter referred to as StaHH); Staatshygienisches Institut (hereafter referred to as HS); A 457/215, Kapsel 1; 34–40. Regarding the process of self-purification, see Martin V. Melosi, *The Sanitary City: Urban Infrastructure in America from Colonial Times to the Present* (Baltimore and London: Johns Hopkins University Press, 2000), 141–145; Leopold and Roma Schua, *Wasser: Lebenselement und Umwelt: Die Geschichte des Gewässerschutz in ihrer Entwicklung dargestellt und dokumentiert* (Freiburg: Verlag Karl Alber, 1981), 221–230. For specific arguments used regarding self-purification in Hamburg, see "Auszug aus dem Protokoll der wissenschaftlichen Abteilung des Medizinalkollegiums" "22. April 1912,"; Medizinalkollegium (hereafter MK) II 0 3, Band 6; StaHH, Hamburg; nos. 65–67. Finally, see the discussion of Hamburg's water supply at Meng, *Geschichte der Hamburger Wasserversorgung*, 158–175. For basic discussion of why engineers accepted the approach of treating water supplies and not treating sewage, see Tarr, *The Search for the Ultimate Sink*, 122–129. See also Thomas Rommelspacher, "Das natürliche Recht auf Wasserverschmutzung. Geschichte des Wassers im 19. und 20. Jahrhundert," in F.J. Brueggemeier and Thomas Rommelspacher, eds., *Besiegte Natur: Geschichte der Umwelt im 19. und 20. Jahrhundert* (Munich: C.H. Beck, 1989), 42–63.

<sup>14</sup> Quoted in Bonne, *Die Wichtigkeit der Reinhaltung der Flüsse der Unterelbe bei Hamburg Altona* (Leipzig: Verlag von Leinweber, 1900), 21. See remaining discussion on 21 of same. Gaumert and Riedel-Lorje, *Eine Studie über die biologischen Verhältnisse*, 19–20, 23, 25.

<sup>15</sup> Bonne, *Die Wichtigkeit der Reinhaltung der Flüsse*, 21; Umweltbehörde, *150 Jahre Stadtentwässerung*, 13–16; Gaumert and Riedel-Lorje, *Eine Studie über die biologischen Verhältnisse*, 19–20, 23, 25.

<sup>16</sup> See quote in Jürgen Büschenfeld, *Flüsse und Kloaken: Umweltfragen im Zeitalter der Industrialisierung (1870–1918)* (Stuttgart: Klett-Cotta Verlag, 1997), 79, and general discussion of this issue in same, 79–93.

<sup>17</sup> Georg Bonne, *Die Notwendigkeit der Reinhaltung der deutschen Gewässer von gesundheitlichen, volkswirtschaftlichen, und militärischen Standpunkten* (Leipzig: Leineweber, 1901), 111.

<sup>18</sup> For the methods of wastewater disposal advocated by the International Society, see Büschenfeld, *Flüsse und Kloaken*, 79–93; and Raymond H. Dominick III, *The Environmental Movement in Germany, Prophets and Pioneers, 1871–1971* (Bloomington, Indiana: University of Indiana Press, 1992), 12–15, 47. For specific proposals regarding Hamburg, see Bonne, *Die Notwendigkeit der Reinhaltung der deutschen Gewässer*, 112–120.

<sup>19</sup> Gaumert and Riedel-Lorje, *Eine Studie über die biologischen Verhältnisse*, 19–28.

<sup>20</sup> See excerpts of minutes examined for this study at “107. Sitzung der Abteilung II der Senat,” 30. Oktober 1911; CI VIII, Nr. X, Band 2, 1911; StaHH, Hamburg. See also quotes by Zellmann at “124. Plenumsitzung des Senat,” 15. November 1911; CI VIII, Nr. X, Band 5, 1911; StaHH, Hamburg.

<sup>21</sup> Voigt, “Geschichtliche Entwicklung,” 62. For basic facts on these cities in the early 1900s, see Eckart Klessmann, *Geschichte der Stadt Hamburg* (Hamburg: Hoffmann and Campe, 1981) 531–554.

<sup>22</sup> Bonne, *Die Zustände in der Unterelbe*, 19.

<sup>23</sup> Voigt, “Geschichtliche Entwicklung,” 62.

<sup>24</sup> Quoted in Bonne, *Die Wichtigkeit der Reinhaltung der Flüsse*, 21.

<sup>25</sup> Quoted in Bonne, *Die Zustände in der Unterelbe*, 28.

<sup>26</sup> “Nachstehende Abschrift wird dem Medizinalkollegium zur gefälligen Kenntnisnahme übersandt,” 2. April 1912; MK II 0 3, Band 6; StaHH, Hamburg; nos. 7–8.

<sup>27</sup> Quoted in Bonne, *Die Wichtigkeit der Reinhaltung der Flüsse*, 1–29.

<sup>28</sup> Quoted in Bonne, *Die Notwendigkeit der Reinhaltung der deutschen Gewässer*, 110.

<sup>29</sup> Bonne, *Die Zustände in der Unterelbe*, 1–97.

<sup>30</sup> For evidence that the city’s politicians or bureaucrats often accused Bonne of exaggerating, see minutes of the Senate from 1911 in “107. Sitzung der Abteilung 2 der Senat,” 30. Oktober 1911; CL VIII, Nr. X, 1911, Band 2; StaHH, Hamburg. For the discussion of Bonne in the Assembly, see “20. Sitzung der Bürgerschaft,” 24. April 1912; MK II 0 3, Band 6; StaHH, Hamburg; nos. 68–71.

<sup>31</sup> Gaumert and Riedel-Lorje, *Eine Studie über die biologischen Verhältnisse*, 28; William Rollins, “Aesthetic Environmentalism: The *Heimatschutz* movement in Germany, 1904–1908” (Ph.D. diss., University of Wisconsin-Madison, 1994), 326–331.

<sup>32</sup> For evidence of the general failure of efforts to oppose sewer systems, see Büschenfeld, *Flüsse und Kloaken*, 79–87; Dominick, *Environmental Movement*, 47; Melosi, *Sanitary City*, 149–173. For evidence that cost factors had a great effect on the development of sewage treatment systems in German cities, see Hendrik Seeger, “The history of German waste water treatment,” *European Water Management*, Vol. 2, No. 5 (1999): 51–56.

<sup>33</sup> This conclusion is based on my reading of secondary and primary sources which reveal few references to an explicit, “hegemonic ideology” such as the one identified by Richard J. Evans. See for example Ferguson, *Paper and Iron*; Ursula Büttner, *Politische Gerechtigkeit und sozialer Geist: Hamburg zur Zeit der Weimarer Republik* (Hamburg: Hans Christian Verlag, 1985); Klessmann, *Geschichte der Stadt Hamburg*. See also various primary sources such as minutes of the Hamburg Citizens’ Assembly at *Stenographische Berichte über die Sitzungen der Bürgerschaft zu Hamburg im Jahre 1955* (and various other years) (Hamburg: Druck von Auerdruck, 1956); and various files of the Hamburg Medical Board, Health Department, and Hygienic Institute maintained at the Staatsarchiv Hamburg.

<sup>34</sup> For general discussions of this plan and its supporters, see Büttner, *Politische Gerechtigkeit*, 200–201; Ferguson, *Paper and Iron*. For more detailed discussions of the plan, see letter from Dr. Wendemuth, Hamburg’s Director of Stream and Harbor Building, “Die Erweiterung des

Hamburger Staatsgebiets . . . ." (no date specified, probably December 1921); Files of the Bureau für Strom und Hafenaufbau (Hereafter SH), A 68, Band 2; StaHH, Hamburg; nos. 66–69.

<sup>35</sup> See quote from Petersen at "5. Sitzung der Bürgerschaft: Mittwoch, den 9. September 1927, abends 6 uhr," *Stenographische Berichte über die Sitzungen der Bürgerschaft im Jahre 1927* (Hamburg: Druck von Schlachter & Rühgen, 1928).

<sup>36</sup> Büttner, *Politische Gerechtigkeit*, 200–201; *Gross Hamburg* (Hamburg: Echo Druckerei, 1922), 1–24; in SH, A 68, Band 2; StaHH, Hamburg; nos. 66–68.

<sup>37</sup> For details on Hamburg, see Umweltbehörde, *150 Jahre Stadtentwässerung*, 17–19; "Die Sanierung des Elbestromes bei Hamburg," exact date unspecified, MK II 0 28, Band 1; StaHH, Hamburg; no. 24.

<sup>38</sup> See speech by SPD member of the Prussian Parliament Lehrmann of Harburg, and DNVP member of Parliament Mehlis in "Preussischer Landtag, 293 Sitzung am 21. Juni 1927," in archives of the Landwirtschaftsministerium, Rep. 87, A 6413, Geheimes Staatsarchiv Preussischer Kulturbesitz (Hereafter GSPK), Berlin; 87–110. See also Büttner, *Politische Gerechtigkeit*, 200–201.

<sup>39</sup> Büttner, *Politische Gerechtigkeit*, 200–203; Voigt, "Geschichtliche Entwicklung," 41–43.

<sup>40</sup> See Büttner, *Politische Gerechtigkeit*, 200–201; Voigt, "Geschichtliche Entwicklung," 41–64.

<sup>41</sup> See quote in Dr. Otto Kammann, "Die Sanierung des Elbestromes bei Hamburg," MK II 0 28, Band 1; StaHH, Hamburg; no. 24.

<sup>42</sup> For the emerging consensus regarding sewage treatment see Melosi, *Sanitary City*, 163–165; Schua and Schua, *Wasser: Lebenselement und Umwelt*, 221–232; Seeger, "The history of German waste water treatment," 51–56. For discussions in Hamburg, see Kammann, "Die Sanierung des Elbestromes bei Hamburg," no. 24.

<sup>43</sup> Umweltbehörde, *150 Jahre Stadtentwässerung*, 20; Voigt, "Geschichtliche Entwicklung," 58–60.

<sup>44</sup> See Klessmann, *Geschichte der Stadt Hamburg*, 542–543; Elke Pahl Weber and Dirk Schubert, "Myth and reality in National Socialist town planning and architecture: housing and development in Hamburg, 1933–1945," *Planning Perspectives* 6 (1991): 161–188.

<sup>45</sup> Architekten—und Ingenieur Verein Hamburg, E.V. *Hamburg und seine Bauten: 1929–1953* (Hamburg: Hoffmann and Camp Verlag, 1953), 315–318; Architekten—und Ingenieur Verein Hamburg, E.V. *Hamburg und seine Bauten: 1954–1968* (Hamburg: Hoffmann and Camp Verlag, 1968), 226–229; Voigt, "Geschichtliche Entwicklung," 48–64.

<sup>46</sup> For evidence that Hamburg was in better financial condition in the mid- to late 1950s than in the previous decade, see Voigt, "Geschichtliche Entwicklung," 60–64; H. Rhode, "Waste-water Technology in Germany," *Water & Sewage Works*, 106, 4 (1959): 176–181.

<sup>47</sup> See Endnote #2 regarding public perceptions of the new treatment plant.