

**Part Two:  
Hygiene, The Flow of Light, Air, Water and Waste**

Common definitions of hygiene connect practices of cleanliness with prevention of disease. In both English and French, the word links cleanliness and health in a normative way. This has three major consequences. First, hygiene does not only concern how individuals can be clean and healthy. It is also profoundly social or collective, concerned to preserve the living conditions of the population at large and steer social relations. Second, hygiene is heavily value-laden. Far from objective measures of what practices help prevent disease, hygienic rules and norms are bound up with aesthetics and morals. What is unclean is often considered profane, undesirable, ugly, dangerous, barbaric, backward, subhuman, etc.<sup>1</sup> Third, since the Enlightenment, hygiene has been bound up with progress, modernization and reform. Like a society's level of technological development, its degree of conformity to “modern” principles of hygiene has become a common measure of civilization.<sup>2</sup> Hygiene played a crucial role in the civilizing mission of imperialists, and remains central in the post-colonial field of 'development.' As a result of these moral, aesthetic, and political entanglements, hygienic principles can be (and often are) used to justify actions that go far beyond keeping clean and preventing disease.

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1 Mary Douglas, *Purity and Danger: an Analysis of Concepts of Pollution and Taboo* 2<sup>nd</sup> Ed. (Routledge, 1991-2000).

2 Norbert Elias, *The Civilizing Process*, trans. Edmund Jephcott (Blackwell, 2000); Michael Adas, *Machines as the Measure of Men: Science, Technology and Ideas of Western Dominance* (Cornell, 1990); Alice Conklin, *A Mission to Civilize: The Republican Idea of Empire in France and West Africa* (Stanford, 1997).

Many scholars have connected the French hygiene movement with the origins of the Third Republic.<sup>3</sup> Somehow in the shadow of defeat by Prussia and the glow of Pasteur's breakthroughs, biology became national destiny in France after 1871. The hygiene movement emerged to heal the national body, trailing behind it all of the historical debris which linked the social and the biomedical in mid-nineteenth-century Paris. The Pasteurian revolution is such an important part of the scenery of fin-de-siècle and belle époque France that several important histories of social reform in this era include an obligatory chapter on hygiene.<sup>4</sup> But Bruno Latour famously flipped this narrative on its head, arguing it was not Pasteur that created the hygiene movement, but the hygiene movement that created Pasteur.

In *The Pasteurization of France*, Latour spoke of a “hygiene movement,” a “program of reforms” for “the reconstitution, the reorganization of human life,” which targeted the “urban masses” in particular.<sup>5</sup> Hygiene was never the monopoly of doctors, social reformers, research scientists or even of a bourgeoisie afraid of the working classes. This was a wide-spread movement, wide enough to encompass different points of view, contradiction and debate, wide enough to attract attention from right and left alike. Latour called it “an enormous social movement [which] ran through the social body” and “a social movement of gigantic proportions that declared itself ready to take charge of

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3 Eugen Weber, *Peasants into Frenchmen: The Modernization of Rural France, 1870-1914* (Stanford, 1976); Susanna Barrows, *Distorting Mirrors: Visions of the Crowd in Late Nineteenth-Century France* (Yale, 1981); Robert Nye, *Crime, Madness, and Politics in Modern France: The Medical Concept of National Decline* (Princeton, 1984); Eugen Weber, *France Fin de Siècle* (Harvard, 1896); Bruno Latour, *The Pasteurization of France*, trans. Alan Sheridan (Harvard, 1988); Daniel Pick, *Faces of Degeneration: A European Disorder, c. 1848-1918* (Cambridge, 1989); Paul Rabinow, *French Modern: Norms and Forms of the Social Environment* (MIT, 1989); Jack D. Ellis, *The Physician-legislators of France: Medicine and Politics in the Early Third Republic, 1870-1914* (Cambridge, 1990).

4 Shapiro, *Housing the Poor of Paris*, and Horne, *A Social Laboratory for Modern France*.

5 Latour, *The Pasteurization of France*, p. 16-17.

everything.”<sup>6</sup> This movement sought to remake society, or life, itself. Hence no domain *per se* was safe from hygienic scrutiny; no means were out of reach. The movement practiced a peculiar “mixture of urbanism, consumer protection, ecology..., defense of the environment, and moralization.”

In his words, “the boundaries of hygiene are vague.” Its flexibility was a large part of its power:

It has no central argument. It is made up of an accumulation of advice, precautions, recipes, opinions, statistics, remedies, regulations, anecdotes, case studies....Illness, as defined by the hygienists, can be caused by almost anything....Nothing must be ignored, nothing dismissed.

Latour summed up, “it was necessary to act upon everything at once.”<sup>7</sup> And so in Paris after Pasteur, many different things became objects of hygienic work—hotel rooms, Métro stations, night stands, public showers, water heaters, septic tanks, windows, kitchens, roads, hospitals, schools, neighborhoods, whole cities, suburban housing developments—the list could go on almost indefinitely.

For example, the topics treated in an 1882 history of hygiene included: childhood hygiene, dietary hygiene, industrial and professional hygiene, unclean dwellings, urban vs. rural sanitation, hospitals, the basics of contagious disease theory, the organization of public medicine (administration), institutions where hygiene was taught, and records of different hygiene societies. Within each of these broad topics was a sub-set of finer-grained concerns: how to heat apartments, how to keep livestock, how to clean one's military uniform, disinfection, physical exercise and swimming pools, and special instructions for perishable foods like milk, meat and wine. There were special sections on trichinosis, beer taps, meat markets, and margarine, but also sections on factory

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6 Ibid., pp. 23 and 33, respectively.

7 Ibid., pp. 19-20.

accidents, building materials, fertilizer, street lighting, prisons, slaughterhouses, cremation of human corpses, yellow fever, vaccination and faculties of medicine.

Nothing, by definition, was out of hygiene's reach.<sup>8</sup>

In fact, the hygiene movement desired nothing less than to remake everyday life, to change people's daily habits: the way they worked, ate, slept, washed, dressed, reproduced, etc. Hygienists also scrutinized how rooms and buildings were designed, built, arranged and furnished; the way food was produced, prepared, and consumed; the way waste was stored, disposed of, processed; the crucial issue of *water*; and the changing of schedules, rhythms and routines (how often people bathe, e.g.). They were deeply committed to the Republic's mission of "moral and material improvement."

This point about remaking everyday life opens up an important set of methodological questions. We are used to thinking that the word "design," a term common in architectural history, technological history, and art history, can only be applied to writing the histories of artifacts, objects, material things. How, then, can we understand the hygiene movement, which so evidently sought to design not only healthy

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8 Société de Médecine Publique et d'Hygiène Professionnelle, *L'Étude et les progrès de l'hygiène en France de 1878 à 1882* (Paris: G. Masson, 1882). The popular press is another important source for revealing the widespread and wide-ranging concerns of the hygiene movement. It also allows us to begin the difficult process of measuring how successful the hygienists' opinion campaign was. Popular newspaper *Le Petit Parisien* ran articles about: the hygienic power of light (Pontarmé, "De la lumière," Sept. 5, 1896), garbage disposal (Pontarmé, "Hygiène et économie," Aug. 27, 1897), the water supply (Jean Frollo, "Ce qu'on boit," July 8, 1898), sewers ("Les égouts de Paris," July 3 and July 7, 1899), public health and disease control ("La défense sanitaire," July 11, 1899), overcrowded tenements ("Les logements surpeuplés," Aug. 1, 1899) and pollution of the Seine ("L'Empoisonnement de la Seine," July 26 and July 27, 1900). Editorialists also addressed the special hygienic issues of summertime (Jean Frollo, "L'hygiène de l'été," July 19, 1902), of street cleaning ("L'Arrosage des rues de Paris," July 21, 1902), of hats and haircuts (R. Deuzères, "À travers la science," July 25, 1904), of large families ("Les Maisons hygiéniques pour familles nombreuses" July 27, 1907), and of automobiles ("À travers la science," July 29, 1907). In its "advice for travelers" section, popular travel magazine *A travers le monde* (across the world), published articles on "the rules of colonial hygiene" (1895, no. 1, pp. 126-7) and "hygiene of the eye during travel" (1899, no. 5, p. 240). These publications were not exceptional. One could find just as many relevant titles by browsing other periodicals, the published record is so rich with hygienic texts.

ecosystems, cities, neighborhoods, blocks, buildings, apartments, or furnishings, but also human actions, habits, *practice*? In Paris after Pasteur, hygienists not only designed material objects—they also wrote social-cultural scripts for how to use these objects. This dual project of designing infrastructures and practices demands an interdisciplinary analysis. In the history of the hygiene movement we can see, all mixed up, the concerns of art history (aesthetics of design), architectural history (aesthetic concerns and structural engineering), history of medicine (bacteriology, hygiene in the narrow sense, the emergence of public health), human geography and analyses of space (city planning), and technological history (use of industrial devices, new human-made materials, etc.).

Hygiene was one of the premier urban problems in this age of urbanization. This was true across Europe, but somewhat exaggerated in Paris. Why did hygiene become so important in Paris? First, because the episodes of 1830-32 and 1848-50 forged deep links in the French mind between hygiene and social/political unrest, cholera and revolution. Second, as we'll see in Chapter 4, because the city of Paris was exceptionally dense. Third, because of the intellectual climate I discussed in Chapter 1, which connected the urban body and the social body. Hygienic reform of both infrastructures and practices, “moral and material improvement,” seemed a duty of “civilization” abroad and a possible answer to the social question at home.

The following two chapters deal with hygiene, zooming in on the city's two main hygienic problems: housing and the flow of water. In Chapter 4, I deal with the themes of housing, hygiene and urban density, showing the variety of ways that Parisians dreamed of and tried opening their city, to relieve density, to clean it up, and to let light and air flow freely. In Chapter 5, I deal with Paris's water networks: the water supply network,

the sewer system, and the Seine. In this chapter, I focus on the relationships between the social, the technological and the natural by analyzing water shortages, the debate on pollution of the Seine, and the floods of 1876, 1882-3 and 1910. In both of these chapters, although hygienists are not the protagonists, I often evoke the hygiene movement and hygienists, and so it is important to have a sense of who they were.<sup>9</sup>

Who were the hygienists? Social and political histories of France have long known them as “social reformers,” men like Jules Simon (1814-96), Georges Picot (1838-1909), Émile Cheysson (1836-1910), Arthur Raffalovich (1853-1921), Jules Rochard (1819-1896), and Jules Siegfried (1837-1922).<sup>10</sup> They were the liberal professionals who typified the Third Republic's ruling class: doctors, architects, engineers, local elected officials, social reformers, businessmen, research scientists, professors, and philanthropists.<sup>11</sup> Their spirit was crusading. They sought to convince others of their ideas, so ultimately everyone could be a hygienist, and the scientific knowledge of hygiene could be put into practice. For example, in its 1882 retrospective *The Study and the Progress of Hygiene in France from 1878 to 1882*, the Society for Public Medicine and Professional Hygiene explained that the book was intended to introduce to the public the large number of works recently published on hygiene, their conclusions and their applications in daily life. These insights, they hoped, “would encourage workers and allow them to give themselves an idea of the ensemble of current tendencies in hygiene.” It was a sort of popular reference book, a way to disseminate and popularize hygienic

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9 In addition, we do not need another history of the Hygiene Movement. There are already a number of good studies dealing with this topic: Latour's *Pasteurization*, Rabinow's *French Modern*, Aisenberg's *Contagion*, La Berge's *Mission and Method*, Barnes's *The Making of a Social Disease* and Goubert's *The Conquest of Water*.

10 Dr. Octave Du Mesnil, *l'Hygiene a Pairs L'habitation du Pauvre* (Paris - Bailliere et fils, 1890), pp. 14-18. In the 1880s, when Du Mesnil looked back on two decades of work on hygienic reform of working class dwellings, these men were the ones he found most important.

11 See Nord, *The Republican Moment*; Latour, *Pasteurization*; Ellis, *Physician-Legislators*

thinking.<sup>12</sup>

The Society's president was Paul Brouardel (1837-1906), professor at the Paris faculty of medicine, expert in pathology, forensic medicine and colonial medicine, member of the academy of medicine, member of the French Consultative Committee on Public Hygiene and the Seine Council of Hygiene and Salubrity. Havelock Ellis called him a “medico-legist.”<sup>13</sup> Brouardel was also a hygienic crusader, active in campaigns concerning food safety, tuberculosis, venereal disease, child abuse, alcoholism and public decency. Andrew Aisenberg called him “the most renowned hygienist of his generation.”<sup>14</sup>

Important members of the Society included Octave du Mesnil (1832-1898), doctor of medicine, who worked closely with the prefecture of the Seine, serving on the Commission of Unclean Dwellings. He was the author of several studies intended to illustrate that the living and working conditions of the working class were damaging their health and moral fiber.<sup>15</sup> He led the Commission on Unclean Dwellings' study of furnished rooms for rent from 1877 to 1883.<sup>16</sup> Du Mesnil was also a member of the Society for Low-Cost Housing, and a guest at its first meeting in the home of Jules Siegfried on March 1, 1890. This society was created following the 1889 International Congress on Low-Cost Housing with Siegfried as its president. The immediate object of the Society was legislation and fund-raising, designed “to facilitate the construction of

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12 Société de Médecine Publique et d'Hygiène Professionnelle, *L'Étude et les progrès de l'hygiène en France de 1878 à 1882* (Paris: G. Masson, 1882). The best study to date of the hygiene movement's campaign for public education comes from Jean-Pierre Goubert, *The Conquest of Water: The Advent of Health in the Industrial Age*, trans. Andrew Wilson (Polity, 1989).

13 Havelock Ellis, *Sex in Relation to Society* (F.A. Davis Co., 1910), p. 601.

14 Aisenberg, p. 89. For more on Brouardel, see pp. 89-94.

15 *Étude sur l'hygiène des ouvriers employés à la fabrication du verre mousseline* (1867), *Les Garnis insalubres de la ville de Paris, rapport fait à la commission des logements insalubres* (Paris: Baillière, 1878), *l'Hygiène à Paris: l'habitation du pauvre* (1890), his most famous work.

16 Shapiro, p. 137.

worker housing by granting fiscal advantages from the state.” In 1892, Siegfried would become Minister of Commerce.<sup>17</sup>

These men were highly educated, spirited republicans, and extremely well-connected with other important people, a very powerful group. Janet Horne said of them: “Although the members of this network projected the image of a very informal group, they in fact had inroads into powerful circles that linked industry, parliament, philanthropy, medicine, and public administration.” Ann-Louise Shapiro wrote, “The prominent hygienists in Paris were in general from the same social stratum and had the same official and quasi-official connections as did their bourgeois-reformer counterparts.”<sup>18</sup> In fact, many (e.g. Du Mesnil and Brouardel) were both reformers and hygienists. Their success, and the power of the hygiene movement, lay in crossing or stretching the boundaries between the state and civil society, in such a way as to make experts much more socially and politically important.<sup>19</sup> Janet Horne spoke of the “...powerful parapolitical configuration of reform activities...”<sup>20</sup>

By comparing private, civil organizations like the Social for Public Hygiene and the Society for Low-Cost Housing with a governmental organization like the Commission on Unclean Dwellings, we can see what Shapiro called “quasi-official” and Horne called “parapolitical.” The lack of substantive differences in mission and membership between the public and private organizations is striking. The Commission on Unclean Dwellings was one of the oldest government bodies in France whose task was specifically hygienic in nature. Formed in 1850 as a bureau in the Prefecture of the Seine,

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17 Horne, p. 233-4.

18 Janet Horne, p. 233; Ann-Louise Shapiro, p. 136.

19 See Jack Ellis, *The Physician-Legislators of France: Medicine and Politics in the early Third Republic, 1870-1914* (Cambridge, 1990).

20 Horne, p. 225.



its task was essentially twofold: first, to determine hygienic definitions and standards, and second, to inspect houses in Paris and the suburbs that didn't meet these standards, and suggest remedies. Firmly yoking science and government, the commission was a panel of experts empowered both to pass scientific judgment and to advise lawmakers.

From 1870 to 1876, for example, the commission was composed of engineers, local elected officials, state-licensed inspectors of architecture, engineering, and public works, medical doctors, science professors, architects, landlords, and a few representatives of the skilled building trades, mostly masons. Of 32 members, 7 were doctors, 6 were state-licensed inspectors (and 4 of these were *inspecteur général*), 4 were architects, 4 were engineers (3 of them graduates of the prestigious national school of civil engineering, the *École des Ponts et Chaussées*), 2 were members of the Academy of Medicine, and 1 was a member of the Council of Public Hygiene and Salubrity, another hygienic decision-making board in the Prefecture of the Seine. There were two policy makers on board and two landlords, plus three employees of the court, two of them judges. The Prefect of the Seine presided, with some key allies in tow, for example Eugène Belgrand, graduated *inspecteur général des Ponts et Chaussées*, now director of water and sewers, Haussmann's go-to man for water engineering, credited with authoring Paris's unique dual-conduit water distribution system as well as the plan for its sewers. Belgrand was not the only member of the commission who had already held important posts in the Second Empire; there was also Alphand. This was an impressive bunch of professional credentials, heavily weighted toward lawmakers, doctors, architects and engineers; administrative continuity with the Second Empire was significant.

Like the broader hygiene movement, the Commission on Unclean Dwellings was

deeply interdisciplinary, calling on members from various professions.<sup>21</sup> Alexis Beau, a representative of the *Bureau de bienfaisance* brought a welfare provider to the table. Dr. Deville, Chief Inspector for the Death Verification Service, was there to keep an eye on that pet concern the mortality rate, as well as to share his first-hand experience of home inspections.<sup>22</sup> De Montmahou, Chief Inspector of Primary Education was there to handle questions of youth hygiene. For special questions about animal hygiene, there was Reynal, a veterinarian. Links between various organs of government were established, too. Hubert, Chief of the Hygiene Division at the Direction of Paris Works, kept his office in touch with the commission, and Beaudé did the same for the Council of Public Hygiene and Salubrity.

The Commission depended on links with other governing bodies, established professional and academic experts, and property owners. Its basic function, inspecting unclean dwellings alerted to it, made the commission dependent on a broad network of other offices concerned with hygiene for information: the *Inspection de l'assainissement*, the *architectes voyers*, the Prefecture of Police, the hygiene and salubrity commissions of each *arrondissement*, and “above all,” the Commission report stressed, from the *Service de la vérification des décès* (Death Verification Service), tasked with completing each death certificate with details about the housing situation in which the corpse was found and inspected. Information was collected in inspections and house visits, and then passed through this baroque chain of institutions, shared and organized.<sup>23</sup> There was never a

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21 Janet Horne, *A Social Laboratory*, pp. 224-5.

22 For more on the politics of birth and death rates in France, see Joshua Cole, *The Power of Large Numbers: Population, Politics, and Gender in Nineteenth-Century France* (Cornell, 2000). Robert Nye called France’s declining birthrate a “master pathology” in the discourse on national decline, See *Crime, Madness, and Politics in Modern France: The Medical Concept of National Decline* (Princeton, 1984), p. 140.

23 Paris’s three levels of government made the bureaucracy involved more complicated. This sort of

strict division of labor, because the functions of the various organizations overlapped.

This governmental organization rested on a heterogeneous network combining resources from the public and private spheres, state and civil society, political power and social capital, experts, the academy, the police, etc.<sup>24</sup>

The hygienists' methods, the solutions to the social problems they saw, were diverse, too. There was education, spreading the word of hygiene. There was renovation of the built environment, the infrastructural fix, often called *assainissement* (sanitization).<sup>25</sup> There was lawmaking, what is commonly called “social reform,” which amounts to state-formation, the beginnings of the welfare state. There was the technical component of hygiene, i.e. hardcore medico-scientific research concerning standards and definitions. This involved questions like how much of certain pollutants can water contain and still be safe to drink? what disinfectants are particularly good at killing what germs? How much square footage is required for a humane dwelling? how wide should streets, alleys, courtyards and windows be to provide buildings with adequate light and air?—and so on.

As Janet Horne put it: “As contemporary observers struggled to define the social question, their mission to improve the lot of workers and their families quickly grew to encompass the material surroundings in which they lived.”<sup>26</sup> The hygienists' objectifying

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administrative complexity also explains why the materials at the *Archives de Paris* can be so repetitive—for each communication, multiple governments must be informed, in writing, of the form and content of the communication. Hence there are several ways to get at exactly the same historical material.

24 Hygienic matters in Paris were legally defined as police jurisdiction. See: Aisenberg, *Contagion*, pp. 41-65.

25 Yankel Fijalkow defined *assainissement* as “réduction de l'insalubrité par travaux pouvant aller jusqu'à la demolition” (reduction of uncleanness by works, possibly going all the way to demolition.” See *La construction...*, p. 193. David Barnes said buildings were *assainies* when they were “made healthy” or “sanitized” by “structural modification.” See *The Making of a Social Disease*, p. 120.

26 Horne, p. 226.

gaze stressed the interaction of beings with their environment, as anthropology and colonial medicine would with colonial subjects, as animals and plants are treated in biology. Humans are susceptible to their environment, they argued, so if we change the environment, we can change the people. Hence Latour's four aspects of hygiene: consumer protection (biological and economic relations of consumer with contagious others, like fruit and vegetable sellers), ecology (commerce of people with their natural environment), urbanism (commerce of people and the built environment), and moralization (rules for interactions of people with one another).

This “environmentalism” had a long history in France, from Lamarck's nurture-over-nature conception of evolution, to neo-Hippocratic tendencies in French medicine and hygiene.<sup>27</sup> As David Barnes put it, hygienists “...inherited from an earlier era...the desire to explain disease in terms of geography, and to control disease by controlling space.” Alain Cottureau called it *glissement écologique* (ecological slide), the understanding of social realities in environmental terms.<sup>28</sup> Sharon Marcus argued that hygienists showed “an insistence on the equivalence between the physical state of residential interiors and their occupants' moral behavior.”<sup>29</sup> The connection of uncleanness and immorality is crucial. The reason that the hygienists needed moral improvement to be accompanied by material improvement was simple: they had a specific view of dwellings and their inhabitants, studying them as objects. Du Mesnil, for example, often referred to the “conjunction of promiscuity and uncleanness.”<sup>30</sup>

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27 Aisenberg, *Contagion*, p. 21; Fijalkow, *La construction des îlots insalubres*, p. 17.

28 David Barnes, *Social Disease*, p. 113

29 For Marcus's take on hygiene and public health, see *Apartment Stories*, pp. 152-157. Quote p. 154.

30 Marcus, *Apartment Stories*, p. 272. Marcus credits Du Mesnil with the “conjunction of promiscuité and malpropreté,” cited from his *Les Garnis insalubres...* (1878), p. 2.

## Chapter 4: Opening the City: Housing, Hygiene and Urban Density

Whether we define cities as agglomerated buildings (the 'container'), or agglomerated people (the 'contained'), *density* is a key feature.<sup>1</sup> But from 1870 to 1914, Paris was especially dense among European capitals—*too dense* according to most Parisians. Paris reached its current size, about 30 square miles, in 1860 when Haussmann annexed the city's suburbs (*faubourgs*). By the eve of World War I it housed 3 million people, an average 95,000 per square mile. By contrast, architect and father of French urbanism Eugène Hénard noted that London in this era had a surface area just under 120 square miles—nearly four times Paris's surface—and about 4.5 million inhabitants, for a density of about 37,500 per square mile. Paris's population density was two to three times London's. Construction was denser, too; Hénard also showed that London had three times more park space than Paris.<sup>2</sup>

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1 In this chapter, I use the term “density” to refer to both population density and density of construction. Cities are also places where activity, information, infrastructure, wealth and many other things are dense. (1) Amin and Thrift, *Cities: Reimagining the Urban* (Polity, 2002), p. 2; (2) For more on defining the city as built space or population, see Anthony McElligott, ed. *The German Urban Experience 1900-1945: Modernity and Crisis* (Routledge, 2001), pp. 8-16.

2 See: (1) *Commission d'extension de Paris*, vol. 2: aperçu technique (1913), plate 1; (2) Eugène Hénard, *Etudes sur les Transformations de Paris*: fascicule 3, “Les grands espaces libres: les parcs et jardins de Paris et de Londres” (Oct. 1903), pp. 55-88; (3) Paris was also denser than Berlin. Just before the First World War, Berlin was approximately 25 square miles in area and had just over 2 million inhabitants. Berlin's density was closer to 80,000 per square mile. See Brian Ladd, *The Ghosts of Berlin: Confronting German History in the Urban Landscape* (University of Chicago, 1997), p. 96; (4) For comparisons with today's densest cities, see Jon Mooallem, “Guerrilla Gardening,” *The New York Times*, June 8, 2008 (the architecture issue), pp. 76-82. On p. 80, Mooallem details the top five densest cities on earth for 2008: Mumbai (76,790 people/sq. mile), Calcutta (61,945), Karachi (49,000), Lagos (47,027), Shenzhen (44,463). None of these come close to Paris's 95,000 per square mile in 1913.

Paris's density meant more than simply how much space was available. The city was also enclosed by spatial logics and practices, spatial scripts like the technological scripts we saw in the last chapter. Like technologies, spaces are scripted by designers and users in order to steer their use. As scholars in disparate fields have argued, the built environment is a primordial infrastructure, a material frame for human practice which is much more than a container.<sup>3</sup> The spatial forms we inhabit shape us as we shape them. In this chapter, we'll watch as Parisians negotiate urban spaces which are increasingly fragile, inadequate, and out of step with spatial scripts. From 1870 to 1914, the lived city did not match the ideal city, and this gap generated multiform theories and practices of urban transformation.

As one Parisian wrote in 1913, from its origins as a Gallic settlement on islands in the Seine, Paris was a “fortress,” an enclosure defended from the world outside by moats, walls, boulevards (and today a belt highway).<sup>4</sup> A well-known spatial script is the importance of the *quartier* (neighborhood), always pulling its residents back—hence the popular image of the *vrai Parisien de Paris* (true Parisian), a rooted local who never leaves home, a sort of “peasant” in this “city of villages.”<sup>5</sup> The density of Paris apartment

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3 Thomas Gieryn, “What Buildings Do,” *Theory and Society* 31 (2002), pp. 35-74; Annemarie Adams, Kevin Schwartzman and David Theodore, “Collapse and Expand: Architecture and Tuberculosis Therapy in Montreal, 1909, 1933, 1954” *Technology and Culture* 49/4 (Oct. 2008), pp. 908-942. Adams et al. conclude that “architecture is both a technological support and is itself a significant technology” (942). In critical theory, scholars have punned on the word architecture, revealing the meaning “arch technology” in its Greek roots. Denis Hollier wrote: “...it is not just a simple container, but a place that shapes matter, that has a performative action on whatever inhabits it, that works on its occupant.” See: *Against Architecture: The Writings of Georges Bataille*, trans. Betsy Wing (MIT, 1993), p. x.

4 *Commission d'Extension de Paris*, vol. 1: historique (1913), p. 1.

5 (1) In Ch. 1 of *La Tour du Monde en Quatre-Vingt Jours* (1872), Jules Verne introduces Passpartout as “un vrai Parisien de Paris,” in order to convey his simplicity and backwardness, as opposed to Fogg's hi-tech London futurism; (2) Jules Claretie, *La vie à Paris* (1895), p. 176; (3) See also Sancha's cartoon “La plus parisienne—celle qui ne quitte jamais Paris” from *L'Assiette au Beurre*, issue called “Un dimanche d'été à Paris,” no. 73, Aug. 23, 1902, p. 1208.

houses inspired scripts like the close co-habitation of families in apartment houses, the intimate sociability that resulted (sometimes contentious, sometimes cordial), and the so called *vis-à-vis*—neighbors' view into each other's windows across the courtyard. Sharon Marcus's cultural analysis of the Parisian apartment house shows its spaces and practices chafing against the boundaries of public and private, individual, family and society, throughout the 19<sup>th</sup> century, putting delicate social products like privacy and morality at risk.<sup>6</sup> In Paris, spatial problems were always closely tied to social problems.

In this chapter, I explore various strategies for and fantasies of what I call “opening the city,” or dealing with Paris's social-spatial problems, between 1870 and 1914. We can begin by comparing two seemingly disparate voices from the era: novelist Émile Zola and hygienist Octave du Mesnil. In 1883, Zola's novel of department stores, *Au Bonheur des Dames* (often “The Ladies' Paradise” in English), told the story of Denise, a recent migrant from the provinces, now a single working girl in the city. Her first impressions of Paris disappoint her provincial expectations, especially where light, air, and open space are concerned:

...the dark room made her feel uneasy; she felt a lump in her throat as she looked around, for she was used to the large, well-lit rooms of her native province. A single window opened on to a little inner courtyard which communicated with the street by means of a dark alley by the side of the house. This yard, sodden and filthy, was like the bottom of a well; a circle of sinister light fell into it.<sup>7</sup>

The passage conveys not only Denise's perception that the provinces are cleaner and healthier than the capital, but also Zola's.<sup>8</sup> Later in the novel, although Denise is more

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6 For more on the social and symbolic dynamics of the Parisian apartment house, and extended reflection on the role of *enclosure* as a principle spatial logic in 19<sup>th</sup> century Paris, see Sharon Marcus, *Apartment Stories* (California, 1999).

7 Émile Zola, *The Ladies' Paradise*, Translated by Brian Nelson (Oxford, 1998), pp. 12-3.

8 This same argument about provincials accustomed to cleaner and more open dwellings was repeated in Lucien Graux, *La tuberculose et l'habitation urbaine* (Paris: Jules Rousset, 1905), pp. 11-12.

accustomed to Paris, the same eerie, sickly scenery appears. She is disoriented even though Paris is now her home:

The banisters were against the wall, and there was a hole at the corner; sometimes the tenants left their dustbins on the stairs. Denise, in total darkness, could only feel the chilliness of the old, damp plaster. On the first floor, however, a small window opening on to the courtyard enabled her to see vaguely, as if from the bottom of a stagnant pond, the warped staircase, the walls black with filth, the cracked and peeling doors.<sup>9</sup>

Zola's deft description of Paris's dreariest domiciles shows many similarities to contemporary writings by hygienist Octave Du Mesnil. Describing one tenement in the 13<sup>th</sup> district, Du Mesnil wrote, "...the walls are viscous, the ceilings are black, the windows stripped of their wooden slats." Another house, "...whose floors are of pounded earth, is covered with tar-paper. It is not sealed; the window panes that close it are deprived of their glass, replaced with scraps of cloth. Its inhabitant sleeps on a bed of straw. He pays 12 francs a month in advance for this space, and in addition he is charged with caring for the dogs and chickens of the tenant [from whom he sublets]." Du Mesnil's vivid descriptions of run-down working class housing are difficult to read. His 1890 book was a call to arms, calculated to produce outrage and disgust in readers, who would join the movement to open up and clean out the city.<sup>10</sup>

Zola hoped that his vivid descriptions of contemporary poverty would move readers in similar ways. He and Du Mesnil, in spite of professional and political differences, shared a sense of moral and social outrage. Sharon Marcus argued that Zola's *Pot-Bouille* (1883) represents the Paris apartment house as "restless," bound by a

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<sup>9</sup> Ibid., pp. 182-3. The novel contains one other reference to a squalid courtyard, "...a narrow hole, the smells from which poisoned the hotel" (p. 282).

<sup>10</sup> Octave DuMesnil, *l'Hygiène à Paris L'habitation du Pauvre* (Paris - Bailliere et fils, 1890), pp. 34 and 29-30, respectively.



“strained, simmering containment,” literally, as the title suggests, a pot ready to boil over. She speaks of “explosion, discharge, excess, escape, and overflow.” Similar words had been part of Zola's vocabulary for years. In *L'Assommoir* (1877), he wrote “From top to bottom, the lodgings, all too small for their occupants, seemed to be bursting, showing scraps of their misery in every crack.”<sup>11</sup>

Zola and Du Mesnil weren't the only Parisians in these years with such words on their minds. In 1891, Prefect of the Seine Poubelle asked an audience to consider how many times Paris's growing population had “made its city walls crack.” In 1895, another Parisian claimed the city “wants more space, to breath more easily, it demands tearing down these walls of Jericho, these inept fortifications which encircle it, which stifle it, it wants to grow!”<sup>12</sup> In 1900, journalist Michel Corday said Paris “bursts through her walls, overcomes her belt of columns, absorbs the suburbs, digs new moats in order to fill them back up.”<sup>13</sup> In 1913, a historical overview of Paris's urban growth argued that the capital “started to spill-over” into the suburbs in the 19<sup>th</sup> century, as it considered the question of whether to demolish the city's fortifications.<sup>14</sup> This vocabulary of bursting, cracking, stifling, and spilling reveals widespread recognition of urban crisis, a historical trace of

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11 Such descriptions of tenement houses in Paris appeared already in the first novel in Zola's celebrated series, *L'Assommoir* (1877). There we find the following description: “The grey walls, partly eaten away by a kind of yellow leprosy, were streaked by the drippings from the roof, and were perfectly flat from the pavement to the slates, without the slightest piece of moulding, the water-pipes alone curved a little at each floor, where the open sinks were seen, covered with rust. The windows, without shutters, displayed their bare panes, of the greenish hue of cloudy water...From top to bottom, the lodgings, all too small for their occupants, seemed to be bursting, showing scraps of their misery in every crack.” See *The “Assommoir”: a Realistic Novel*, trans. Vizetelly (London: Vizetelly, 1884), pp. 46-7. Marcus, *Apartment Stories*, pp. 166-198, quotes pp. 169 and 180, respectively.

12 For Poubelle's speech, see “Dernière heure: l'inauguration de l'avenue de la République,” *Le Temps*, July 14, 1891, p. 1. Another account of the day's events can be found in the *Bulletin Municipal Officiel*, July 15, 1891. For Petitjean, see *Les Grands Travaux de Paris*, 1895, pp. 9-10.

13 Michel Corday, “Science et Moeurs: La Ville,” *La Revue de Paris*, yr. 7, no. 4 (July-August, 1900), pp. 771.

14 *Commission d'extension de Paris*, vol. 1: historique, p. 166: “...XIXe siècle, époque où la capitale a commencé à déborder sur les communes de la périphérie.”

the everyday experience of Paris's density. In this chapter, we'll see Paris's built environment as a broken, failing, overburdened infrastructure, continuing the theme of urban crisis I developed at the end of the last chapter. Urban space was over-priced, overcrowded and unclean.

Density was always closely connected with hygiene. In his 1867 book *The Odors of Paris*, conservative journalist Louis Veillot described Paris as “musty and dense,” a city of dark corners without light and air, a humid archipelago of places perfect for cultivating stink. Veillot was a devout Catholic and thought Second Empire Paris, profane in its modernity, was losing sight of its Roman heritage. For Veillot, “odors” stood for Paris's backwardness, suggesting that religion and hygiene were analogous measures of civilization, and that Paris lacked both. In the 1870s, “odors of Paris” became a catch phrase, passed along by authors from civil engineer J. Chrétien to well-known journalist and critic Francisque Sarcey.<sup>15</sup> The phrase remained current through the early 1900s, often evoked in discussions of Paris's sewer system, water supply, and ecological impact on the Seine.<sup>16</sup> Mold was a common topic, too, as writers from avant-garde humorist Alphonse Allais to politician and journalist Charles Floquet illustrate.<sup>17</sup>

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15 (1) Louis Veillot, *Les odeurs de Paris* (Paris: Palmé, 1867); (2) Jules Brunfaut, *Les odeurs de Paris: assainissement*. (Paris: J. Baudry, 1880); (3) J. Chrétien, *Les odeurs de Paris: étude analytique des causes qui concourent à l'insalubrité de la ville et des moyens de les combattre*. (Paris: J. Baudry, 1881); (4) Francisque Sarcey, *Les odeurs de Paris: assainissement de la Seine* (Paris: Gauthier-Villars, 1882).

16 (1) Gil Baer, “Revue comique du mois de juin” *La Lanterne*, July 4, 1895; (2) “Les odeurs de la Seine” *Le Petit Journal*, Sept. 8, 1895; (3) “Les mauvaises odeurs,” *Le Radical*, Sept. 9, 1895; (4) *Le Petit Parisien*, July 30, 1896 and July 12, 1897; (5) “Les mauvaises odeurs de Paris,” *Le Petit Parisien*, July 10, 1908. For an important recent treatment of the issue, see David Barnes, *The Great Stink of Paris and the Nineteenth-Century Struggle Against Filth and Germs* (Johns Hopkins, 2006).

17 “Echos de l'Escalier” *L'Anti-concierge: Organe officiel de la défense des locataires*. Yr 2, No. 5; April to July, 1882, p. 2. For Floquet, see *Le Temps*, July 14, 1891 and *Bulletin Municipal Officiel*, July 15, 1891.

References to humid structures, rotten or sagging walls, abound.<sup>18</sup> Hygienists often connected connected density and disease. Villermé first made this claim for Paris in the 1840s, but French hygienists also drew on work from the international scientific community, from men like Britain's Chadwick and Hungary's Korosi. What Chadwick observed empirically, Korosi showed statistically: across 19<sup>th</sup> century Europe, death from contagious diseases increased with population density in urban settings, especially in poorer neighborhoods.<sup>19</sup>

From 1870 to 1914, this *enclosed* quality of Parisian space inspired ongoing negotiation of the city's problems with space, housing and hygiene. Parisians from all walks of life felt that they needed more room to move and breathe. But how did different groups in Paris respond differently? The chapter's first section sets the scene, providing background on the city's housing problem and its forceful insertion into politics early in the Third Republic. The second section deals with the avant-garde and anarchist responses to the housing problem from Montmartre, among them literary satire, clandestine moveouts, rent strikes, and community organizing. The third section continues this cultural history, looking at Parisian attitudes toward the stifling quality of modern everyday life, and the use of cycling, tourism, popular novels and painting to escape from the city. The fourth section deals with Auguste Fabre's dream of turning skyscrapers into cooperatively-owned working class housing blocks. The fifth section connects the anti-tuberculosis movement with efforts at slum clearance, and dreams of

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18 (1) "Moyens de secher et assainir les habitations humides" *Le Magasin Pittoresque* Yr. 44 (1876), p. 358; (2) R. Deuzères, "A travers la science: les murs humides" *Le Petit Parisien*, July 11, 1904; (3) Andrew Aisenberg, *Contagion: Disease, Government, and the "Social Question" in Nineteenth-Century France* (Stanford, 1999), pp. 21 and 54.

19 Octave DuMesnil, *l'Hygiène à Paris L'habitation du Pauvre* (Paris - Bailliere et fils, 1890), 162-164.

disencumbering and cleaning up public streets and sidewalks, hotels and even pieces of furniture. In the final section of this chapter, I turn to large-scale urban plans and the birth of city planning in Paris, a fitting end to four decades of grappling with what many have called an urban crisis.

### *The Housing Problem*

As we saw in Chapter 1, nineteenth century Paris's growing population strained the housing supply. Rents increased steadily as buildings expanded and sub-divided, creating more tiny places for people to inhabit. Thanks to scholars in urban and architectural history, we already know that securing shelter in nineteenth century Paris was difficult, especially for the lower classes.<sup>20</sup> Like Paris's density problem, the housing problem was a question of both supply (quantity) and quality; the city was known for “cramped, overpopulated, unclean and expensive dwellings.”<sup>21</sup> The housing problem is also a recurrent theme in historical literatures on French social reform and public health under the Third Republic.<sup>22</sup> Together, these bodies of literature show us that housing was a charged issue in Third Republic Paris, a site of moral, social, political and epidemic

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20 Norma Evenson, *Paris: a Century of Change, 1878-1978* (Yale, 1979); Ann-Louise Shapiro, *Housing the Poor of Paris 1850-1902* (University of Wisconsin, 1985); Nicholas Bullock and James Read, *The Movement for Housing Reform in Germany and France, 1840-1914* (Cambridge, 1985); Francois Loyer, *Paris XIXe Siècle: l'immeuble et la rue* (Paris: Hazan, 1987); Paul Rabinow, *French Modern: Norms and Forms of the Social Environment* (University of Chicago, 1995); Sharon Marcus, *Apartment Stories: City and Home in Nineteenth-Century Paris and London* (University of California, 1999); David Harvey, *Paris, Capital of Modernity* (Routledge, 2005).

21 Patrick Kamoun, *V'là Cochon qui démenage: Prélude au droit au logement* (Ivan Davy, 2000), p. 14: “...logements exigus, surpeuplés, insalubres et chers.”

22 Judith Stone, *The Search for Social Peace: Reform Legislation in France, 1890-1914* (State University of New York, 1985); Sanford Elwitt, *The Third Republic Defended: Bourgeois Reform in France, 1880-1914* (Louisiana State University, 1986); David S. Barnes, *The Making of a Social Disease: Tuberculosis in Nineteenth-century France* (University of California, 1995); Andrew Aisenberg, *Contagion: Disease, Government, and the "Social Question" in Nineteenth-Century France* (Stanford, 1999); Janet Horne, *A Social Laboratory for Modern France: The Musée Social and the Rise of the Welfare State* (Duke, 2002).

danger, and the inspiration behind a booming movement for, and discourse on, housing reform. The principle of the free market and the power of landlords kept Paris from turning to a public solution sooner, hence the protagonists in this literature are the do-gooding republican professionals in the movement for housing reform, most of them hygienic crusaders, too.

Like its problems with traffic and density, Paris's housing problem was first identified in the urban crisis of the 1830s-40s. In spite of the *Cité Napoleon*, Napoleon III's ultimately failed attempt at worker housing, the Second Empire's legacy was more determined by Haussmann's *travaux*, which sharpened the housing inequalities of the early 19<sup>th</sup> century. The central problem in the Paris housing market between 1850 and 1914 was a shortage of low-cost housing. Haussmann's works encouraged a basic imbalance (Bullock and Read called it a “distortion”): a surplus of upscale bourgeois apartments in central and western Paris which often lay vacant because most Parisians couldn't afford them, combined with a shortage of affordable housing for the lower classes in the periphery and the east.<sup>23</sup> Thus one of the most well-known reform campaigns of the 1880s-90s was mounted by the Society for Low Cost Housing, leading to the housing laws of 1894, 1906, 1908 and 1912.<sup>24</sup>

Private development in the early Third Republic tended to reinscribe these lines of inequality. Du Mesnil showed that despite increasing movement of the working classes

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23 (1) Bullock and Read, p. 301; (3) Harvey, *Paris, Capital of Modernity*, Ch. 6 “Rent and the Propertied Interest”, pp. 125-140; (3) Evenson, *Paris a Century of Change*, pp. 200-204.

24 The law of Nov. 30, 1894 (Siegfried) created incentives for builders to erect low-cost apartment houses in the city's periphery. The laws of Apr. 12, 1906 (Strauss) and Apr. 10, 1908 (Ribot) sought to make it easier for “less fortunate” people to own property by providing more municipal assistance, allowing the municipality to intervene in matters of low-cost housing, and creating new public offices for low-cost housing. Paris held its first competition for designs for publicly funded housing after the law of Nov. 23, 1912 (Bonnevay). See Evenson, *Paris: A Century of Change*, p. 212.

from the center to the periphery (especially into districts 13, 19, and 20) between 1876 and 1886, where prices were lower and development less dense, average living conditions did not improve. Du Mesnil found that new buildings constructed explicitly as workers' housing in the periphery “audaciously reproduce the interior defects (*malfaçons*) and pollution (*nuisances*), whose suppression we have realized at great pain in the older houses of our aged Paris.” For Du Mensil, Haussmann's idea, so popular in the Third Republic, that pushing the working classes from the center city would ensure healthier conditions for all, was a myth. The center city *was* opened up and cleaned out from the 1850s to 1890s, but builders, developers, investors and landlords kept to their old ways in developing the periphery well in the 20<sup>th</sup> century. Rather than solving problems, new housing development simply moved problems from center to periphery [fig. 17].<sup>25</sup>

The Third Republic's first decade was no easy time for housing in Paris. While rents rose 40% from 1817 to 1872, they suddenly grew another 30-35% from 1872 to 1882.<sup>26</sup> In 1882, popular encyclopedia *Le Magasin Pittoresque* (1833-1938) studied the city's rents. Three-quarters of them (469,000 of 685,000 lodgings) were in the lowest price range, under 2,400 francs a year, and the poor spent more of their income on rent than the rich.<sup>27</sup> As significant as the study's results is the fact that it was published in a popular encyclopedia, written as an almanac entry, a bit of popular wisdom on a topic of common interest. The report's bare numbers, free of commentary, assume an audience already familiar with their interest and import. Publishers could assume this because

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25 Octave DuMesnil, *l'Hygiène à Paris L'habitation du Pauvre* (Paris: Bailliere et fils, 1890), p. 23.

26 Cécile Péchu "Entre résistance et contestation: La genèse du squat comme mode d'action" Université de Lausanne Travaux de Science Politique/Political Science Working Paper Series N° 24 (2006), p. 11. Available online: <http://www.unil.ch/webdav/site/iepi/users/epibiri1/public/24Pechu.pdf>

27 “Les Loyers à Paris” *Le Magasin Pittoresque* Yr. 50 (1882), p. 113-4.

Paris's housing problem became a contentious topic of public debate in the years leading up to 1883.

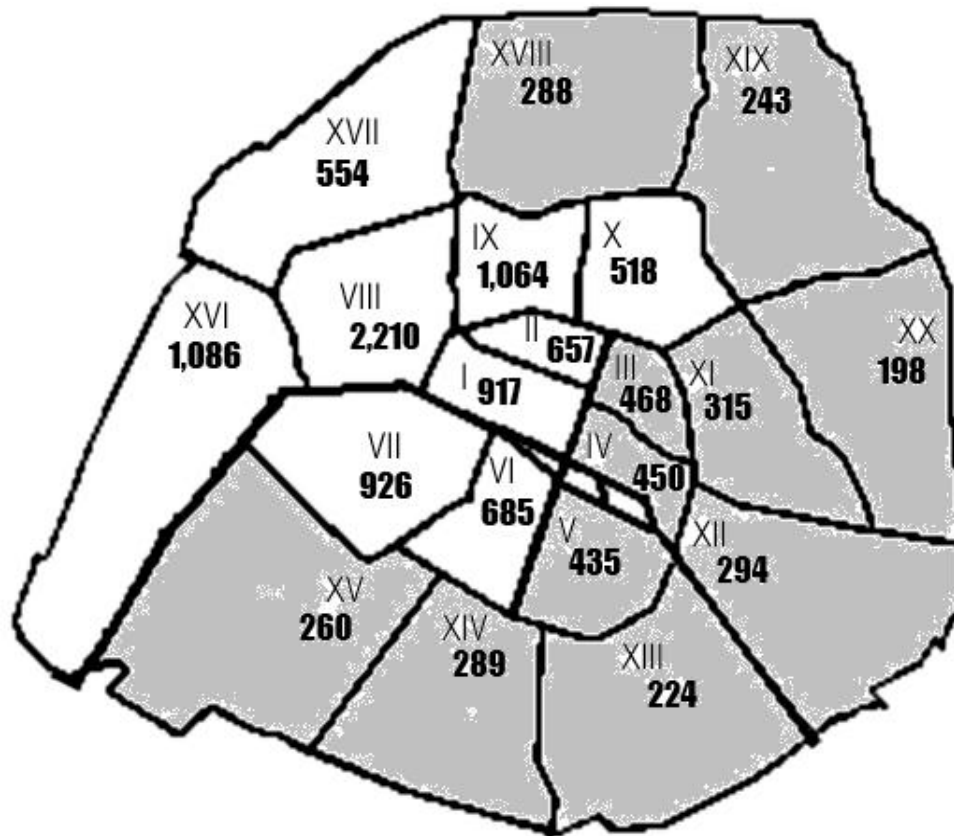


Figure 17: Average rents by district, 1891 (AP VO3 220)

In the last two chapters, we saw that Universal Expositions were major spurs to transportation development, chances to solve Paris's problem with traffic. They also inspired work on the housing problem.<sup>28</sup> In 1877, the Commission on Unclean Dwellings under Du Mesnil launched a study of the garni, or furnished room for rent, “concerned for the dangers which could result from the encumbrance that would necessarily be produced on the occasion of the 1878 Exposition” (fig. 18). The words “danger” and “encumbrance” stand out here. “Encumbrance” suggests Paris's clogging, a dense urban

<sup>28</sup> They would also inspire work on Paris's water problems, as we'll see in Chapter 5.

fabric inimical to circulation, while “danger” suggests critical risks to be managed in view of the coming exposition. The Second Empire had already marked the garni as a site of hygienic danger. But faced with another international exposition in 1877, it was also a national blemish, highlighting the hotel accommodations foreign visitors would find—

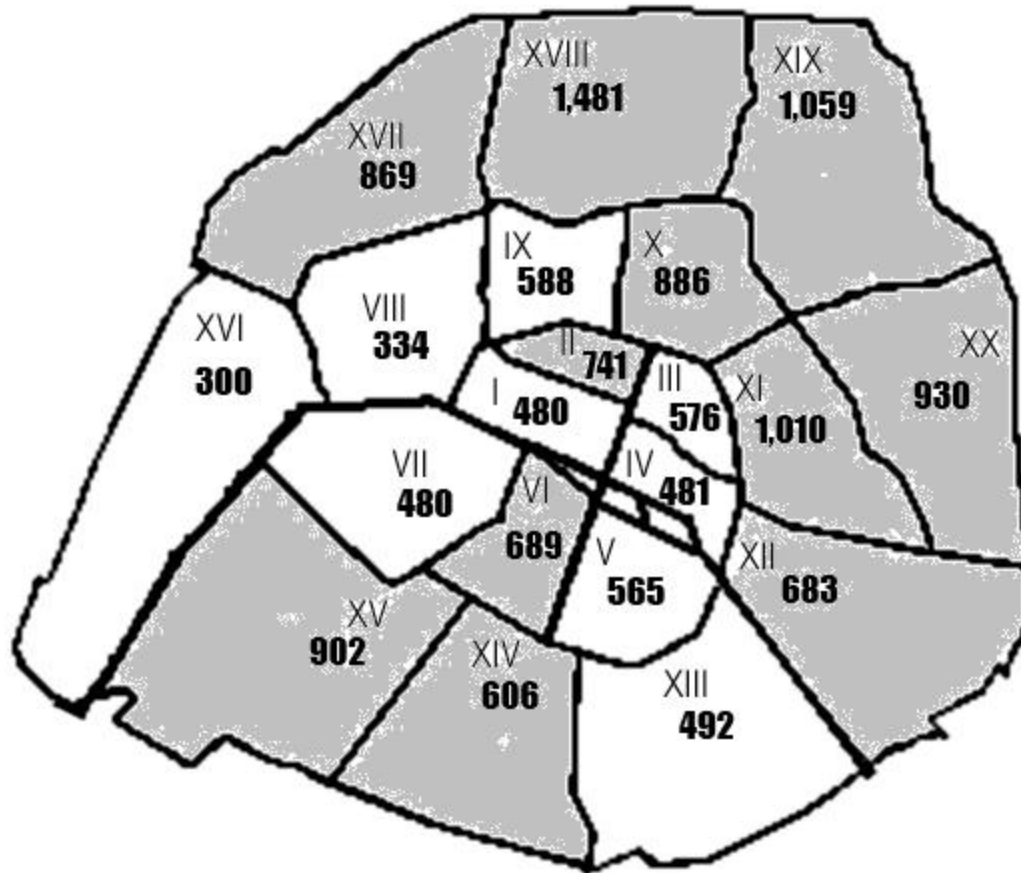


Figure 18: Number of Unclean Dwellings Service visits by district, 1877-1883. Shaded districts had more than 600 visits each, a rough median value. This map makes clear the differences in quality of housing stock in the center and the periphery. Source: AP VO3 63.

and what would they think of Paris? Another danger was that foreigners would get sick in Paris, likely from their hotel rooms, and spread diseases internationally on their way home.<sup>29</sup>

<sup>29</sup> (1) Commission des logements insalubres. *Rapport général sur les travaux de a commission pendant les années 1877 à 1883* (Paris: Imprimeries Réunies, Etablissement D, 1884), p. 37; (2) In an earlier



Foreign guests were not the only ones coming to Paris around 1878 looking for rooms to rent. Social historians have documented a wave of immigration to Paris from the late 1870s to early 1880s, corresponding with the Third Republic's first construction boom.<sup>30</sup> Herein lies a historical pattern: each building boom in nineteenth-century Paris was accompanied by a boom in immigration—peasants and workers looking for construction work, *terrassiers* like the ones we met in the previous chapter.<sup>31</sup> *Terrassiers* could rarely afford better than the *garni*. Hence the percentage of Parisians living in *garnis* also increased in this period.<sup>32</sup> Demographically, this migration increased the number of young men living alone, and thus increased a long-stigmatized social category: the “floating” population of immigrants, vagrants, laborers, the homeless, even Paris's celebrated “bohemians.”<sup>33</sup> These demographic peculiarities brought specific infrastructural effects. For example, the lodging house population was so overwhelmingly male that urinals became standard equipment long before flush toilets, and were quickly

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session, the Commission Report said the following: “In the unanimous opinion of foreigners, who visit Paris in such large numbers each year, and who plan to visit in ever greater number during our next great universal exposition, the regrettable state of what we've been signaling [toilets, sewers, etc.], singularly contrasts with those which exist in most other countries.” See Commission des logements insalubres. *Rapport général sur les travaux de a commission pendant les années 1870 à 1876* (Paris: Charles de Mourgues frères, 1878), pp. 44 (both references AP VO3 63).

30 Bullock and Read, p. 299. While average yearly population growth from 1850 to 1914 was about 5%, population growth from 1876 to 1881 was 14%. See also Shapiro, *Housing the Poor of Paris*, p. 55. 280,000 migrants came to Paris in these years. It also corresponded with the first boom in tramway development, as we saw in chapter 2.

31 See Harvey, Paris, *Capital of Modernity*, p. 180. Many of these booms were also connected with international expositions.

32 Bullock and Reid, pp. 302-304.

33 The floating population is a common theme in social histories of early 19<sup>th</sup> century Paris: (1) Louis Chevalier, *Laboring Classes and Dangerous Classes in Paris During the First Half of the Nineteenth Century*, trans. Frank Jellinek (Howard Fertig, 1973), esp. “The Lodging House Population,” pp. 227-231; (2) John Merriman, *The Margins of City Life: Explorations on the French Urban Frontier, 1815-1851* (Oxford, 1991); (3) On the gender imbalance in the population, see Alain Corbin, *Women for Hire: Prostitution and Sexuality in France after 1850*. trans. Alan Sheridan (Harvard, 1990), p. 188: “certain of the back streets, with their lodging houses, remained almost entirely male.”

flagged by the Prefecture of Police as a site of hygienic danger.<sup>34</sup> This kind of population growth also battered the built environment: simple wear and tear multiplied by thousands of individuals.<sup>35</sup>

Parisians exiled because of the Commune (both self-exiled bourgeois and deported communards) were also returning to Paris in the 1870s. Communards returning after 1879 found the city squeezed by the housing crisis, with rents newly inflated by the 1878 Exposition and its development boom. Responding in the 1860s to the rent spike caused by Haussmannization, the Commune mounted an ambitious politics of space, ordering a moratorium on unpaid rents and expropriation of vacant houses for Parisians whose homes were destroyed.<sup>36</sup> Now these same radicals who had waged spatial warfare witnessed familiar inequalities in the housing market perpetrated anew in the Third Republic. Not only radical politics but also social class drove many communards into conflict over rents. In 1881, Prefect of Police Louis Andrieux urged more public and private funding for rent relief, explaining, “After the Commune, the prefecture of police finds itself in the presence of a necessity and a duty: we must assist the numerous families of insurgents whose head of household has been deported or incarcerated.”<sup>37</sup> The old battle lines were still drawn, too; *Le Temps* reported in 1883 that a rent striker bid his

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34 In 1878, long before the Poubelle administration at the Prefecture of the Seine tried to make flush toilets and water subscriptions obligatory for apartment houses, the Prefecture of Police ruled that all urinals in lodging houses should be equipped with a water flush (an *effet d'eau*). Commission des logements insalubres. *Rapport général sur les travaux de a commission pendant les années 1877 à 1883* (Paris: Imprimeries Réunies, Etablissement D, 1884), p. 42 (AP VO3 63).

35 Shapiro, *Housing the Poor of Paris*, p. 55: “Such growth inevitably placed severe strains on the physical cadre.”

36 Pechu, “Entre résistance et contestation.” For more on the Commune's spatial peculiarities, see Kristin Ross's *The Emergence of Social Space: Rimbaud and the Paris Commune* (University of Minnesota, 1988).

37 Louis Andrieux, *Souvenirs d'un préfet de police* (Paris: Jules Rouff et Cie, 1885), p. 333.

disappointed landlord farewell with “Vive la Commune!”<sup>38</sup>

Ann-Louise Shapiro showed that the period from 1879-1883 was one of “heightened political activity among urban workers” around the issue of housing, including petitioning the authorities and organizing meetings and rent strikes. There was also the popular *deménagement à la cloche de bois* (literally “moving out by the wooden bell”), which meant sneaking a poor family out of their apartment, usually in the still of the night, including their furniture if possible, in flight from rent owed and/or eviction.<sup>39</sup> Contention swelled between the summer and fall of 1882, a wave buoyed by the Law on the Freedom of the Press, July 29, 1881. Responding to the Paris landlord's association founded in 1882, Marxist leader Paul Lafargue urged the formation of a tenants' union to plan rent strikes. Fellow leftists Jules Guesde and Clovis Hughes proposed reforms to legally reduce rents. Socialist municipal councilor Jules Joffrin suggested publicly owned housing like in Britain—a proposal opposed by Marxists Guesde and Lafargue, who thought public ownership would only strengthen the state and postpone the revolution.<sup>40</sup>

These questions—of public vs. private sponsorship, housing and the social question, reform and revolution, state and society—should be familiar to readers. They are the same social and political questions that contemporaries were asking about urban

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38 Quoted in Shapiro, *Housing the Poor of Paris*, p. 113. Left-wing geographers have been particularly interested in the issue of rents in the Commune. See David Harvey, *Paris, Capital of Modernity* and Roger Gould, *Insurgent Identities: Class Community and Protest in Paris from 1848 to the Commune* (Chicago, 1995).

39 See Sapeck, “Le nommé 'Cerbère',” *L'Anti-concierge*, Yr. 1, No. 1 (Dec., 1881), p. 3. See also Jean-Marie Flonneau “Crise de vie chère et mouvement syndical 1910-1914” *Le Mouvement social*, No. 72 (Jul. - Sep., 1970), pp. 49-81, See p. 65.

40 A flurry of articles on the housing question appeared in the Marxist paper *L'Égalité* from the summer of 1882 to the fall of 1883. For farther left activity, including rent strikes and clandestine move-outs, see Cécile Pechu's excellent run-down of Paris radical groups in the 1880s and 1890s, “Entre résistance et contestation,” pp. 12-15. Anarchist periodical *Le Père Peinard* was the longest running advocate of striking and skipping rent.

railways, as we saw in the last two chapters.<sup>41</sup> Haussmannization began a long-term discussion in Paris about using public works to solve urban problems. Parisians talked about housing and traffic in similar terms because they were seen as subsets of a broader question about the role that technology and public works played in urban modernity. Questions about how to finance, regulate and operate public works brought the city's spatial and infrastructural problems into the arenas of press, public and politics. But whereas the state had taken responsibility for providing transportation (as we saw in Chapters 2 and 3) and water (as we'll see in Chapter 5) in the Second Empire, it was not until 1906-12 on paper and the 1920s in terms of actual construction, that the government began to accept the responsibility of providing public housing.<sup>42</sup> Housing's status as "public works," therefore, was constantly contested in this period, beginning with the forceful left-wing campaigns of the 1880s.

If the government didn't yet provide housing, it already sought to regulate and control it.<sup>43</sup> The government responded to pressing long-term social needs, but also pressing short-term political needs—the more radical and more desperate parts of the population were mobilizing to demand changes in housing while savants and bourgeois activists were calling for housing reforms. Following the Prefect of Police's ordinance of

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41 The Métro was often touted as a solution to Paris's density and housing problems as well as its traffic problem. The housing and traffic problems were similar in many ways. Both emerged from the urban crisis of the 1830s-40s and were tackled resolutely, if incompletely, by Haussmann and company, then passed on to the rulers of the Third Republic unfinished. More importantly, both problems were complicated, if not caused, by Paris's density, and were often understood by contemporaries in terms of *circulation*. The traffic problem concerned how goods, people, information and vehicles could flow through the city more freely, while the housing problem concerned apartments packed so densely into the city that no light or air could circulate, as one contemporary put it, "in these depths, under this pressure, in this darkness." Quoted in Octave DuMesnil, *L'Hygiène à Paris L'habitation du Pauvre* (Paris: Baillière et fils, 1890), p. 14. Du Mesnil quotes the *Talisman du Travailleur* as describing life in poverty as "à ces profondeurs, sous cette pression, dans cette obscurité."

42 Evenson, *Paris a Century of Change*, p. 212.

43 The authorities accepted housing as an infrastructure that needed to be regulated, scripted and controlled, but they did not accept it as "public works."

May 7, 1878 on furnished rooms, the years 1881-1884 saw a season of work on reforming building codes. Architectural historians often dismiss these laws for making little impact on the form and style of Paris's buildings.<sup>44</sup> Although they did little to transform Paris's Haussmannized exterior, they began a long, slow process of transforming the infrastructures (pipes, wires, etc.) hidden behind it.<sup>45</sup> Architecture, in the narrow sense of building style, was not radically changed by the new regulations, but around the 1878 Exposition, the local governments began pushing for landlords to make gradual changes to existing building stock, in the name of hygiene.

If we shift our perspective from exteriors to interiors of buildings, from visible structures to hidden infrastructures, and from style to hygiene, all the standard highlights of Paris architectural history between 1870 and 1914 look different. We can watch as the built environment is scripted by designers. The regulations of 1880-4, the 1894 law on low-cost housing and the public health law of 1902-3, which revised the rules for building height, long known by architectural historians as moments of gradual change in architectural forms, were also important moments in the history of the hygiene movement. The laws of 1882-4, for example, regulated building height based on the width of streets, to ensure that light and air could reach street level. The issue here was not style but density. The law also reached inside buildings, setting standards for individual apartments—a minimum of 14 cubic meters of space (“air”) per resident, and

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44 Evenson, *Paris a Century of Change*, pp. 149-50, Anthony Sutcliffe, *Paris: An Architectural History* (Yale, 1993), pp. 114-5. A new style of building, so the familiar story goes, only emerged with *Art Nouveau* in the 1890s. Another version of this argument is made in David P. Jordan, “Haussmann and Haussmannisation: The Legacy for Paris,” *French Historical Studies* 27/1 (Winter 2004), pp. 87-113.

45 Evenson missed the importance of hygiene in these new laws, but her sources did not. Louis Bonnier, chief architect of Paris, responded to the law of 1882 by urging greater artistic freedom, saying “...after all aesthetics are for people, not a luxury, but a need and a right, as important as hygiene.” In other words, Bonnier thought the law short-changed aesthetics by favoring hygiene—and he was a hygienic activist!

access to direct daylight (“jour”)—and setting basic standards for fresh water, toilets, and garbage disposal, demanding that landlords upgrade piping and trash collection facilities.<sup>46</sup>

Disease control became a powerful influence on otherwise “architectural” decisions. In the Police ordinance of May 7, 1878 on furnished rooms, the minimum access to daylight clause (Article 5) specified that all rooms housing more than two people must be directly lit. Once two people inhabited the same space, in other words, contagion became a greater risk, demanding the well-known antiseptic power of sunlight.<sup>47</sup> The ordinance's basic hygienic criteria for each dwelling were the volume of air it contained and its distance from a source of sunlight. Hence size and shape of rooms, placement of windows—otherwise “architectural” decisions—were regulated on hygienic grounds.<sup>48</sup>

The Commission on Unclean Dwelling flagged the shared parts of apartment houses as hygienically dangerous: “courtyards, stairways, landings, hallways, restrooms, utility sinks, etc.” The great majority of hygienic problems were due “to *dépendances*, which is to say to the parts of the house for [the] common use of all tenants.” Hygienic danger laid waiting in spaces where multiple residents crossed paths, flash-points of epidemic contagion. These common spaces were often neglected by tenants and

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46 We'll see more about reform of infrastructures and housing in the next chapter when we examine Paris's water systems.

47 Commission des logements insalubres. *Rapport général sur les travaux de a commission pendant les années 1877 à 1883* (Paris: Imprimeries Réunies, Etablissement D, 1884), p. 41 (AP VO3 63).

48 We are dealing here with what Paul Rabinow called “norms and forms of the social environment,” the rules and standards *behind* the design choices made by architects and engineers. From the history of technology, we can see this same phenomenon in Wiebe Bijker's concept of *stabilization*, that stage in the development of any given technology when its design stops being negotiated and contested, and gives way to a tentative consensus, a standard design. See Paul Rabinow, *French Modern: Norms and Forms of the Social Environment* (University of Chicago, 1995); Wiebe Bijker, *Of Bicycles, Bakelites and Bulbs: Toward a Theory of Sociotechnical Change* (MIT, 1999), p. 84-88.

concierges alike. A gap developed between the jurisdiction of public authority and the private space of individual apartments. Landlords most often delegated the work of daily clean-up to domestics or concierges, but exercised little oversight, using their properties largely as investments, collecting rent and staying as hands-off as possible. But keeping a building clean demands constant maintenance. To make any hygienic progress, the Commission would not only have to reach inside buildings to reform infrastructure and space, but also reform the daily habits and practices of Parisians.<sup>49</sup> The Commission wrote scripts for the apartment house which made tenants, not landlords, responsible for the work of daily maintenance.

The 1878 ordinance set new minimums for proximity of toilets to the apartments they served, as well as loose standards for ease of access.<sup>50</sup> The ordinance states that when the shared toilets of lodging houses were too far from apartments, tenants stopped using them, and reverted to the older Parisian practice of dumping waste into courtyards or streets. The ordinance regulated the spatial, infrastructural and hygienic dispositions of the apartment house, on three levels: (1) the entire house, (2) individual apartments, and (3) the social relations and practices of tenants. Hence the ordinance dealt not only with size and ventilation of apartments, sources of daylight, condition of plumbing, and other architectural and infrastructural details motivated by hygiene, but also with the tenants' source of fresh water, their method of waste disposal, their use of toilets, and how and how often they cleaned the house.

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49 Commission des logements insalubres. *Rapport général sur les travaux de la commission pendant les années 1870 à 1876* (Paris: Charles de Mourgues frères, 1878), p. 18 (AP VO3 63). As Rabinow put it, this sort of social planning “combined the normalization of the population with a regularization of spaces,” *French Modern*, p. 82.

50 See Article 8. Commission des logements insalubres. *Rapport général sur les travaux de a commission pendant les années 1877 à 1883* (Paris: Imprimeries Réunies, Etablissement D, 1884), p. 41 (AP VO3 63).

The Prefecture of Police and the Commission on Unclean Dwellings recognized the dialectic relationship of infrastructure and practice, trying to regulate both design and use of houses, in order to clean up Paris's housing stock. The combination of social reform, architecture and hygiene reflects the interdisciplinary, heterogeneous nature of the hygiene movement. Like Michel Callon's "engineer-sociologists," Du Mesnil and other hygienist-politicians not only designed built spaces, but also ideal users and scripts for use. Legal and architectural responses to the housing problem in the early decades of the Third Republic necessarily engaged in social design.<sup>51</sup>

*Avant-Gardists, Anarchists and Housing in Montmartre*

Montmartre, one of the most famous neighborhoods in Paris, is often identified as Paris's Bohemian *other*. Richard Sonn called it a "refuge," "a liminal realm," a "borderland" and a "counterweight," a far-off place not far from central Paris, home to avant-garde artists and anarchist outsiders cultivating alternative lifestyles.<sup>52</sup> For an 1898 visitor to Paris, it was hardly urban at all: "The Butte, the real Montmartre, seems at first view to be one-half country village and one-half provincial town...one would believe

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51 Michel Callon, "Society in the Making: The Study of Technology as a Tool for Social Analysis," in Bijker, Hughes, and Pinch eds. *The Social Construction of Technological Systems*, (MIT, 1987), pp. 83-103.

52 Sonn called it "a congenial refuge from the commercial bustle of Paris" and "a liminal realm, a borderland in which bohemians and radicals could fashion alternative lifestyles and politics" and "a counterweight to the newly stabilized Third Republic." See Richard Sonn, "Marginality and Transgression: Anarchy's Subversive Allure" *Montmartre and the Making of Mass Culture*, ed. Gabriel Weisberg (Rutgers, 2001), pp. 120-141, quotes pp. 121 and 123. According to Sonn, Montmartre "...allowed just that sense of separation from the metropolis sprawling below its heights that the anarchists needed to preserve the feelings of autonomy and integrity that allowed them both to envision alternatives to the present social order and to actively experiment with such alternative arrangements in their daily lives." See *Anarchism and Cultural Politics in Fin de Siecle France* (University of Nebraska, 1989), p. 52.



himself more than two hundred miles from the metropolis.”<sup>53</sup> Neglected by Haussmannization, later a rebel outpost and scene of bitter fighting during the Commune, the neighborhood was slowly integrated into the rest of the city, often home to movements to secede from Paris.<sup>54</sup>

Famous for radical politics and modernist cultural production, Montmartre was also an important contributor to the ongoing debate on housing.<sup>55</sup> The difficulty of finding shelter is a familiar narrative in Bohemian Paris. “Starving artist,” homeless artist or “couch-surfing” artist, most Paris “Bohemians” probably lived in one of the city’s cheep furnished rooms. Hence housing—the pressures of life in the lodging house, making rent on a small income, the cruelty of landlords, property managers, doormen and concierges—became staple themes of avant-garde cultural production. Jules Lévy founded “incoherent art” at the first *Salon des Incohérents* (1882) in his one-room apartment: “my bedroom, a room that also serves as my living room, dining room, kitchen, and bathroom.” Philip Dennis Cate argued that Lévy inspired a diffuse avant-garde scene in Paris, a “Spirit of Montmartre,” influential on otherwise well-known Paris avant-gardists of the era like Henri Toulouse-Lautrec, Alfred Jarry, Erik Satie and

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53 Quoted in John Merriman, *The Margins of City Life: Explorations on the Urban Frontier* (Oxford, 1991), p. 12.

54 On the slow process of integration, see Mathieu Flonneau, “Du profil de la rue à la forme de la ville: L’Intégration Parisienne du 18<sup>e</sup> arrondissement (1860-1940),” *Recherches contemporaines* No. 4 (1997), pp. 49-73. On Montmartre’s attempts to secede, see Jeffrey H. Jackson, “Artistic Community and Urban Development in 1920s Montmartre,” *French Politics, Culture & Society* 24/2 (Summer 2006).

55 Montmartre was solidly working-class, home to many cheep rental properties. In 1891, almost 90% of rental properties in Montmartre (66,532 of 74,038) were in the lowest bracket, with rents below 500 francs a year (see: Conseil Municipal de Paris, No. 16 (Apr. 20, 1891), *Contre-projet de délibération*, annexes. AP VO3 220). In 1906, there were 809 lodging houses in the district, housing 17,884 people, for an average of 22 people per house (see: *Annuaire statistique de la ville de Paris 1906*, pub. 1908, p. 615). The district was also visited more than any other between 1877 and 1883 by the Commission on Unclean Dwellings – see map above.

Guillaume Apollinaire.<sup>56</sup>

Other notable *Incohérents* included the rowdy Bohemians around Montmartre's *Chat Noir* cabaret—"Sapeck" (Eugène Bataille), Jules Jouy and Alphonse Allais—known as *Hydropathes* and *fumistes*. Young writer-illustrators known for irreverence, black humor, and free-thinking radicalism, they were, following the late-1870s consolidation of the Republic, "the first to organize open meetings that were at once republican, anticlerical, apolitical and literary" in the late 1870s to early 1880s.<sup>57</sup> This movement was a sort of cultural twin to the left-wing housing activism we have already seen between 1879 and 1883. Known for absurdity, crudeness, political incorrectness, and cynicism, the *Hydropathes* practiced biting parody, satire, sarcasm and comedy.<sup>58</sup> They were also known for cutting-edge artistic techniques: multi- or mixed- media artwork like posters, cartoons, the rebus and the lettrist word-picture. They put on shocking live performances in cabarets and in the streets, and oversaw a deep catalog of short-lived, 'zine-like literary experiments, appearing periodically in limited runs, combining poetry, prose and illustrations.<sup>59</sup>

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56 Cate, "The Spirit of Montmartre," in *The Spirit of Montmartre: Cabarets, Humor, and the Avant-Garde, 1875-1905*, ed. Phillip Dennis Cate and Mary Shaw (Rutgers, 1996). Jerrold Siegel, by contrast, chose Emile Goudeau as a point of origin for the same cultural scene. See *Bohemian Paris: Culture, Politics, and the Boundaries of Bougeois Life, 1830-1930* (Johns Hopkins, 1986), pp. 216-241.

57 They were called *Hydropathes* perhaps because they didn't mix their fashionable absinthe with water, perhaps to distinguish themselves from, or liken themselves to, a famous Bohemian clique of 1840s Paris, the "water-drinkers." They were also called *fumistes*, literally "smokers" who lounge in cafés puffing their pipes, a rough equivalent for the American word "slackers." *Fumiste* was a label the *Hydropathes* wore with pride. Daniel Grojnowski, "Hydropathes and Company" *The Spirit of Montmartre: Cabarets, Humor, and the Avant-Garde, 1875-1905*, ed. Phillip Dennis Cate and Mary Shaw (Rutgers, 1996), pp. 95-110, quote p. 96. For another important recent collection of essays on Montmartre's cultural history, see Gabriel P. Weisberg, ed. *Montmartre and the Making of Mass Culture* (Rutgers, 2001).

58 The root of their humor was the *blague*—the prank or put-on—borrowed from Latin Quarter student culture, via the influential Jules Lévy and Emile Goudeau.

59 *L'Hydropathe* (1879-80), *Tout-Paris* (1880), *L'Anti-concierge* (1881-3), and the longest running *Le Chat Noir* (1882-95) followed in quick succession. Many short-lived artist groups also popped up: the *Hirsutes*, the *Decadents*, the *Zutistes*, the *Young*, the *Jemenfoutistes*, etc. See: (1) Cate, "The Spirit of

Published during the 1881-83 wave of debate on housing in Paris, one of these periodicals stands out for its *relevance*, a peep of social and political seriousness amidst all the pranks. *L'Anti-concierge* styled itself *Organe officiel de la défense des locataires* (the official organ for the defense of tenants). As singular an artifact as it is, the magazine bears important ties to its historical context. This group of freelance Montmartre artists saw a market in Paris for a magazine that used humor to vent the socioeconomic stress felt by so many tenants. But along with humor came serious politics in this topical, timely and relevant magazine, so far from the “incoherent” label worn by its producers.

Behind the mock seriousness of their “official organ” lay a litany of resentments, the discontents of Bohemians renting furnished rooms. First and foremost was a misogynist, dehumanizing rant at *concierges*—often older, single women themselves scraping to get by—who were lambasted, even animalized by the fumistes as little better than guard dogs.<sup>60</sup> But the concierge was only the central figure in a more global distaste for authority, and especially for the petty inequalities of the apartment house, the social power of concierges, *gardiens* (doormen) and *gerants* (property managers). Last, but not least, the magazine took up the critique of *M. Vautour* (Mr. Vulture), a generic Paris landlord lampooned by left-wing writers and illustrators from Daumier (1852) to Lafargue (1909).<sup>61</sup> Vautour was always an investor, a real-estate speculator, sometimes steeped in antisemitic stereotypes, as Sapeck's heavy-handed reference to Shakespeare's

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Montmartre,” p. 23; (2) Catherine Dousteysier-Khoze, “Fumisme: le rire jaune du Chat Noir,” in *Abnormalities*. Catherin Dousteysier-Khoze and Paul Scott, eds. (Durham University, 2001), pp. 151-161, quote p. 152.

60 The magazine's first issue contained a cartoon of animal trainer or tamer Bidel facing off against a concière. *L'Anti-Concièrge: Organe Officiel de la Défense des Locataires*. Yr. 1, No. 1, Dec. 1, 1881, p. 2.

61 See two Daumier cartoons of landlords in Harvey, *Capital of Modernity*, p. 126. See also Paul Lafargue, *Monsieur Vautour et la réduction des loyers* (Parti socialiste – S.F.I.O, 1909).

“usurer of Venice” demonstrates.<sup>62</sup>

The magazine's third issue (Jan. 1, 1882) opened with a Jules Jouy editorial against the tradition of New Year's gifts (*étrennes*) for concierges.<sup>63</sup> What, Jouy asked, have concierges really done for us? They maintained strained, awkward, confrontation relations with you, the tenant, read your postcards, neglected to give you your mail, left you waiting outside in the rain, and generally “climbed the wall of your private life.” Jouy saw the concierge as a cloying, spying, micro-manager. Her awkward middling position of power between landlord and tenant, which made her a sort of “first among tenants,” allowed her to cross boundaries of liberty and privacy, violating the individuality of dwellings in the house. It also made her jealous to conserve what social power she could in the face of poverty, sexism, social 'fear of falling,' and sometimes the stigma attached to being an 'old maid.'

Jouy and company were willing to admit they were bad tenants—hence the poetic line “that surging from all corners of the universe/ [come] the fumistes, at your house, turning everything upside-down”<sup>64</sup>—but they were not sympathetic to the social pressures on the concierge. Think of the homeless, they quipped, who have no shelter, no heat, no privacy—and no concierge! Sapeck's cartoon “Phrenology of the Concierge,” depicted a crotchety old man in profile, his cranium marked off into different sections, each one labeled with a vile tendency.<sup>65</sup> The cartoon both mocked phrenological science

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62“Locataires et Proprios,” *L'Anti-concierge: Organe Officiel de la Défense des Locataires* Year 2, No. 6, July to Oct., 1882, p. 1.

63“La Dernière Quinzaine” *L'Anti-concierge: Organe Officiel de la Défense des Locataires*. Year 2, No. 3; Jan. 1, 1882, p. 1.

64 *Ibid.*, p. 2. The lines rhyme in French: “Que sergissant de tous les coins de l'univers,/ Des fumistes, chez toi, mettant tout à l'envers.”

65These were: dishonesty (*mendacité*), banality (*platitude*), lying (*mensonge*), slander (*calomnie*), theft (*vol*), envy (*envie*), insolence, nighttime deafness (*surdité nocturne*), and “spying and hiding letters”

and appropriated the doctor's power of diagnosis; the concierge, according to Dr. Sapeck, was very sick species.<sup>66</sup>

The magazine's heart was the gossip column, “Echoes in the Stairway,” which ran stories of obnoxious concierges who posted signs detailing their minimum expectations for holiday gifts, or who had inflated, histrionic senses of their own importance (one had her business cards printed with the slogan “the concierge of Victor Hugo”). Another story mocked the uncouth, uncultivated “concierge next door,” who didn't realize her neighbor was the painter Marius Michel. When his friend mistakenly knocked at her door asking for a painter, she said: “Nous n'avons pas d'ouvriers dans la maison.....!”—i.e. we don't have any workers (painters) working in the house.<sup>67</sup> Dealing with clueless concierges who nonetheless held the building's keys was not easy. So the *Hydropathes* delighted in stories of tricking, cheating or outsmarting concierges, transgressive tales which subverted the normal relations of power in the apartment house.

Alphonse Allais promoted “a way to annoy your concierge while amusing yourself.” First bribe the concierge to open up after hours, then pretend to have left something outside; when the concierge offers to go get it, lock him out. Then he'll have to return your money to get back inside. Allais exclaimed: “Oh, the magical power of metal!” The story ends with the telling line, “It is useless to add that Alphonse Allais doesn't have mold in his place on the rue de Lille”—which slyly discloses a lesson for the reader: those who know how to skillfully manipulate the social relations which bind the

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(*espionnage et cachetage de lettres*) *L'Anti-concierge* Year 2, no. 7; October 1882-Jan. 1883, p. 1.

66 In Jouy's article “Fantasie Conciergicide,” he wrote “...le concierge, monstre raffiné, forme palpable de Satan sur la terre. Quand je dis palpable, il ne s'ensuit pas que je vous conseille de palper - vous pourriez attrapper une maladie de peau” and “Le monde ancien a eu sa pluie de sauterelles. Le monde moderne a sa pluie de concierges.” *L'Anti-concierge*, Yr. 1, No. 2 (Dec. 15, 1881), p. 1.

67 “Echos de l'Escalier” *L'Anti-concierge* Yr 2, No. 5; April to July, 1882, p. 2.

apartment house win access to better accommodations.<sup>68</sup> For Allais, everyday life in the lodging house was the scene of a constant, micro-level power struggle. “Echoes in the Stairway” highlighted the question of who has access to housing infrastructure and how, recommending ways that tenants could re-script the spaces of the apartment house in more empowering ways.

Each issue ended with mock advertising pages that imagined consumer products designed specifically to compromise, annoy, sedate, even murder concierges. These mock ads did two things. First, they indulged in their own science-fiction-style fantasy about the advance of technoscience and progress (for example the “Edison concierge,” a labor-saving automaton designed to make concierges obsolete). Second, they mocked the contemporary proliferation of cheap consumer goods, marketed to increasingly specialized, segmented consumer groups by making inflated claims. In their mock advertisements, Sapeck, Jouy and Allais imagined an alternate Second Industrial Revolution, in which medical, chemical and technological advances, available to the consuming public, would make tenants more powerful for once, rather than landlords.<sup>69</sup> They imagined an urban modernity in which access to good housing was more equal, in

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68 Alphonse Allais, “Une manière d’embêter son concierge en s’amusant soi-même,” *ibid.*

69 In one issue, a local sweet shop advertised “concièrgicide confections” (*confiserie concièrgicide*) described as “explosive, poisoned, unbreakable in painted wood.” The shop also offered “Melty bonbons” guaranteed to spread a foul odor in concierges’ throats when swallowed, and delectable “anise in iron,” guaranteed to break concierges’ teeth. Finally, pills for sedating concierges were offered, to allow tenants to sneak around the house unnoticed (See *L’Anti-concierge* Yr. 2, No. 3 (Jan. 1, 1882), p. 4). Another issue offered a “cough syrup” (wink, wink) from a “famous pharmacist” sold only to concierges. H. Ducroquet, Paris veterinarian, was selling several dogs and offered a 99% discount to any buyer “having the intention of introducing dogs into houses where these animals are forbidden.” Donato, the famous hypnotist (*magnétiseur*) offered his magical, magnetic services to put concierges to sleep on the day rent was due. Then there was the *Pilivore Cabrion*, a hair tonic guaranteeing instant hair loss and immediate inflammation of the scalp. “Just one application suffices. Sold only to concierges and young academics wishing to conform to the uniform.” Other ads offered train tickets for concierges on trains bound to wreck, and various pills and potions for concierges and their daughters, to give them zits, filthy hands, diarrhea, etc. (see “Echos de l’Escalier” *L’Anti-concierge* Yr. 2, No. 5 (April to July, 1882), p. 4).

which the built environment was not so fragile.

Once, the magazine reprinted an otherwise serious news story from *Le Figaro* about a wicked Belleville concierge who beat an elderly tenant in a petty dispute over a mattress and was ordered to pay 5,000 francs in damages. It was a brief moment of apparent journalistic seriousness in this otherwise tongue-in-cheek publication.<sup>70</sup> There were others. By their 6<sup>th</sup> issue (July to October, 1882), *L'Anti-concierger* was deeply engaged in discussion of Paris's housing crisis. This was the same summer that Joffrin, Hughes, Guesde and Lafargue offered their left-wing solutions to the housing crisis. Several newspapers, Sapeck explained, had reported the formation of a *Chambre syndicale des Propriétaires parisiennes*, a Paris landowners' union or association. One of the new group's principle demands was information for its members about “bad tenants” (*mauvaise locataires*). Sapeck shuddered to think how “information” would be collected. If landowners asked for information, concierges would have to collect it, inspiring even more vigilant surveillance and violations of tenant privacy:

From here we'll see all the concierges transformed into spies, hunting for anything that might concern their tenants and having as a professional duty transmitting [it] to the central police station, which would be located in the office of the Paris landlord's union, all the police information they could dig up or discover. But this, o bourgeois liberalism, is universal espionage taken to the tenth power!

What's more, he argued, people judged to be “in an incorrect family situation,” who disagreed with the landlord's opinions, or were simply weighed-down by poverty might also be removed from their home, and find themselves on the street, unlikely that any new landlord would find them more credit-worthy than the old landlord did, ending “in the impossibility of finding housing” and “forced to take refuge in some nasty hovel

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<sup>70</sup> Ibid., pp. 3-4.

for which they pay double or triple.” No hygienist would have disagreed with this scenario.<sup>71</sup> The irony was palpable. Sapeck could barely believe that the lowly tenant, already so alone in his struggle against the landlord, would now face an army of landlords: “...each tenant will find himself faced with a band of man-eaters, hell-bent on his complete ruin and organized for it.” Landlords held all the cards: “The law is made for them, and that's not enough!” Sapeck's impassioned editorial was accompanied by a caricature of Clovis Hughes, well-known poet and left-wing Deputy from Marseilles, who had just introduced his bill to reduce rents. “Bravo, dear poet!” he wrote.<sup>72</sup>

This was serious political engagement. In this editorial, Sapeck confronted current events, took interest in lawmaking, took sides in the class war, and critiqued surveillance as inimical to political liberty. When mainstream politics touched the editors' lives more directly (Clovis Hughes's 1882 rent reform campaign), they came out as plain partisans of a political cause, siding with mainstream left-liberals and socialists, or with revolutionary Marxists.<sup>73</sup> Rodolphe Salis, founder-owner of the *Chat Noir*, ran for municipal councilor of Montmartre and lost in 1884, on the platform that the neighborhood should secede from Paris—serious politics, or a prank? Salis's campaign might also have been

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71 In fact, Jules Simon echoed Sapeck's claims about the inequalities of tenants and landlords in his preface to Du Mesnil's *L'Hygiène à Paris* (1890), p. 6.

72 “Locataires et Proprios” *L'Anti-conciergerie* Year 2, no. 6; Juillet à Octobre, 1882., p. 1: Voit-on d'ici tous les concierges transformés en mouchards, à l'affût de tout ce qui peut concerner leurs locataires et ayant pour devoir professionnel de transmettre au poste central de police, qui tiendra lieu de bureau à l'Union syndicale des propriétaires, tous les renseignements policiers qu'ils auront pu arracher ou découvrir! / Mais c'est, ô libéralisme bourgeois! l'espionnage universalisé et porté à sa dixième puissance! Notons bien encore qu'il s'agira d'un espionnage vexatoire au suprême degré. Quiconque sera, à tort ou à raison, convaincu par les limiers du propriétaire d'être dans une situation de famille incorrecte, d'avoir des opinions contraires aux bas instincts de M. Vautour, ou même, purement simplement sera atteint et convaincu de pauvreté, grand crime pour M. Vautour, celui-là sera, ipso facto, dans l'impossibilité de trouver un logement; il sera, tout au moins, forcé de se réfugier dans quelque taudis infect qu'on lui fera payer le double et le triple. / C'est-à-dire que chaque locataire se trouvera en face d'une bande d'anthropophages, acharnée à sa ruine complète et organisée pour cela.

73 “Locataires et Proprios,” *L'Anti-conciergerie* No. 6, July to Oct., 1882, p. 1.



alternative posturing, shoring up Montmartre's outsider status, or a radical bid for municipal self-government like that of the Commune. It would not be the last time Montmartre tried to secede.<sup>74</sup> The social and spatial grievances of the communards lived on in *L'Anti-concierge*.

But ultimately, *L'Anti-concierge* is hard to place politically. On the one hand, its populism and constant boosting of social underdogs matches its playful and belligerent socialist or anarchist tendency to wage class warfare. Its advocacy of radical tactics like clandestine move-outs places it close to contemporary anarchist groups in Paris, the only other advocates of the poor radical enough to consider such action.<sup>75</sup> On shallowest reading, the magazine might appear to be a “serious” political magazine representing a more-or-less organized campaign for tenant rights, but this set-up was a send-up. The magazine mocked the pomp and arrogance of calling oneself “the official organ for the defense of” *anything*, let alone tenants. The magazine parodied the all-too-earnest, progressive style of reform-minded civil associations in the Third Republic's rich culture of civic sociability.<sup>76</sup> In so doing, the men of *L'Anti-concierge* also separated themselves from the dominant bourgeois movements for social reform, housing reform and hygiene of men like Cheysson and Du Mesnil, with their “bourgeois liberalism.”

The class conflict depicted in *L'Anti-concierge* took place within the lodging

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74 Philip Dennis Cate, “The Spirit of Montmartre,” *The Spirit of Montmartre: Cabarets, Humor, and the Avant-Garde, 1875-1905*, ed. Phillip Dennis Cate and Mary Shaw (Rutgers, 1996), p. 28. The question would be posed again in the 1920s. See Jeffrey H. Jackson, “Artistic Community and Urban Development in 1920s Montmartre,” *French Politics, Culture & Society* 24/2 (Summer 2006).

75 See Pechu, pp. 12-15.

76 In her clever analysis of fumisme's humor as Bakhtinian carnival, Catherine Dousteysier-Khoze argued that the fumistes were centrally concerned with mocking the *prudhomme* of republican do-gooders. See “Fumisme: Le rire jaune du Chat Noir” in Dousteysier-Khoze, Catherine & Scott, Paul eds., *(Ab)normalities* (Durham University Press, 2001), p. 153. For more on this rich civic culture, see Philip Nord, *The Republican Moment* and Kenneth Tucker, *French Revolutionary Syndicalism and the Public Sphere*.

house, between tenants, neighbors and concierges. The little Foucaultian pushes and pulls of power in everyday life—dropping a flower pot on granny's head, locking her out of the house, withholding rent—occupied the magazine much more than any serious attempt at social, political or architectural change.<sup>77</sup> Instead, the magazine foregrounded a struggle over access to and control of housing. Contesting the scripts for use of apartments written by politicians and landlords, *L'Anti-concierge* shows us Montmartre's role as a neighborhood of lodging houses, the scene of a constant everyday struggle to combat the price and quality of low-income housing. The magazine was a radical user manual for tenants, telling what Michel de Certeau called “spatial stories,” “operations on places,” scripts written by users rather than by designers which could tip the balance of power and empower users as re-designers.<sup>78</sup>

Eventually the Hydropathe tradition was passed from the *Chat Noir* to *L'Assiette au Beurre* (1901-1911), an illustrated magazine we saw in the last chapter. Illustrators Theophile Steinlen, Caran d'Ache and Adolphe Willette were all members of the *Chat Noir* group who later drew for *L'Assiette au Beurre* in the 20<sup>th</sup> century. All three men

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77 A great resentment and distrust of mainstream republican politics emanates from the magazine. The Montmartre bohemian's typically stark anti-bourgeois posturing only adds to this effect (“...o bourgeois liberalism!”). There was surely rebel energy in the Hydropathes, but it is hard to say whether it was revolutionary (left?) or anti-political (right?). Combining anarchist/socialist relish for class warfare with populism, hints of misogyny and antisemitism, and an insouciant anti-politics, the Hydropathes approached the category-defying margins of republican political culture in the 1880s: Boulangism and anarchism. Newspaper *L'Echo de Paris*, for example, referred to “anarchists on the left and the right” and called the Marquis de Morès, an aristocrat who funded anarchist terrorism, an “aristo-anarchist.” *L'Echo de Paris*, May 1, 1890. See also: *Le Parti Ouvrier*, Apr. 13, 1890, and “Anarchists and Boulangists,” *Le Parti Ouvrier*, Apr. 17 and Apr. 30, 1890. Cultural historians have connected the Hydropathes with all manner of antisemitic and anarchist radicals on both extremes of the political spectrum, and connected them with Paris movements that combine radical politics with aesthetics as recent as Dadaism and Surrealism, see: Siegel, *Bohemian Paris*, pp. 234-239; Philip Dennis Cate, “The Spirit of Montmartre,” *The Spirit of Montmartre: Cabarets, Humor, and the Avant-Garde, 1875-1905*, ed. Phillip Dennis Cate and Mary Shaw (Rutgers, 1996), p. 38. In the same volume, see also Daniel Grojnowski, “Hydropathes and Company,” p. 107.

78 Michel de Certeau, *The Practice of Everyday Life*, Part 3, “Spatial Practices,” pp. 91-130.

were also associated with the Incoherents, who included Bohemian innovators Jules Lévy and Emile Goudeau, fellow *L'Assiette au Beurre* illustrators Albert Robida and Félix Vallotton, along with Salis, Sapeck and Allais from the *Chat Noir*.<sup>79</sup> By the time British writer Frank Emanuel wrote *The Illustrators of Montmartre* in 1904, the Montmartre scene was well established, internationally recognized, and the illustrators of *L'Assiette au Beurre* were holding down an avant-garde humorist tradition dating back to the late 1870s. Minor literatures to be sure, they clung to the literal and figurative periphery of Paris. As Emanuel put it, these artists inhabited “...the so-called eccentric quarters of Paris—that is to say on the soiled fringe of nondescript outlying districts of the *Ville Lumière*, which is separated from the city proper by the shabby-gentile exterior boulevards.”<sup>80</sup>

Though the *Chat Noir* faltered between 1895 and 1897 and ultimately closed, it anchored an important period for bohemian Paris. Thanks to vehicles like *L'Anti-concierge* and *L'Assiette au Beurre*, Bohemia's dialog on housing was passed on.<sup>81</sup> When Guillaume Apollinaire went to visit Alfred Jarry in 1897, the concierge directed him to the “third floor and a half.” Apollinaire pretended to be astonished by the answer, but only to set up an extended *fumiste* joke. The building's owner, concerned for his bottom

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79 *The Spirit of Montmartre: Cabarets, Humor, and the Avant-Garde, 1875-1905*, ed. Phillip Dennis Cate and Mary Shaw (Rutgers, 1996), pp. 245-248 (biography appendix). Membership lists from the *Chat Noir* and the Incoherents from this book can be compared with *L'Assiette au Beurre*'s contributor's list: Stanley Applebaum, ed. *French Satirical Drawings from "L'Assiette au Beurre"* (New York: Dover, 1978), pp. xiii-xiv.

80 (1) Frank L. Emanuel, *The Illustrators of Montmartre* (London: A. Siegle, 1904), pp. 4-5; (2) Gilles Deleuze and Félix Guattari, *Franz Kafka: Toward a Minor Literature*. Trans. Dana Polan (University of Minnesota, 1986); (3) for further development of the Minor Literature concept, see Scott Spector, *Prague Territories: National Conflict and Cultural Innovation in Franz Kafka's Fin de Siecle* (University of California, 2002).

81 *L'Assiette au Beurre* was no stranger to housing issues. Issue 200 (Jan. 28, 1905) was devoted to concierges, and issue 355 (Jan. 18, 1908) was titled “Three Months' Rent: issue drawn by Bernard, Ricardo Flores and Poulbot – so they can pay theirs.” See Appelbaum, ed. *French Satirical Drawings*, pp. 69 and 116.

line, had taken advantage of its high ceilings to cut each floor in half horizontally and double the number of stories. Apollinaire wrote “This building, which is still standing, had therefore about fifteen floors, but since it rose no higher than the other buildings in the quarter, it amounted to merely the reduction of a skyscraper.”

So Jarry's apartment was also “a reduction.” Jarry, unusually short, could comfortably stand up under the demi-ceiling, but Apollinaire had to stoop. The furnishings were reductions, too: the bed was “a mere pallet” and also served as Jarry's table, “for Jarry wrote flat on his stomach on the floor”—i.e. in bed. Hence, in a turn of fumiste wit, “The furniture was the reduction of furniture—there was only the bed.” There was part of a painting on the wall, and his book collection was the mere reduction of a library, said Apollinaire, “and that is saying a lot for it.” Strangest of all was “a large stone phallus” decorating Jarry's mantelpiece:

Jarry kept this member, which was considerably larger than life size, always covered with a violet skullcap of velvet, ever since the day the erotic monolith had frightened a certain literary lady who was all out of breath from climbing three and a half floors and at a loss how to act in this unfurnished cell. “Is that a cast?” the lady asked. “No,” said Jarry, “it's a reduction.”<sup>82</sup>

So Apollinaire had a good laugh waving cheeky penis jokes at bourgeois ladies, but like *L'Anti-concierge*, this crude cultural combat was inspired by something more serious and more subtle. Apollinaire's story of Jarry's reductive apartment was not just designed to provoke laughter or shock, nor even to show off Jarry's oddball apartment as bohemian credentials. Given the difficulty of finding adequate housing on a Bohemian budget, it was also the story of a money-grubbing landlord cheating his tenants by doubling the

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<sup>82</sup> From Guillaume Apollinaire's *Il y a* (1925), quoted by Roger Shattuck in *The Banquet Years: The Origins of the Avant-Garde in France, 1885 to World War I, Revised Edition* (New York: Vintage Books, 1968), first published in 1955, pp. 213-214.

number of apartments and halving their space, as well as a story about a respectable bourgeois lady disoriented by the squalor of bohemian living. Jarry could only afford half an apartment, and could barely furnish the place.

The *Chat Noir's* connections with Montmartre's anarchist circles are also significant. Emile Pouget, Paris anarchist famous for the book *Sabotage*, published his infamous periodical *Le Père Peinard* (Father Cobbler) from a Montmartre print shop between 1889 and 1894, when his press was shut down by police in their anti-anarchist campaign. Pouget fled to London, publishing there from 1894-5, before returning to Paris in 1896 and publishing until 1902. His contributors included Incoherent illustrator Adolphe Willette. The magazine contained regular columns called *Mort aux proprios* (“death to landlords”) and *La cloche de bois* which were, as *Le Figaro* put it, “...reserved for colorful accounts of clandestine move-outs.”<sup>83</sup> 1889 was the same year that Paris anarchist Pennelier founded Paris's first *Syndicat des Locataires* (Tenants' Union). Knowing the authorities would find it acceptable, Pennelier's cover was a humanitarian and hygienic concern for “unclean dwellings.” But in practice, the group campaigned for *landlords* to clean up unclean dwellings, regulation to protect the property of tenants (so that landlords and concierges could not appropriate furniture for unpaid rent), taxation of rents, and suppression of hidden move-in fees and holiday gifts for concierges. The group's staple direct action was the clandestine move-out. It saw a bumpy career before foundering in 1906, reorganized and changed meeting spots between 1906 and 1909, and ended up in Clichy, not far from Montmartre. The programs of Pouget and Pennelier centered around small-scale, individual or small-group direct action: rent strikes and

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83 (1) *Le Père Peinard - Un journal "espatrouillant" (1889-1900)* (Paris: Les Nuits Rouges, 2006); (2) *Le Figaro*, Supplement Literaire de Dimanche, Jan. 13, 1894, p. 6.

clandestine move-outs. If anyone in Paris was really organizing tenants from the 1880s to 1900s, it was the far left, in Montmartre, following a program rather close to that recommended by *L'Anti-concierge*.

In the person of George Cochon, the anarchist critique of housing met the syndicalist's interest in collective action.<sup>84</sup> Weaver by trade and author of *39 manières de faire râler son concierge* (39 Ways to Make Your Concierge Groan), Cochon became secretary of the *Union syndicale des locataires ouvriers and employés* (Syndical Union of Worker and Employee Tenants), the descendant of Pennelier's union, in 1911. Angered by Cochon's campaigning for rent strikes and clandestine move-outs, his landlord slated *him* for eviction in January of 1912. He turned his eviction into a media circus, barricading himself in his apartment for five days with large stones, hanging out a red flag on his balcony, and a banner which read "Under the Third Republic the law is broken by the police." Cochon's creativity and ambition made him well known, well liked, and well feared. Whereas previous anarchist responses to the housing problem had been relatively small-scale, Cochon planned larger, collective actions. He organized large groups of people to squat in or occupy abandoned buildings in the Paris area, and mass move-outs in which many families fled eviction together. Cochon's innovation as an activist was direct actions that included large numbers of people, mostly remained peaceful, and raised public visibility of the housing issue. Swiss political scientist Cécile Pechu credited him with inventing the *squat* as a form of social action. The squat was both an expedient, free place to house the homeless, and an occupation, a claim to space,

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84 There is only one book-length study of Cochon to date, Patrick Kamoun's *V'là Cochon qui déménage: prélude du droit au logement* (Paris: Ivan Davy, 2000). For more on Cochon, see: Jean-Marie Flonneau, "Crise de vie chère et mouvement syndical 1910-1914" *Le Mouvement social* no. 72 (1970), pp. 49-81.

an appropriation of empty buildings and/or public spaces, which highlighted the capitalistic wastefulness embodied in vacant apartments, or flaunted the citizen's right to use public spaces.<sup>85</sup>

Soon after his eviction, late January 1912, Cochon and a group of carpenters sneaked the prefabricated pieces of a small house into the Tuileries garden, and set it up for a large homeless family named Husson. They hung out a mock real-estate sign reading, "House with garden offered by the Syndical Tenants' Union and the Building Union for a family of ten persons without lodging, abandoned by *l'Assistance publique* (public welfare office)." This sort of high-visibility prank, which simultaneously gave a homeless family shelter and flagged the issue of public assistance for large families, was characteristic of Cochon's activism. Pechu analyzed his "methods of spectacularization," his devotion to publicity as a tactic and his uncanny ability to bait the media. Unlike the clandestine move-outs of the 1880s-1900s, Cochon's actions were public, calculated to provoke visibility, scandal and reaction. He formed a noisy band, the "Racket" (*Raffut*), with an open lineup and ever-changing instrumentation. Using any implements at hand, the Racket created a terrible anti-music to sound the alarm for tenants to flee their dwellings, and to disorient landlords and concierges in the process. In June of 1913, the Racket, along with a recently evicted family, burst in and interrupted the performance at the Moulin Rouge.

The theatrical style of these actions was right out of the playbook of the Montmartre cabarets: mockery of the powerful, the managed production of the

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85 Cécile Péchu "Entre résistance et contestation: La genèse du squat comme mode d'action" Université de Lausanne Travaux de Science Politique/Political Science Working Paper Series N° 24 (2006), online: <http://www.unil.ch/webdav/site/iepi/users/epibiri1/public/24Pechu.pdf>

outrageous, the combination of humor, lying, and subverting normal power relations, shocking public performance and spectacle, etc. It must have been both embarrassing and infuriating for the authorities to deal with Cochon and his followers.<sup>86</sup> This was practical, tactical *fumisme*, in which the same old gags sent very serious messages. But Cochon's connections with the *Chat Noir* group went deeper than simply sharing the style of Montmartre's bohemian-cum-anarchist scene. Like Salis, Cochon ran for office, for *maire* of the 20<sup>th</sup> district in 1912. The campaign destroyed his credibility in some anarchist circles, and he lost the election. The Tenants' Union lost members by the thousands, and Cochon formed the new *Fédération nationale et internationale des locataires*, publicized by posters designed by *Chat Noir* Illustrator Theophile Steinlen. In spite of these ups and downs, Cochon remained a popular hero. Several popular songs were written about Cochon, one called "À la cloche du bois," by Jules Jouy of the *Chat Noir*.

Montmartre, for all of its hysterical publicity, was a relatively small place, where anarchists and avant-gardists mingled, keeping up a lively dialog about Paris's housing crisis from the 1870s to the 1910s. In this working class neighborhood filled with cheap rental properties, the social pressures of the lodging house nurtured some of Paris's most raucous and radical responses to the housing problem. From *L'Anti-concierge* to Cochon, Montmartre struggled to overturn the city's housing crisis with a carnivalesque explosion of resentment, satire, cruel jokes, community organizing and direct action. These cultural

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<sup>86</sup> In addition to occupying the Tuileries, they also occupied the courtyard at the Chamber of Deputies, the Madeleine, and the Prefecture of Police. In April of 1912, Cochon helped move 50 families into the Chateau d'Eau barracks near Place de la République. In April of 1913, Cochon and an estimated 15,000 homeless people invaded the Hôtel de Ville. Cochon was particularly fond of taking over spaces owned by the State, hence the Hôtel de Biron and the army's Bâtiment du Bastion, or places that represented some other form of social power: the CGO depot, an old Jesuit college, the Bourse du Travail. In November of 1912, Cochon and company occupied the Thiers library and the National Printers. In 1913, Cochon negotiated a sublet of the Comte de Rouchefoucauld's private mansion for homeless families. On a few occasions, they simply occupied the street (see Pechu, pp. 19-25).



practices re-scripted the apartment house, the neighborhood, and all low-income areas of the city as spaces ripe for appropriation by disgruntled tenants, as they struggled to cope with the high cost, low quality, and strained social relations of Paris's housing infrastructure.

*Escaping the City: Fleeing into the Open Air*

Journalist and critic Jules Claretie wrote a daily column for *Le Temps* from 1880 to 1910 called simply "Life in Paris" (*La vie à Paris*).<sup>87</sup> Claretie said his focus was *moeurs* (morals or customs), and so the column was "quite simply the notes of a moralist from day to day."<sup>88</sup> He was interested in everyday life, those patterns of practice that coalesce around social rhythms and routines, as well as the kind of "character" that these routines produced in Parisians. He tracked modernity and the zeitgeist, any sign of the times. In his times, he saw a fever for light and air. Claretie contrasted yesterday's Parisian, who never left Paris, with today's new, modern Parisian. Paris's long-standing "love of liberty" had become "love of the open air." Today's Parisian, he wrote, "can no longer live in the narrow streets...of the past." He was "thirsty" for "...this light fluid which is called air and which is life."<sup>89</sup>

Using the same verb (assault) used to describe the rush of riders to the Métro on opening day, Claretie wrote that the Parisian "assaults the *trains de plaisir*, the cars of suburban trains, steamboats, tramways—anything that frees him, liberates him—and he heads for the country or for the shore." Expanded means of transport increased mobility

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87 Claretie, Jules. *La vie à Paris: 1880-1910* (Paris: G. Charpentier et E. Fasquelle, 1881-1911).

88 Jules Claretie, *La vie à Paris: 1895* (Paris: Charpentier, 1896), pp. VI-VII: "tout simplement les notes d'un moraliste au jour le jour."

89 *Ibid.*, p. 45.

for Parisians, feeding their already bubbling desires to escape the city and vent the pressures of urban living. Certain holidays (Pentecost, said Claretie) and the summer season of vacations brought an “exodus” from Paris—but not just any exodus; Parisians were fleeing a sick city. Like Haussmann and Poubelle, Zola and DuMesnil, Claretie medicalized the urban condition, explaining that Parisians fled their city for their *health*: “One would say that they feel that their lungs and their pores need to breath easily, and they prescribe themselves this air cure.” Claretie also called air a “vital fluid.”<sup>90</sup>

Claretie connected the Parisian's love of freedom with the city's geography. He noticed a change in the *scale* of daily life: “Larger streets are killing the smaller, just as the department stores do the boutiques.” He saw that Parisian love of light and air was changing city planning, and so Paris's terrain was changing, too. Roads were getting wider “because air passes through these large avenues, these modern boulevards, because the Parisian here breathes with ease.” Similarly, the celebrated *passages* (shopping arcades) were dying out, because they “have a great drawback for Parisians...they lack air.” The love of air was changing the topography of pedestrian Paris, said Claretie, as crowds passing by cried “De l'air! du grand air!” (Into the air! into the open air!).<sup>91</sup>

Closely connected with this love of fresh air and open space was the rise of another important source of expanding mobility and access to green space: the bicycle. As Claretie put it, the avid cyclist had “a sort of special rage which I'll call the appetite for space.” Cyclists wanted to go farther, to see more. Like the mania for open air, bicycles were “a very particular element in the complete transformation of mores which

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90 Ibid., p. 46.

91 Ibid, pp. 47-48.

we are witnessing. Make no mistake: the bicycle is preparing us a new France.”<sup>92</sup> For Claretie, new technologies—bicycles, steamboats, tramways, etc.—increased Parisians' access to mobility thus setting off changes in practice. He worried that the new culture of physical exercise, travel and adventure developing around the bicycle was too body-centered, and would damage the culture of French literacy. Books and bicycles, for Claretie, stood for mind and body, and the bicycle's new culture of “biceps” would distract French people from the life of the mind. He worried that there was a neurotic, restless psychology at work here, a “mania for movement” (*folie de mouvement*).<sup>93</sup> Voyages, for Claretie, were always journeys of escape and forgetting, and so he warned readers that “traveling is one form of intoxication.”<sup>94</sup>

Summers and weekends gave Parisians time to escape the city.<sup>95</sup> In August of 1895, Claretie wrote “At the present time, three quarters of Parisians are traveling the major roads and tiring themselves out, under the pretext of amusing themselves.” The traditional Parisian who never left home had been replaced by “a sort of wandering Parisian who, when the summer has come, can no longer remain at home, and doesn't even have enough paths to the country to satisfy his dream.” These restless urbanites

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92 Ibid., 49: “un élément tout particulier dans la complète transformation des moeurs à laquelle nous assistons. Ne vous y trompez pas: la bicyclette nous prépare une France nouvelle.”

93 Ibid., 49-50. For more on movement, vacations, vehicles, etc. see *La Vie à Paris*: 1896 volume, p. 238 (August 20, 1896).

94 Ibid., p. 178: “le voyage est une des formes de l'ivresse.” Claretie explained: “This need to travel, born of the desire to escape everyday cares and current responsibilities, is also one of the symptoms of the nervousness which is dislocating us. The man taken by the unknown, who hurls himself to adventure in virgin lands, is a sort of conqueror resolved to enlarge the world; but the Parisian who packs his trunks to accomplish, -- the guide in hand, the train schedule in his night sack, -- whatever kind of circular voyage, is quite simply, most of the time, someone bored who wants to escape himself. To escape from the self, to vanquish the demon inside that every modern being possesses, ennui, malcontentment with everyday tasks, this is the ambition of the Parisian who snaps shut his suitcase....” and ennui “n'est que la mélancholie des imbéciles,” pp. 176-7.

95 Ibid., p. 175: #XVI, Aug. 15, 1895: Claretie offered a “Petite philosophie du Bonheur et du Rêve à propos des excursions d'été, et pourquoi les Parisiens voyagent à bicyclette ou en wagon.”

were never satisfied: “he wants to discover forgotten places and travel far, as far as possible, as a cyclist puts his pride in availing himself of the maximum number of kilometers his machine can handle in a day.” Claretie saw the cyclist as a sort of archetype, the most identifiable carrier of Paris's modern *folie de mouvement*. Hence monstrous, hyperbolic phrases like “The bicyclist is the only modern voyager to whom adventures happen (adventure, that chimera of the world today).”<sup>96</sup> For Claretie, the cyclist, self-propelled and self-directed, was different from the tourist with his luggage, carted around on boats and trains. The cyclist was “the last romantic voyager,” who has “...recovered the unexpected, the ideal, the fantastic.”<sup>97</sup>

For Claretie, the cyclist was only the most clear-cut example of a much more widespread trend. Come summer, he argued, *everyone* in Paris wanted to get away, even those who could not afford it, hence the popularity of getting away in one's mind, demonstrated by popular books like *Voyage autour de ma chambre* (Trip Around My Room) and *Voyages dans mon fauteuil* (Trips in my Armchair). Claretie's discussion of open air, holidays, bicycles and the culture of health and fitness shows that for many Parisians, daily life in the city did not live up to their expectations. Their lived city did not match their ideal city. Specifically, the lived city was short on green space, open space and fresh air. Hence, while the authorities worked to open the city, through road planning, slum clearance, and rewriting building codes, the Paris populace often tried to escape the city, through travel or through imagination. A growing body of consumer goods—bicycles, popular books, train tickets—were marketed specifically for the

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96 Ibid., p. 174: “Le bicycliste est le seul voyageur moderne à qui arrivent des aventures (l'aventure, cette chimère du monde actuel).”

97 Ibid., p. 183.

purpose of helping urbanites escape the city. Just as the avant-gardists of Montmartre critiqued the apartment house, so weekendening and vacationing Parisians critiqued the city at large.

Painting was another way to escape. Two of Seurat's most famous paintings from the 1880s, "The Bathers at Asnières" (*Une Baignade à Asnières*) and "Sunday Afternoon on the Island at la Grande Jatte" depict Parisians escaping the city in their leisure time. Seurat's interest in leisure culture drove him to follow the hordes of Parisians leaving the city for the green spaces of the suburbs and the banks of the Seine. Here, he took urban social realism (bourgeois leisure) and set it in a post-impressionist landscape. From the differences of costume in the two paintings, viewers can see that the bathers at *Asnières* were a more working-class or lower-middle-class bunch, with none of the buttoned-up Sunday finery of *la Grande Jatte*. Seurat's bathers at Asnières are also set against smokestacks and smog in the distance, an explicit depiction of the ills of urban life. The contrast of figures in the front swimming and smokestacks in the background also invites speculation about Seurat's ecological consciousness—did he intentionally depict factories on the west side of Paris, upstream of *Asnières*? Did he mean to comment on the quality of water his bathers swam in, or to suggest the source of their pollution?<sup>98</sup>

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98 In light of the issue's public prominence, it is very unlikely that Seurat did not know about it. Asnières was directly across the river from Paris's main drain at Clichy, where half of Paris's sewage entered the river. Alfred Durand-Claye, an important water engineer in Paris, knew that water at Clichy and St. Denis, site of the city's other main drain, had been significantly altered already as of 1871. On Dec. 12, 1874, the Ministry of Public Works convened a Commission whose mission was "to propose measures to take to remedy the infection of the Seine in the area around Paris." See *Comptes rendus hebdomadaires des séances de l'Académie des sciences* (1871: vol. 72), pp. 89-92 (Note on a plan by Durand-Claye for new collecteurs in Paris). See also: Ministère des Travaux Publics. *Rapport de la commission chargée de proposer les mesures à prendre pour remédier à l'infection de la Seine aux abords de Paris* (Dec. 12, 1874). AP D1S8 6, assainissement de la Seine. It would be difficult to say exactly how widespread awareness of Paris's ecological impact on the Seine was, though many newspapers of the era echoed *La Petite République's* angry 1895 editorial, which charged the Travaux de Paris with operating "sewers that plague the city and the suburbs." See: Ernest Judet, "l'Eau et la politique," *Le Petit Journal*, Sept.

Seurat's follower, painter Paul Signac (1863-1935) took Seurat's pointillist style and interest in escaping the city, and pushed them further. Whereas Seurat only depicted Parisians escaping the city, Signac made anti-urbanism a lifestyle and a message. Born and raised in Paris, he became an avid traveler, fond of escape. In the 1890s he bought property in Saint-Tropez and built a studio there, eventually leaving Paris permanently except for periodic visits. In the south of France, he developed what art historian Anne Dymond called “a politicized pastoral,” a way of idealizing the landscape and people of southern France as a counterexample to the problems of Paris's urban modernity. His pastoral scenes politicized urban life, and provided an alternative, anti-urban anarchist critique of the city.<sup>99</sup>

The post-impressionist pantheon includes many artists who fled Paris for the provinces (and Cézanne was a southerner to begin with). Van Gogh and Gauguin ran from Paris to Arles in 1888, and then Gauguin fled again after Van Gogh's infamous ear incident, this time to Tahiti. Like Signac, Gauguin (1848-1903) was a native Parisian. But for Gauguin, the provinces were not far enough from the metropole—only the colonies would do. In Tahiti, Gauguin represented indigenous life as noble savagery, an idealized non-urban and non-modern other to Paris's daily life. For these pioneering modernists, Montmartre could never be far enough away from Paris. Gauguin and Signac challenged the idea that Paris was the pinnacle of civilization, preferring to escape this city in crisis rather than work to repair it. Rather than hold the lived city to an urban ideal, they wrote

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14, 1895, p. 1; M. Charnay, “Retour de l'eau de source” *La Petite République*, Sept. 18, 1895, p. 1; “Assainissons la Seine” *L'Éclair*, Sept. 9, 1909; L.M. Bonneff, “Dans les Egouts de Banlieue” *L'Humanité*, Nov. 24, 1909, p. 2.

<sup>99</sup> Anne Dymond, “A Politicized Pastoral: Signac and the Cultural Geography of Mediterranean France” *The Art Bulletin*, Vol. 85, No. 2 (Jun., 2003), pp. 353-370.

scripts for a non-urban modernity.

*Auguste Fabre's 1896 Plan for Skyscrapers as Working-Class Cooperative Housing*

While some dreamed of escaping the city, another Frenchman was dreaming of American skyscrapers. In 1896, Auguste Fabre (1833-1922), entrepreneur, activist, free-thinker, journalist, and co-oper, wrote an article titled “Les Sky Scratchers: ou Les Hautes Maisons Américaines” (Sky Scratchers, or High American Houses).<sup>100</sup> The article interpreted the early 1890s skyscrapers around Chicago’s Loop (e.g. the 1892 Masonic Temple) as the embodied blueprints of a utopian social order.<sup>101</sup> Arnold Lewis has shown that many late-nineteenth century Europeans looked to Chicago for “an early encounter with tomorrow.” The tall buildings around the Loop seemed a “time warp,” a virtual museum of Europe’s technological, industrial, architectural and commercial future.<sup>102</sup> Most Europeans assumed that European skyscrapers would serve the same purpose they did in Chicago—the offices of white collar workers—but Fabre saw the potential for worker-owned cooperative housing blocks, and a solution to Paris’s housing crisis. While Jules Siegfried and the more famous social reformers around the Musée Social debated the merits of public and private support for worker housing, Fabre recommended a third way: co-operation, collective ownership.<sup>103</sup>

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100 I found this source online, at the website for the International Institute for Social History in Amsterdam, <http://www.iisg.nl/>. Fabre, Auguste. *Les Sky Scratchers, ou Les Hautes Maisons Américaines* (Nîmes, Bureau de L’Émancipation, 1896).

101 The article was based in what Mike Davis called “the core modernist fantasy of the future metropolis,” see: *Ecology of Fear: Los Angeles and the Imagination of Disaster* (Vintage, 1999), p. 361.

102 Lewis, Arnold. *An Early Encounter with Tomorrow: Europeans, Chicago’s Loop, and the World’s Columbia Exposition* (University of Illinois Press, 1997), 1-10. It is also worth noting the importance of the 1893 World’s Columbia Exhibition in bolstering this international image of Chicago as a future city, given what we have already said about World’s Fairs.

103 On the *Musée Social*’s reformers, and their debate over public and private, see Janet Horne, *A Social*

By upbringing Fabre would have been a capitalist. Born in Uzès in 1833 and orphaned, he was adopted by a Protestant preacher and Fourierist. He grew up reading Fourier in his father's library, and trained to be an industrialist. He inherited his father's silk factory, but was always a "reluctant entrepreneur," a moralist and a free-thinker fascinated with Fourier's vision of perfected industrial organization, material abundance, class harmony, and sensual enjoyment.<sup>104</sup> Working in Lyon, Fabre was forced to play the boss in a labor dispute, an experience which made a class-traitor of him. He followed his conscience, closed his business and moved to Nîmes to become a craftsman and shop-keeper, producing and selling farm equipment. In Nîmes Fabre also worked as an activist, organizing a workingman's club for evening instruction and discussion called *La Solidarité* (1876), a worker's consumer cooperative with the same name (1878), and a cooperative bakery called *La Renaissance*.<sup>105</sup> Fabre's commitment to utopian social organization solidified between 1879 and 1883, when he replaced his friend Godin as administrator of a cooperative experiment near Guise they called the *Familistère*. According to hygienist and housing reformer Émile Cacheux, it was the premier example of employer paternalism in France at the time. The community combined a carefully ("humanely") engineered factory and nearby apartment complex where workers lived. The entire property was cooperatively owned. Fabre's role at the Familistère was various: he drafted the articles of association, served as director of economic affairs, and

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*Laboratory for Modern France*, pp. 83-96.

104 On Fourier, see Manuel, Frank. *The Prophets of Paris* (Harper Torchbooks, 1965), pp. 195-248. The utopian socialists remained an important inspiration for urban transformation across the 19<sup>th</sup> century; Haussmann had Saint Simon, Fabre had Fourier. Paul Rabinow has also stressed architect-planner Tony Garnier's debt to both Saint Simon and Fourier. See *French Modern*, pp. 212, 224, 231.

105 See "Background" on Fabre from the International Institute for Social History in Amsterdam: <http://www.iisg.nl/>.



performed daily, cooperative manual labor.<sup>106</sup>

In the mid 1880s, Fabre returned to Nîmes and met Charles Gide, an unorthodox economist, also a Protestant from Uzès with interests in Fourier and the growing French consumer cooperative movement.<sup>107</sup> Gide's free-thinking lectures, which considered economics from the consumer's point of view, first scandalized the laissez-faire environment of mainstream Paris academic and intellectual life in 1884. With Édouard de Boyve, who founded the general cooperative *l'Abeille Nîmoise* ("the Bee of Nimes") the same year, Fabre and Gide are often credited with starting the consumer cooperative movement in France, earning the label "the School of Nîmes." The following year, 1885, they were instrumental in organizing the first national convention of consumer cooperatives in Paris. The conference spawned a new journal, *L'Émancipation*, to publish the school's opinions. Though all three wrote for the journal, by 1889 Gide would become the premier spokesman for consumer co-ops in France.<sup>108</sup> Fabre's article on skyscrapers appeared in an 1896 issue of *L'Émancipation*.

Repeating the hygienist slogans of his social reformer colleagues, Fabre portrayed the crisis of working class housing as an urgent social problem. Working-class housing was notoriously cramped, dirty, poorly ventilated and poorly lit, a threat to safety, health, and morality.<sup>109</sup> But recent advances in building technology and architectural form—structural steel, elevators, the skyscraper, new heating, plumbing and sanitation systems—offered a glimpse of what working-class housing could look like in a utopian

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106 See Émile Cacheux, *Les habitations ouvrières* (Laval, E. Jamin, 1882), pp. I-III. The Familistère was a unique, utopian arrangement to be sure. One is reminded of both Brook Farm and high Fordism.

107 Emile Cheysson is another important social reformer of the era from Nimes.

108 Williams, Rosalind. *Dream Worlds: Mass Consumption in Late Nineteenth-Century France* (University of California, 1982), pp. 269-321. See also "Background," <http://www.iisg.nl/> (cited above).

109 Fabre calls working-class homes "vile hovels" (bouges infects), *Les Sky Scratchers*, p. 9.

future. Like the law-makers of the 1880s, Fabre dreamed of expanding working class access to quality housing, equipped with the latest infrastructures. He thought modernized infrastructure could clean up working class everyday life.

With excitement for humanity's future, Fabre reported that the United States had developed skyscrapers, and that a recent report by Mr. "Wuarin"<sup>110</sup> established, beyond any doubt, their feasibility, efficiency, and convenience. Fabre knew that hygienists and reformers had long upheld the single-family home as the ideal for working class housing, and that he would have to preempt criticism and disbelief in arguing that "no working class dwelling is more healthy, convenient, or economical" than the skyscraper.<sup>111</sup> Fabre argued that skyscrapers could expand access to hygienic living conditions. Because heat, incoming and outgoing water, and other services could be purchased cheaply in bulk for the entire building, many tenants would have access to better services than they could afford alone. The skyscraper's height would ensure apartments open access to sunlight and fresh air. No window would open onto a dark, cramped, dirty alley or courtyard, looking out instead onto open sky. Fabre appealed to hygienic authority to argue the importance of light and air for human well-being, both mental and physical.<sup>112</sup> In their materials, organization, and design, he argued, skyscrapers embodied superior living conditions.

To those who scrutinized the hygiene of the working-class lifestyle, Fabre gave a similar reply: each apartment would be equipped with a trash chute, thus rationalizing sanitation. Tenants would no longer have to worry about waste disposal. Waste could be

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110 I cannot help thinking that Fabre was awkwardly translating the English name "Warren."

111 Fabre, *Les Sky Scratchers*, p. 5.

112 Fabre, *Les Sky Scratchers*, pp. 22-23.

conveniently discarded from one's own apartment, falling immediately to the ground- or basement-level, kept at a safe distance from everyday living space, and efficiently disposed in bulk.<sup>113</sup> Similarly, Fabre touted the new duct and temperature-regulating technologies employed in the heating system.<sup>114</sup> With a central furnace, it would no longer be necessary for each apartment to have its own stove. This would reduce soot in apartments, improving quality of air and reducing the risk of fire. Fire was a hot topic for Fabre, who imagined relatively fire-proof skyscrapers based around an "iron skeleton" (*ossature en fer*), and made of "incombustible materials" (*matériaux incombustibles*) like iron, steel, bricks, stone, and cement. Skyscrapers would also be equipped with carefully designed staircases and 'walkways' (*balcons-trottoirs*) for easy evacuation in case of emergency.<sup>115</sup> Fabre's ultimate point concerning technology, design, bulk utilities, and modern conveniences was "all the economy of construction and the perfections of function inherent in the great, unified dwelling."<sup>116</sup> The best new technologies and best living conditions would literally be built into skyscrapers.

Fabre argued that the buildings' spatial layout would promote privacy and "independence," a common word in his essay. This would not, however, mean the isolation of tenants from one another and the decline of public or civic life. By concentrating a large population in a small area, possibilities for sociability would increase. In Fabre's words, "With the grand, unified house the tenant and the dwelling act and react, the one on the other: the former, [by] reclaiming for the building more and more perfect general forms and dispositions, the latter, [by] requiring of its inhabitants a

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113 Ibid., 26-27.

114 Ibid., 16.

115 Ibid., 17-19.

116 Ibid., 28.

more and more sociable mood and habits.”<sup>117</sup> “Moral hygiene” would also be increased, because young people unsupervised by their own parents and given to act out would be supervised by neighbors: “all circulation” throughout the housing complex would occur “under the eyes of parents and the whole population.”<sup>118</sup> The reorganized, high-density living space could thus teach tenants new habits, new forms of social interaction and cooperation. Fabre saw everyday life in the housing block as a moral and educational experience which would reshape tenants as subjects, and help them practice utopian forms of social interaction. Like the housing regulations of 1878-84, Fabre designed both infrastructure and practice, architecture and society; his designs were ambitiously scripted, to both preempt criticism from social reformers and control and civilize tenant practice.

Last but not least, Fabre argued that these housing-blocks should be cooperatively owned in order to fulfill their maximum economic potential. Fabre recognized that building such structures would require an enormous amount of capital; only corporate bodies, groups of shareholders, could amass enough funds. The housing blocks would be organized as public corporations, something like condominiums, in which the tenants were share-holders, and the whole was cooperatively owned. In a moment of republican fanfare, Fabre claimed that responsibility of funding should lie with “the public, the great public.”<sup>119</sup> Once built, the concentration of so many tenants in one place would enable bulk savings on services like heat and water. Any outstanding costs could easily be “recuperated through the price of the apartments,” because the finished product would

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117 Ibid., p. 29.

118 Ibid., 5.

119 Ibid., 10.

have enormous sale-value.<sup>120</sup>

Fabre's argument in favor of cooperative ownership was not merely economic; he also appealed to a historical argument. Recently, he claimed, France had seen a corporatization of business in several sectors of the economy. Large, public-shareholder corporations had been formed in the transportation (esp. railroad) industry, as well as in the iron and steel industries. Administration had been centralized while ownership was decentralized—in Fabre's view a gain in both bureaucratic efficiency (and control) and consumer power. The same trend could also be seen in commerce; while consumers were organizing in co-ops, merchandise was being centralized in the new department stores (*grands magasins*).<sup>121</sup> Fabre saw the same change in scale as Claretie, writing:

Will housing undergo the transformation we have seen in transportation, in industry, and in commerce? Will it centralize itself as a body, while it decentralizes itself as property? In a word, are we headed toward the large, unified apartment house, in spite of the streams of ink poured and the counter-arguments hurled at it by certain economists?

The recent construction of sky scratchers, and the advantages they offer...make the affirmative possible, at least for large cities.<sup>122</sup>

This historical argument reaches its most hyperbolic at the end of the essay, where Fabre draws a not-so-subtle parallel between the historical form of progress and the architectural form of sky scrapers: “always larger, always higher.” The full passage is worth quoting:

Watching these tall American constructions raising their arms of steel toward the sky, one is struck with admiration for the immense resources of modern industry...Forward! Onward! Onward! Progress lies in the search for the best conditions of development in human life and in the incessant pursuit of an ideal,

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120 Ibid., 12.

121 Ibid., 10-11. On the growth of mass consumption and department stores, see Benjamin Arcades *Project*, and Williams, *Dreamworlds*. Michael Miller, *The Bon Marché*, Zola *Lady's Paradise*.

122 Ibid., 12.

always larger, always higher.

While “modern industry” had made these buildings possible, recent trends in corporate ownership could secure the fruits of industry for all. For Fabre, it was the advance in productivity and the resulting “enormous social capital which separates civilization and barbarism.” Cooperative ownership would provide the financial conditions for social perfection, wherein everyone could enjoy the infrastructural fruits of modern civilization (a grand narrative, indeed).<sup>123</sup>

As a futuristic work of prophecy and forecast, Fabre’s essay is similar to the science fiction of contemporaries Jules Verne and Albert Robida. While claiming a more-or-less sober appreciation of recent technological developments as possible keys to the housing problem, Fabre tended to fetishize technology itself, to beam at its size and speed, to offer it as an answer to social questions, and to make it a motor of history. Fabre gave technology a certain historical agency. “With the elevator everything changes,” (*avec l’ascenseur tout change*), “thanks to it...” (*grâce a lui*) it was possible to live in such tall buildings. Or: “With the Sky scratcher everything changes,” (*Avec le Sky scratcher tout change*).<sup>124</sup> Fabre's contribution to Paris's ongoing debate on the housing problem was to offer a technical fix, a solution based not in reform legislation or moral education, but in new, modern architectural forms, social forms, construction methods and networked infrastructures for heat, light and sanitation.

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123 Cooperative societies for low-cost housing saw major growth between 1896 and 1906. Total capital held grew from 215,000fr. to 7,188,336fr. In these same years, private shareholder companies for low-cost housing grew from 1,435,000fr. to 7,142,150fr. See: (1) *Recueil des documents sur la prevoyance sociale* (Paris: Berger-Levrault and Cie, 1905), p. 12. (2) *Recueil des documents sur la prevoyance sociale* (Paris: Berger-Levrault and Cie, 1908), p. 12. For more on the cooperative question in housing reform, see Bullock and Read, pp. 452-464.

124 Ibid., pp. 4 and 17. P. Villian and E. Mauger used the same formula in their pamphlet about the Métro: “avec la locomotive, tout change.” See *Un Métropolitain qui ne coûte rien et ne trouble rien* (Paris: Grande Imprimerie, 1892), p. 27.

Hence Fabre fits Michel Callon's theory of the “engineer-sociologist” rather neatly. As Callon argued, the design decisions made by engineers are never merely technical. Technological designs and plans are not only used to solve techno-scientific problems, but also used by engineers to pursue social effects and social change.<sup>125</sup> Fabre's dreams of skyscrapers envisioned architecture and engineering no more than social relations, morality, health and safety. Throughout the essay, architecture and technology are constantly and consciously evoked in the service of some larger social goal—solving the housing crisis, moralizing tenants, reducing social inequality, or building community. Fabre scripted skyscrapers in order to write the fragility of the built environment and Paris's urban crisis out of French urban modernity.

*Tuberculosis, “Unclean Blocks” and Slum Clearance, 1894-1914*

As Fabre gave agency to skyscrapers and elevators, so the hygienists gave contagious agency to built spaces. Individuals were no longer the only agents of contagion—now apartments, buildings, city blocks could be contagious, sick spaces in which diseases incubated and were passed on. In 1890, DuMesnil called them *logements meurtrières* (murderous lodgings); in 1904 journalist R. Deuzères called them *maisons maudites* (cursed or haunted houses); in 1906, A. Fillassier called them *maisons funèbres* (funeral homes).<sup>126</sup> Like the “murderous tramways” we met in the last chapter, these killer houses symbolized the dangers of modernity. Their killer agency came from being

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125Callon, Michel. “Society in the Making: The Study of Technology as a Tool for Sociological Analysis.” *The Social Construction of Technological Systems*. Bijker, Hughes, and Pinch, eds. (MIT, 1987), p. 84.

126 (1) Octave DuMesnil, *l'Hygiène à Paris L'habitation du Pauvre* (Paris: Baillièere et fils, 1890), p. 14; (2) R. Deuzères, “A travers la science” *Le Petit Parisien*, July 4, 1904; (3) A. Fillassier. *Les casiers sanitaires des villes et les oeuvres d'assistance* (Paris: Jules Rousset, 1906), p. 1.

unclean, unsafe and unhealthy. Journalists, doctors and social reformers tirelessly detailed the squalid conditions they found in working class dwellings—humid walls, shattered tile floors, mold, structures rotting or sagging. One author described parquet wood floors so “used-up, spongy and cracked” that they could not be properly disinfected: “...old, worn wooden floors harbor murderous microbes in their cracks.”<sup>127</sup> Descriptions of working class life revolved around charged stock words: the nouns *taudis* and *bouge* (slum, hovel), the adjective *infect* (literally infected or metaphorically foul), and the verb *entasser* (to be stuffed or crammed).

In the 1890s, with decades of hygienic work on cities and the modern etiology of disease behind them, Paris hygienists began to speak of overcrowding and overpopulation (*entassement, encombrement, surpeuplement, cantonnement*) on multiple levels: individual apartments, buildings, city blocks, neighborhoods. In 1891, Jacques Bertillon showed that 14% of Parisians suffered from “excessive overcrowding,” meaning two or more people per room. Bertillon also found that the problem was confined mostly to the 19<sup>th</sup> and 20<sup>th</sup> districts.<sup>128</sup> Census data shows the trend continued through 1896 and 1901.<sup>129</sup> In the mid 1890s, while acknowledging a decline in the mortality rate across Europe, including a decline in several contagious diseases (typhoid, smallpox, measles, scarlet fever, whooping cough, diphtheria), Bertillon showed that working class Parisians, especially in the peripheral districts, did not benefit equally from this decline of disease and death; their mortality rate was higher and contagious disease remained a common cause of death. The 1882 typhoid outbreak and the 1884 and 1892 cholera outbreaks were

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127R. Deuzères, “A travers la science” *Le Petit Parisien*, July 4, 1904.

128Shapiro, pp. 75-78; Janet Horne, pp. 226-228.

129 Bullock and Reid, p. 307.



also heavily localized in working class areas.<sup>130</sup> Even using the modern tools of post-Pasteurian germ theory and demographic statistics, Bertillon came to rather traditional conclusions: the parts of Paris where the poorest people lived were also the densest, the most disease ridden, and the least equipped with modern infrastructures to handle fresh water and wastewater.

There was one particular disease—tuberculosis—which did not follow the general decline in disease and death rates in Paris. In 1894, Paul Juillerat, already known for his research in animal biology, became the first director of the Prefecture of the Seine's new *Casier sanitaire des maisons*.<sup>131</sup> The new office was tasked with compiling statistics about disease in Paris, and in the tradition of John Snow, with plotting individual instances of disease on the map of Paris to create an epidemic geography, producing knowledge of Paris's deadliest places. Juillerat and his staff spent the next decade collecting data about individual houses in Paris through inspections, and then analyzing them statistically, etiologically, and geographically. The staff also performed disinfections during house visits, disinfecting between 7,000 and 11,000 houses per year between 1894 and 1905. Juillerat became one of France's premier spokesman for the idea that tuberculosis was caused by excessive urban density, and its resulting lack of light and air, two fundamentals of hygiene.

Soon hygienists across France were talking about “the struggle against

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<sup>130</sup>Evenson, *Paris a Century of Change*, p. 208.

<sup>131</sup>The word *casier* is difficult to translate—it can mean rack, filing cabinet, compartment or pigeonhole. David Barnes argued that the name of the *Casier sanitaire*, which methodically collected information about houses in Paris, conveys a sense of grid or network, a tissue of compartments extended over the city. See: (1) David Barnes, *The Making of a Social Disease: Tuberculosis in Nineteenth-Century France* (University of California, 1995), pp. 117-128; (2) Yankel Fijalkow argues that Juillerat and the *Casier sanitaire* led “the putting in place of a system of information for the city” (la mise en oeuvre d'un système d'information sur la ville), see *La construction des îlots insalubres*, p. 127.

tuberculosis.” It became a slogan, passed from L.R. Regnier in 1898, then to Acheray and Paul Brouardel in 1901.<sup>132</sup> Brouardel's book *The Struggle Against Tuberculosis* centered around a simple, three-part formula for understanding the struggle: tuberculosis was “contagious, preventable, curable.” Along with Casimir Perier, Léon Bourgeois, and doctors Landouzy and Grancher, Brouardel founded the *Fédération antituberculeuse* (Anti-tuberculosis Federation) in February, 1902, which would later become the *Association antituberculeuse française* (French Anti-tuberculosis Association). Brouardel was also instrumental in founding the *Alliance d'hygiène sociale* (Alliance for Social Hygiene) with Casimir Perier in 1905.

The “struggle against tuberculosis” passed to municipal councilor Ambroise Rendu in 1902. On December 22nd, Rendu addressed a meeting of important social reformers associated with the Musée Social about the struggle.<sup>133</sup> The phrase was spread globally as well, applied to public health movements across Europe, Asia and the Americas. London held an International Congress on Tuberculosis in 1901, and Washington in 1908.<sup>134</sup> Paris played host to this international anti-tubercular movement

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132(1) L.R. Regnier, "La lutte contre la tuberculose" *Journal d'Hygiène* (Feb. 3, 1898), p. 52; (2) Paul Edouard Acheray, *La lutte contre la tuberculose dans les milieux populaires. Dispensaires antituberculeux* (These fac. med. No. 39. Lille, 1901); (3) Paul Brouardel, *La lutte contre la tuberculose* (Paris: Bailliere, 1901); (4) L. Thoinot, "La vie et l'oeuvre de Paul Brouardel (1837-1906)," *Annales d'hygiène publique et de médecine légale* (series 4, volume 6, No. 3, 1906), p. 229. David Barnes memorably translated the phrase as the “War on Tuberculosis.” See *The Making of a Social Disease*, pp. 13-18.

133 *La Réforme Sociale: Bulletin de la Société d'Économie Sociale et des Unions de la paix sociale fondées par P.-F. Le Play* (series 5, volume 5, year 23, Jan.-June, 1902), p. 389.

134 (1) London's 1901 Congress included a presentation on the comparative study of tuberculosis prevention in Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, Chile, Denmark, England, France, Holland, Hungary, Italy, Japan, Mexico, Monaco, Norway, Portugal, Romania, Russia, Spain, Sweden, Switzerland, Turkey and the United States. See: *Transactions of the British Congress on Tuberculosis for the Prevention of Consumption, vol. I* (London: William Clowes and Sons, Ltd., 1902), pp. 200-221; (2) Albert Robin, “La lutte contre la tuberculose” *La Revue de Paris* 1903; (2) Robert Savary and Dr. Collet, “La Lutte contre la tuberculose en France,” *Annales des sciences politiques* (1904): 490-49; (3) Dr. Patrikios, “La lutte contre la tuberculose en Grèce,” *Transactions of the International Congress on Tuberculosis, Washington, Sept. 21 to Oct. 12, 1908* vol.

in 1905. The Paris International Congress on Tuberculosis was put on by a commission including hygienists Brouardel and Landouzy and senator Paul Strauss. Following a week of conferences featuring hygienist-reformers Cheysson, Roux, Juillerat and Bonnier (October 2-7), the exhibition was open to the public for three weeks (October 8-29). The organizing committee counted 184,762 visitors, but estimated 200,000.<sup>135</sup>

The exhibition was inaugurated with a visit from French President Émile Loubet. A guide led Loubet through the exhibition, taking him past two exhibits with a similar structure: a pair of model rooms juxtaposed in order to teach hygienic lessons. The first exhibit appeared in the “social section” of the exposition, and was set up by *L'Assistance publique*, the city office for public welfare and poor relief:

Then they took him [Loubet] into a room where one could see a cell from the Prison at Fresnes-les-Rungis and the room of a domestic [servant] in a nice house on the avenue des Champs-Élysées side by side. The contrast between this cell, which is perfectly hygienic, and the room, which is obviously unclean, is striking!<sup>136</sup>

In addition to its hygienic message, the contrast between these two rooms suggested a moral problem—how could one allow prisoners to live in better conditions than honest domestic servants did? Like the *garni*, both prison cells and domestics' quarters were common sites of hygienic concern.

Later Loubet was taken to a second pair of rooms:

...two bedrooms were set up looking at one another, so that the visitor would easily establish their comparison right away. The first was hygienic, furnished with the care of the Touring-Club of France; the other unhygienic, which with its curtains, its fabric wall coverings, its furniture, its rugs, its traps for dust and for

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4, pt. 1 (Philadelphia: William Fell, 1908), p. 28.

135 *Congrès International de la Tuberculose, tenu à Paris, du 2 au 7 Octobre 1905. Vol. 3: Conférences; Fêtes, Visites et Excursions; Exposition* (Paris: Masson and Company, editors, Library of the Académie de Médecine, 1906), pp. 13-14.

136 *Congrès International de la Tuberculose* vol. 3 (Paris: Masson et Cie, 1906), p. 8.

microbes, its lack of air and of light, reminded one of the better part of current bedrooms and certain hotel rooms, where the tourist who leaves Paris to go breathe the pure air of the mountains, of the countryside, or the sea, often risks finding germs instead.<sup>137</sup>

These second two rooms were separate exhibits, but the exhibition commission deliberately juxtaposed them. The one was a typical, low-rent furnished room, set up by the Society for Preservation Against Tuberculosis by Popular Education, with the exaggerated claustrophobia of the Victorian interior, heavy drapery, spongy upholstery and fringe on everything. The exhibit ended with a call to “go sleep across the way” (*aller coucher en face*), in the modern, hygienic hotel room set up by the Touring Club of France. This second room was furnished with light-weight curtains, and open, airy furnishings built around sleek wrought-iron skeletons. Floors and walls were made of smooth, washable materials.<sup>138</sup>

The Touring Club communicated with visitors visually and linguistically through a barrage of speech, posters and pamphlets. It recommended replacing dark colors with light colors, replacing wallpaper with washable painted surfaces, showing that rooms could be furnished in a way at once “modern,” hygienic, and pleasant. The Touring Club called for the renovation of as many hotels in Paris as possible. Their first demand, “to clean up old hotels and to this effect, introduce some brightness and cleanliness...” Sunlight, their brochure explained, “combats humidity and makes more gay.” After light came air. Their second demand was “to give rooms the biggest dimensions possible. To be clean, it should be large.” The Touring Club's top two demands called for more daylight, better ventilation, and more space. For them, furnished rooms needed to be

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137 CIT, vol. 3, p. 8-9.

138 CIT, vol. 3, pp. 334-336, pp. 462-469.

opened up and cleaned out.

These exhibits based on contrasting rooms drew on a long tradition of popular pedagogy in hygiene. At the 1889 Universal Exposition, visitors were asked to compare “the clean house” with the “unclean house” in an exhibit set up by the municipal office for *assainissement*. The exhibit defined household hygiene so narrowly—based solely on the absence or presence of “modern” infrastructures for public services like light, heat, water and sewage—that one reviewer found the exhibit unconvincing, classist and steeped in naive technological determinism. “It is not necessary to be a sanitary engineer (which today is a consecrated expression that is often abused) to perceive that all of this is nothing but an affair of the purse and of taste”—a question of social class and private preferences. What the exhibitors called “hygiene,” the reviewer saw as simply the latest in fashionable bourgeois gadgetry for the home, not necessity but luxury.<sup>139</sup>

At the 1900 Universal Exposition, visitors to the exhibition of *L'Assistance publique* saw two contrasting hospital rooms, one representing the Parisian hospital's dark 19th-century past, the other its bright 20th-century future. One reviewer called the historic room “the sinister 'retrospective section,'” evoking graphic images of medieval medicine, the absence of modern pharmacy, and four patients to a bed. The modern room, by contrast, had a “soft and comfortable” bed, and was “irreproachably clean.” It existed in an “incessantly renewed atmosphere” where rooms were frequently cleaned, sheets were frequently changed, and the “latest materialized benefits of science” were available

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139 (1) Louis Havard. *La maison salubre et la maison insalubre a l'exposition universelle de 1889: étude sur l'exposition du service de l'assainissement* (Paris: Imprimerie Charles Noblet et fils, 1890), pp. 24-5; (2) In 1885, a judge ruled that piped water, in multifamily housing, was not a public health concern, but merely concerned the comfort and convenience of tenants, see Shapiro, *Housing the Poor of Paris*, p. 152; (3) In 1906, another official stated that bathtubs and showers were “luxury devices” for most Parisians, not “indispensable,” see Evenson, *Paris: a Century of Change*, p. 209.

to patients.<sup>140</sup>

These room exhibits were models of spatial organization, dioramas of everyday life designed to popularize the expert opinions of hygienists. They were displayed in major and minor expositions, to visually communicate the hygienists' consensus about sites of hygienic danger (working-class housing, domestics' quarters, prisons, hospitals), and to illustrate the hygienic details of room design. There was a post-Pasteurian shift of scale at work here, a microscopic zooming-in on the smallest spaces where germs can hide, opening every crevasse to let light (meaning both cleanliness and truth) into the darkness.<sup>141</sup> Hence the architectural details—placement of windows and vents, height of ceilings, etc.—were reinforced by smaller details: materials, furniture design and decoration.

These displays also advertised for consumer products marketed as hygienic. The 1905 International Tuberculosis Exhibition was every bit as commercially-driven as the Universal Expositions. In the exhibition catalog, the Touring Club advertised a “hygienic night table,” [fig. 19] recommended by “all doctors” for hospitals, sanitariums and hotels<sup>142</sup>—any place at high risk for contagion because occupancy changed frequently. The advertisement foregrounded a particular design feature: the sides of the table were hinged, “reversible and removable, removing and replacing at will...therefore washing could not be more easy and ABSOLUTE.” The table was designed to be modular and washable, its sides become shutters, opening the table to light and air, leaving no corner

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140 “L'Exposition” *Le Petit Parisian*, July 2, 1900.

141 For more on the cultural and epistemological history of light, see Lisa Cartwright, *Screening the Body: Tracing Medicine's Visual Culture* (University of Minnesota, 1995).

142The word *hôtel* in French refers to both rooming houses where tourists stay and rooming houses where Parisians live.

untouched.<sup>143</sup>



Figure 19: Ad for the Touring Club's "hygienic night stand," Hygea.

Though few scholars besides Leora Auslander have taken much notice, furniture was a common object of hygienic scrutiny. Auslander saw a “new politics of the everyday” in the work of hygienists like Du Mesnil, who believed that “the working class should have furniture appropriate to its station, such as would encourage good and moral behavior.” She also described “taste professionals” who acted as moral and aesthetic experts, selling their ability to “read” the class position, daily habits, and thus the moral standing of an individual or family by interpreting its furniture. These changes in furniture consumption and the social arbitration of taste made a fitting cultural counterpart to the more “scientific” pretensions of hygienists like Du Mesnil, who also read morals and daily practice from the material surroundings of his subjects.

143 Leora Auslander, *Taste and Power: Furnishing Modern France* (University of California, 1996), p. 219.

By 1906 the struggle against tuberculosis was already on the decline.<sup>144</sup> But under Juillerat's direction, the project of plotting tuberculosis on the map of Paris had born fruit. More than a decade of study had revealed six neighborhoods in Paris where mortality from tuberculosis was especially high. The public health law of 1902-3 specified that if the mortality rate in a given municipality (*commune*) exceeded the national average, departmental authorities were required to intervene. Paris did not meet these conditions, but Juillerat campaigned for intervention, anyway. For him Paris was an exception—while its average mortality rate was steadily declining and lower than the national average, certain neighborhoods, blocks and buildings did not fit the pattern. He argued that the municipality was an inappropriate unit of analysis, too broad to accommodate Paris's diversity and complexity. The *Casier sanitaire*'s mortality statistics showed that the city's densest neighborhoods suffered disproportionately from death by tuberculosis. In these neighborhoods, the rate of tuberculosis was greater on the lower floors of buildings than on the upper floors. For Juillerat this proved that tuberculosis increased with lack of access to light and air.<sup>145</sup>

Between 1906 and 1909, based on the information collected by the *Casier sanitaire*, the Paris municipal council identified the six highly tubercular areas as *îlots insalubres*, unclean blocks [fig. 20]. Here, anti-tuberculosis efforts shifted from public education to *assainissement*, physical clean-up and renovation of built spaces. Between 1906 and 1914, the departmental office for architecture, sidewalks and gardens (*Direction administrative des services d'architecture et des promenades et plantations*)

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144 Barnes, *The Making of a Social Disease*, p. 18.

145 Paul Juillerat, *Rapport à Monsieur le Directeur des affaires départementales*, Dec. 20, 1904 (AP VONC 1342).



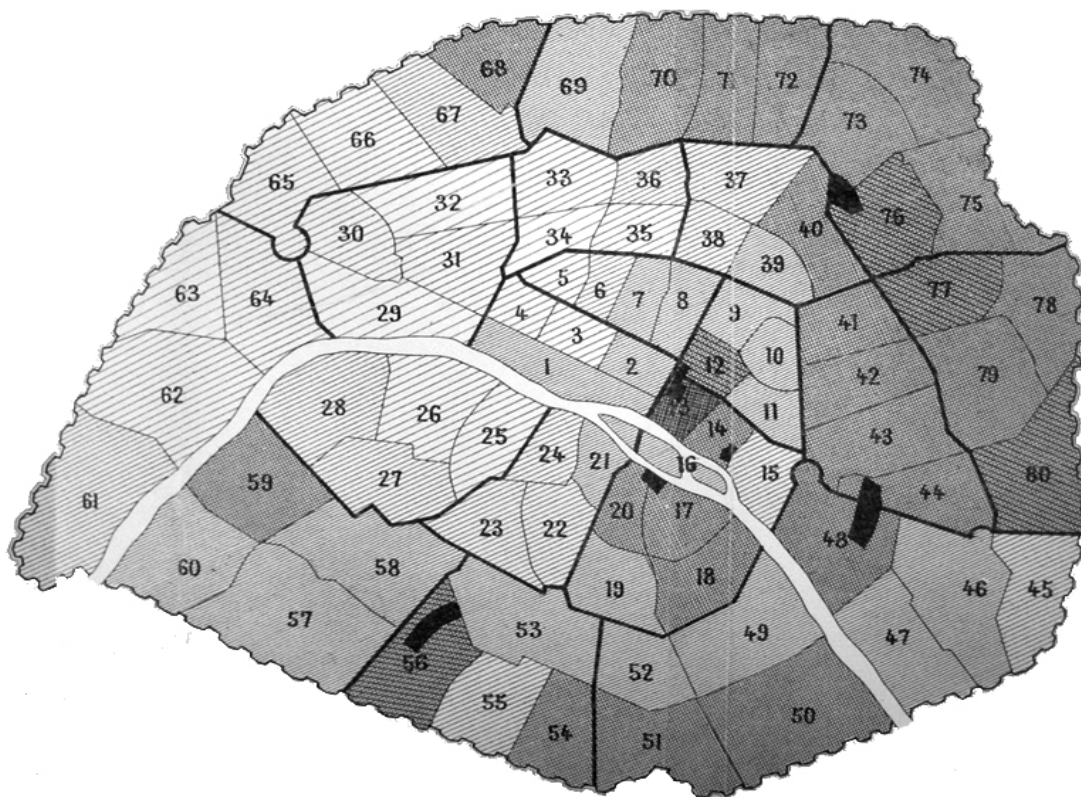


Figure 20: Deaths from tuberculosis by *quartier*, 1913. The six small, dark patches are the *îlots insalubres*.  
Source *Commission d'extension de Paris*, vol. 2, plate 16.

drew up plans for demolishing buildings and widening streets in the six “unclean blocks.” Two of these plans can be seen below (figures 21 and 22).<sup>146</sup>

These plans were staunchly Haussmanian, combining road-widening with slum clearance, targeting long-stigmatized spots of urban blight. The plans show a fainter map of existing constructions overlaid with darker lines representing planned modifications to roads and buildings. Figure 21 shows an entire block of houses (shaded in the plan) slated for removal and roads to be widened on all four of its sides. This plan was centered on demolition. Figure 22 shows a close-up view of a similar project, with a group of houses

<sup>146</sup>(1) Ambroise Rendu, *Rapport au nom de la 6e Commission, sur l'assainissement des îlots insalubres à Paris* (Conseil Municipal de Paris, No. 69, July 1, 1909); (2) Two additional cartons at the Archives de Paris contain these clean-up plans: see VONC 1342 and PEROTIN 10653 150.

around an intersection rudely bisected by planned street boundaries. This plan, by contrast, was not centered on demolition, but on modification of existing buildings, shearing off the front walls of structures to widen the street. These plans envisioned opening the city's densest places, to let more light and air flow.

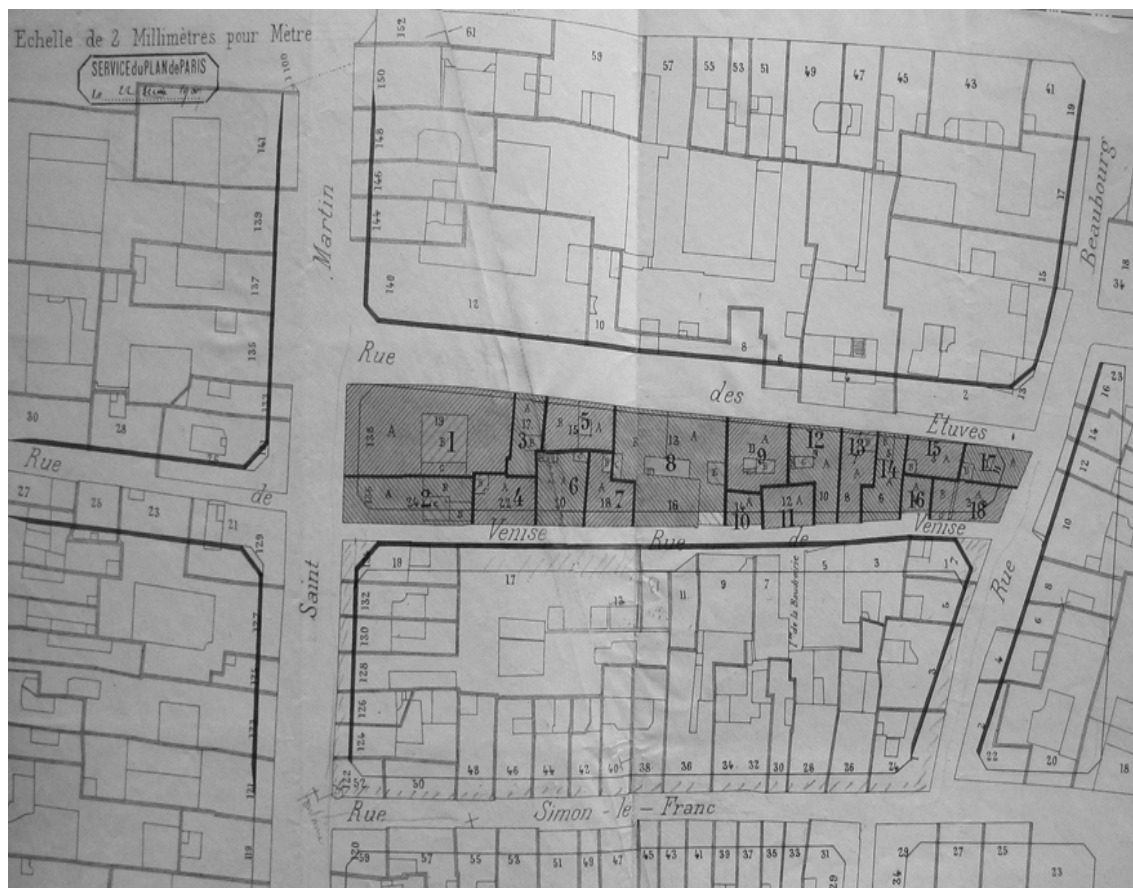


Figure 21: Block of houses on the rue des Etuves slated for demolition in 1909.

These slum clearance plans went beyond simply designing spaces and practices to civilize working class life. They also sought to steer forces of nature, controlling the flow of light, air and disease. Like the tramways we saw in the last chapter, as vulnerable to humidity as they were to the actions of designers and users, Paris's built environment was heterogeneous. Throughout this chapter I have interpreted the built environment as infrastructure, the consequence being that streets and buildings are heterogeneous

networks just as tramways are. Slum clearance emerged not only to sculpt social and spatial relations, but also to master nature by controlling light and air, microbes and contagion.

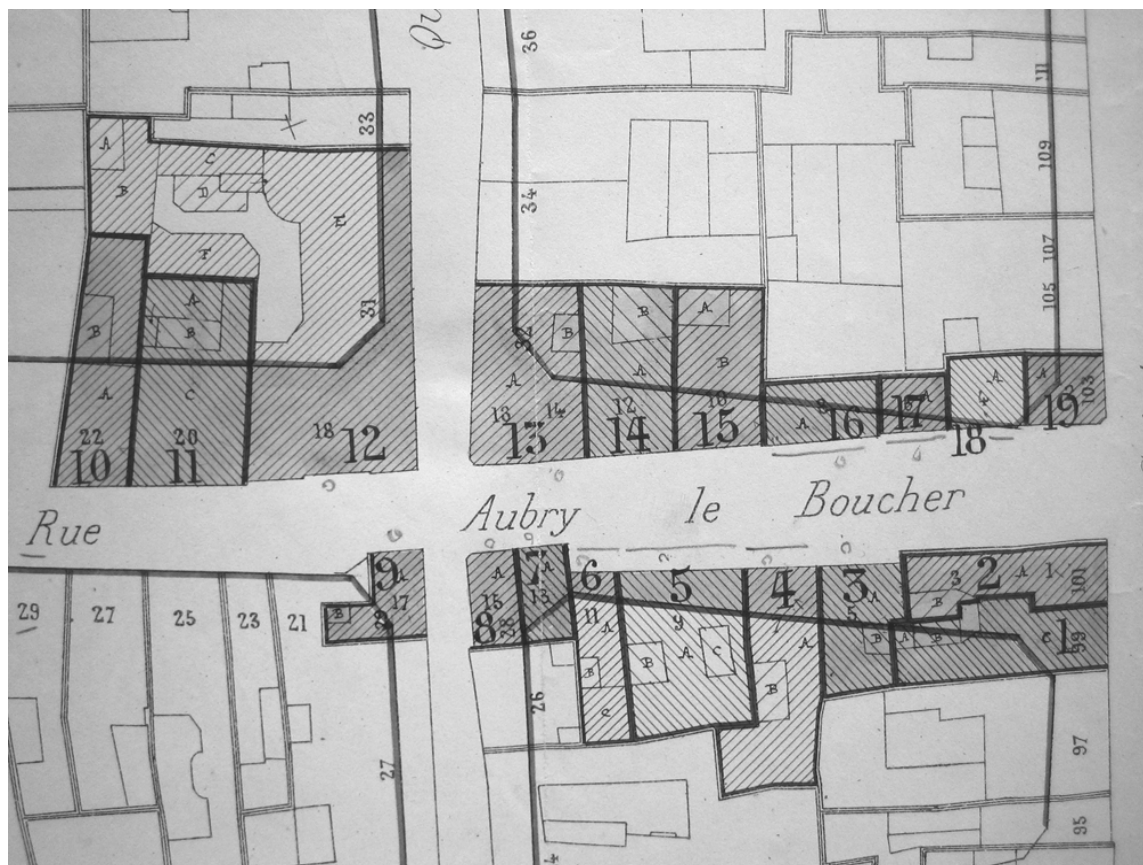


Figure 22: Houses on rue Aubry le Boucher slated for demolition; îlot insalubre #1, 4<sup>th</sup> district. Source: Archives de Paris VONC 1342.

Progress on realizing these projects stalled until the 1920s and '30s, tripped up by the same old Haussmannian problems—expropriation remained controversial and it was difficult to finance such large projects, as we saw in Chapter 2 with Métro plans. Even though they only existed on paper, in the 1890s and 1900s, these documents display dreams of Paris's urban transformation just like Métro plans did. They display a certain way of thinking about the urban environment or built space, one which combines environmental determinism, a demographer's eye for birth and death rates, a commitment

to public health, obsession with the housing question, a Haussmanesque widening and straightening of streets, and a way of plotting social danger on the map of Paris, marking certain working class areas as slums, kinks in the urban fabric. This outlook, which I have referred to throughout this chapter as one of “opening the city,” treated the built environment as a technology to be manipulated, a *social* technology which could be tinkered with to control the social (poverty), the spatial (overcrowding) and the natural (tuberculosis). The various projects for opening the city we have seen in this chapter operated on the built environment at every conceivable scale, from individual pieces of furniture to individual rooms, entire buildings, city blocks, neighborhoods, etc.

There was little limit on the spaces, artifacts and practices that could be opened. Following the Métro accident of August 10, 1903, the authorities spent nearly a decade overhauling station architecture, working to open stations to the flow of foot traffic, light and fresh air. Documents from the Travaux de Paris show that Métro stations on lines 2,3,4,7 and 8 were aggressively opened between 1904 and 1914 [fig. 23].<sup>147</sup> Figure 23 shows the 1913 plan for a large ventilation shaft to be cut into the top of a Métro tunnel, leading air up through a grate to be hidden behind a hedge in the Parc de Monceau. Stations were also fit with elevators and additional entrance/exit tunnels. At the same time, hygiene and ventilation of Métro stations were popular topics in hygienic literature.<sup>148</sup>

Opening one space, such as a Métro station, sometimes threatened to enclose

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147 See the PEROTIN 10653 series at the Archives de Paris, cartons 347, 348, 353, 355-60, 362, 363.

148 (1) Dr. Charles Vibert. *La catastrophe du Métropolitain*, extrait des Annales d'hygiène publique et de médecine légale (Paris: Librairie J.-B. Baillière et Fils, 1905); (2) J.B. Thierry, *Étude sur le Métropolitain de Paris: Ses installations intérieures, ce qu'elles sont – ce qu'elles devraient être* (Paris: Librairie Technique Charles Béranger, 1907); (3) Conseil d'hygiène publique et de salubrité du département de la Seine. *Au sujet de l'efficacité des mesures prises pour assurer le nettoyage et la désinfection des ouvrages souterrains du Métropolitain* (Paris: Chaix, 1914).

another space, for example a stretch of sidewalk. On two occasions, in 1900 and 1907,

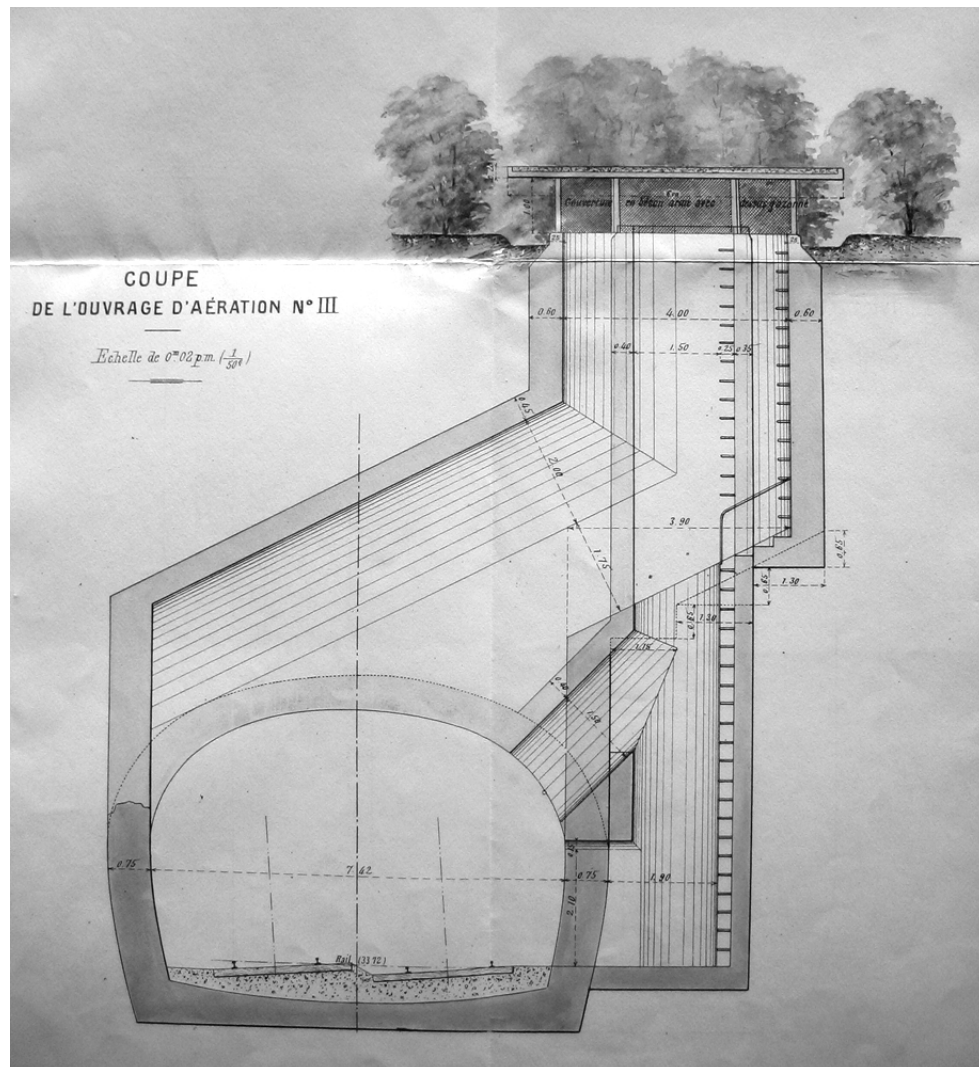


Figure 23: Cross-section view of a Métro tunnel ventilation shaft, 1913.

the departmental office for architecture, sidewalks and gardens denied a contracted company's request to add new clutter (namely ventilation shafts and sheds for public toilets) to the already crowded sidewalks. As Architect of Promenades Formigé put it in his 1900 report, "little structure of all kinds are becoming so numerous in public spaces that it seems a general measure should be taken to block their infinite multiplication,

which accentuates each day.”<sup>149</sup>

Formigé was not alone. As early as 1877, a municipal engineer recommended the administration deny demands to build new public toilets, arguing that “the sidewalks are...already so encumbered that it would seem to us difficult to install any new new constructions without injuring the circulation of pedestrians.” Another engineer agreed: “the surface of public spaces in Paris being already seriously encumbered by installations of all sorts.”<sup>150</sup> Newspaper *La Paix* joined the choir of people calling for opening up the sidewalks in 1891, and newspaper *Le Figaro* in 1904.<sup>151</sup> Engineer and Municipal Councilor Jules Armegnaud, a hygienic activist, forcefully connected what he called “the profusion of little structures encumbering our sidewalks” with hygiene in his 1907 book *Let's Clean Up Paris*. Mayor of the 2<sup>nd</sup> district and president of the Paris Association for Art in the Street Ernst Levallois joined the fray with his 1910 book *Clean Paris!*<sup>152</sup> Throughout the late 19<sup>th</sup> and early 20<sup>th</sup> centuries, engineers, journalists, hygienists and patriotic local activists called for public spaces (*voies publiques*) to be opened up and cleaned out, a local manifestation of the hygiene movement that was closely connected with the critiques of the “city of worksites” we saw in the previous chapter.

Hence neighborhoods, houses, apartments, night stands, Metro stations, and sidewalks could all be opened in the struggle against Paris's excessive density, always

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149(1) *Rapport de l'Architecte des Promenades - Demande de Bureau de Tramway par la Cie Gle de traction - Place de la Bastille angle et Boulevard Bourdon*. (Formigé, 20 Oct 1900): “Les édicules de tous genres deviennent si nombreux sur les voies publiques qu'il semble qu'une mesure générale serait à prendre pour empêcher leur multiplication infinie qui s'accroît chaque jour.” (2) *Rapport de l'Architecte des Promenades - Galeries souterraines de nécessité 28-30 Bd. Bonne Nouvelle - Demande de la Société des Lavatoires souterrains* (Formigé 19 Fev. 1907). AP PEROTIN 10653 213

150 *Rapport de l'Ingénieur ordinaire* (Aug. 25, 1877) and *Note* (July 12, 1877), both from AP VONC 16.

151 Norma Evenson, *Paris a Century of Change*, pp. 20-21.

152 (1) Jules Armegnaud. *Nettoyons Paris* (Paris: Librairie moderne Maurice Bauche, 1907), p. xiii: “...la profusion des édicules encombrant les trottoirs...” (2) Ernst Levallois, *Paris Propre!* (Paris: Edouard Cornély, 1910).

done with an eye to preventing disease and facilitating the flow of light, air, water and traffic. In the first two decades of the 20<sup>th</sup> century, hygienist scrutiny of individual apartments, buildings and neighborhoods was joined by larger-scale projects, the beginnings of urban planning.<sup>153</sup>

*Conclusion: The Emergence of City Planning, c. 1902-1914*

Claretie and Fabre were not the only Parisians in this era who noticed a change in the scale of urban life and urban consciousness. While hygienists in this era moved from scrutinizing individual apartments and buildings to scrutinizing entire neighborhoods, from epidemic sociology to epidemic geography, so to speak, a new way of understanding the city as a whole (eventually a new discipline) was born: *urbanisme* (city planning).

As Paul Rabinow has shown, the road to “modern French urbanism” was long and winding, drawing on a diverse, international body of sources.<sup>154</sup> Somewhere around the turn of the century, a group of French architects including Tony Garnier and Henri Prost, associated with the Institut de France's Villa Medici in Rome, began to produce plans for entire cities. What made these plans new and modern was their comprehensive and interdisciplinary scope, combining “social, spatial and scientific elements,” and synthesizing concerns for aesthetics, traffic, communication, hygiene, housing, green space and zoning. Recognizing the built environment as heterogeneous, city planning tried to synthesize work on the social, spatial, technological and ecological conditions of

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153 Wolf on Henard, Rabinow, Charvet book on Fortifications.

154 Rabinow includes the growing German discussion of *Stadtbau* set off by Camillo Sitte in 1889, Belgian Charles Buls' 1893 pamphlet *L'Esthetique des Villes*, and Ebenezer Howard's 1902 treatise *The Garden Cities of To-morrow*. See *French Modern*, Ch. 7, pp. 211-251.

the city.

These developments were a long time coming. British and American writers had been talking about “the laying out of cities” since the early-mid 1870s<sup>155</sup>, and transatlantic dialog was ongoing. In 1882, *Popular Science* translated an article from the *Revue Scientifique* by M. Badoureau for American audiences, who cited Haussmann as an international model, a point of origin for this type of comprehensive urban planning.<sup>156</sup> In 1910, F. Bottge reviewed recent German ideas in city planning for American audiences, claiming the discipline was only a decade old, and that the Germans had invented it.<sup>157</sup> Scholars have disputed these chronologies as much as contemporaries did.<sup>158</sup>

In Paris, however, urbanism emerged not only from decades of international intellectual dialog, but also from the very practical and local experience of the city's social, spatial and epidemic problems, which we've seen throughout this chapter.

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155 (1) Leonard Kip, "The Building of Our Cities." *Hours at Home: a Popular Monthly of Instruction and Recreation* 11 (July 1870): 206-212; (2) P. Gerard, *How to Build a City* (Philadelphia: Review Printing House, 1872); (3) J. B. Waring, "On The Laying Out Of Cities." *Papers Read at the Royal Institute of British Architects*. Session 1872-73. (London: The Institute, 1873), pp. 141-155; (4) Britton Armstrong Hill, *Liberty and Law Under Federative Government* (Philadelphia: J.B. Lippincott and Co., 1874), see esp. Ch. 2, "The Laying out of Cities," pp. 67-73.

156 M. Badoureau, "The Development of Cities," *The Popular Science Monthly* vol. 21 (May-Oct., 1882), pp. 391-395.

157 F. Bottge, "The Art Of Laying Out Cities," *Cassier's Magazine: An Engineering Monthly* 38 (October 1910):483-489. Professor Emeritus at Cornell John Reps has compiled an outstanding set of sources online, called *Urban Planning, 1794-1918: An International Anthology of Articles, Conference Papers, and Reports*, invaluable for reconstructing the international dialog at the origins of urban planning: <http://www.library.cornell.edu/Reps/DOCS/homepage.htm>.

158 Nicholas Papayanis highlighted the period from 1750-1850 as formative for the discipline, see his "César Daly and the Emergence of Modern Urban Planning" *Planning Perspectives* 24/1 (Oct. 1, 2006), pp. 325-346, and *Planning Paris Before Haussmann* (Johns Hopkins, 2004); Rabinow argued for a gradual development somewhere in the late 19<sup>th</sup> to early 20<sup>th</sup> centuries, see *French Modern*, pp. 12, 82, 211-251; Haussmann remains a common landmark. See: Stephen Graham and Simon Marvin, *Splintering Urbanism: Networked Infrastructure, technological mobilities and the urban condition* (Routledge, 2001), pp. 53-6, and Papayanis's discussion of Françoise Choay's work, *Planning Paris Before Haussmann*, pp. 1-5. Lastly, the rebuilding of Lisbon's *Baixa* neighborhood after the devastating earthquake of 1755 is often cited as an important landmark in city planning, see Nicholas Schrady, *The Last Day: Wrath, Ruin and Reason in the Great Lisbon Earthquake of 1755* (Viking, 2008).



Urbanism, just the basic idea that urban development should be *planned* rather than allowed to run free, was a sensible reaction to four decades of watching the city suffer from lack of light, air and space. Thus the most famous point of origin for French urbanism outside Haussmann and Le Corbusier is Eugène Hénard (1849-1923), who worked at the Travaux de Paris since 1882 and was centrally involved with design and construction for the 1889 and 1900 Universal Expositions.<sup>159</sup> He was a member of the *Musée Social's* network of reformers, helped spread the Garden Cities idea in France, and is often credited with inventing the traffic circle (he called it *carrefour à giration*).

Between 1902 and 1909 he published eight essays on urban planning known as the *Studies on the Transformations of Paris*.<sup>160</sup> Spanning road and bridge planning, Haussmanesque alignment, extension and widening of major streets, park planning, traffic planning for pedestrians and automobiles, and renovation of the city's fortifications, these eight studies envisioned a Paris of streamlined traffic flows and generous open space and green space—a more beautiful, more efficient and more hygienic city. Hénard's pioneering urban plans were the spatial counterpart to the Musée Social's attempts to build governmental and philanthropic infrastructures in these years for solving Paris's problems with housing, hygiene and density. They are the spatial-visual manifestation of the group's ideas about social organization, not unlike Fabre's skyscraper plans.<sup>161</sup>

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159 Peter M. Wolf. *Eugène Hénard and the beginning of urbanism in Paris 1900-1914*. IHP-CRU (joint publication of International Federation for Housing and Planning and Centre de Recherche d'Urbanisme), 1968. Wolf uses the words "urbanisme" and "city planning" interchangeably, arguing that the word "urbanisme" did not appear in France until about 1910-1912.

160 Eugène Hénard. *Etudes sur les transformations de Paris et autres écrits sur l'urbanisme* (Paris: L'Equerre, 1982).

161 Rabinow, *French Modern*, pp. 254-7; Horne, *A Social Laboratory for Modern France*, pp. 253-6. Fabre was also connected to the *Musée Social* network, through Charles Gide.

In 1903, George Benoit-Lévy founded the French Association for Garden Cities, the same year that Dr. Albert Calmette, a distinguished pathologist from the Pasteur Institute, demanded “that all French cities currently surrounded by military fortification walls dismantle them and reserve the space for parks, public health facilities, worker's gardens, and the general enjoyment of impoverished families.” Hénard drew up similar plans for expanded park space the same year. By 1907-8, this idea of demolishing the fortifications and shantytowns of the Zone and replacing them with a ring of public parks and playing fields, had become the official campaign of the Musée Social's new “Section on Urban and Rural Hygiene,” which officially adopted Hénard's 1903 plan.

The campaign was timed to coincide with the municipal elections of May, 1908; they spread 12,000 posters around Paris reading “Air, parks and sports!” Hygienists Louis Bonnier and Paul Juillerat, who we met earlier in this chapter, were members of the Hygiene Section. Familiar faces from the anti-tuberculosis movement signed on, too, from the Touring-Club to Municipal Councilor Ambroise Rendu, who submitted the plans to the Municipal Council in 1908, and would submit the plans to redevelop the îlots insalubres in 1909. Deputy Alexandre Ribot, also campaigning for the 1908 law on low-cost housing, joined the campaign with a public address, claiming the state had a new sense of its “social duty.” The redevelopment plan was finally decided in 1912 and demolition started 1919.<sup>162</sup> Sociologist Marie Charvet's recent study of the debate about redeveloping the fortifications argues that urbanism grew out of the concerns of the hygiene movement somewhere between 1880 and 1919, closely following Rabinow's

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162 Horne, *A Social Laboratory for Modern France*, pp. 245-268.

chronology.<sup>163</sup> This recent literature from Rabinow, Horne and Charvet, then, shows the deep connections in these years between the campaigns for low-cost housing, public housing, tuberculosis prevention, redevelopment of the fortifications, and redevelopment of the îlots insalubres. These studies show that French urbanism emerged from what I have called “opening the city” throughout this chapter.

By the eve of World War I, Paris's spatial conditions were strained. Between 1910 and 1914, the far left mounted a campaign to address what they called a *crise de la vie chère* (crisis of the cost of living), which attracted support from the illustrators of *L'Assiette au Beurre*, as well as from *L'Humanité* and the broader syndicalist movement.<sup>164</sup> In these same years, George Cochon was building his popular and increasingly spectacular movement for tenants' rights. By 1912-13, Paris was awash in discussion of a “crisis of rents,” a phrase which had been used before, for example, tellingly, in 1857 and 1882-3.<sup>165</sup> Between 1900 and 1910, rents up to 500 fr./year grew between 10% and 14%, while rents from 500-1,000fr. grew only 8%.<sup>166</sup> Demographer and statistician Jacques Bertillon, who had diagnosed Paris's overcrowding in 1891, oversaw popular encyclopedia *Je sais tout's* investigation of the rent crisis in 1912, which

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163 Marie Charvet, *Les Fortifications de Paris: de l'hygiénisme à l'urbanisme, 1880-1919* (Presses Universitaires de Rennes, 2005).

164 (1) “Le Prix de La Vie” *L'Humanité*, Sept. 3, 1910; (2) Jean-Marie Flonneau, “Crise de vie chère et mouvement syndical 1910-1914” *Le Mouvement social*, No. 72 (Jul. - Sep., 1970), pp. 49-81; (3) Tyler Stovall, “The Consumers' War: Paris, 1914-1918,” *French Historical Studies* 31/2 Special Issue: War, Society, and Culture, ed. David A. Bell and Martha Hanna (2008); (4) *L'Assiette au Beurre* ran a special issue on la vie chère, no. 496 (Oct. 1, 1910), see Stanley Appelbaum, ed. *French Satirical Drawings from “L'Assiette au Beurre”* (Dover, 1978), p. 69; (5) Finally, see the series in the National Archives labeled “Crises de la vie chère: enquêtes, vœux, statistiques, brochures et journaux, 1900-1913” (F12 7023-7027).

165 (1) Comte A. de Tourdonnet, “De la crise des loyers,” *Revue contemporaine* 30 (Feb.-Mar., 1857), pp. 696-730; (2) André Cochut, “De l'enchérissement des marchandises et des services: causes et effets,” *Revue des deux mondes* vol. 60 (Nov.-Dec., 1883), pp. 512-552.

166 Henri Biget, *Le logement de l'ouvrier: étude de législation des habitations à bon marché en France et à l'étranger* (Paris: Jouve et Cie, 1913), p. 23.

showed an additional growth of rents by another 15-16% in 1911 alone.<sup>167</sup> The need for low-cost housing was greater than ever. Bonnevey's law of Nov. 23, 1912 created the first public offices for low-cost housing, and the city of Paris held a competition for building designs.

Responding to long-standing concerns that the city was “bursting,” the departmental government called a *Commission d'extension de Paris* (Commission for the Extension of Paris), which made a comprehensive 1913 study of built space, open space and green space. The commission debated demolishing the fortifications, expanding the city limits, increasing park space and cleaning up the city, writing “Since the epoch of the Renaissance...we desire in the city more light, more air, space.”<sup>168</sup> Pressed by influential reformers like Eugène Hénard and others at the Musée Social, Paris's municipal and departmental governments began to push for more and more fundamental re-orderings of urban space. But urbanism, like public housing and the redevelopment of both the fortifications and the îlots insalubres, was a late-comer to Paris's turn of the century debate on housing, hygiene and urban density. All of these new, large-scale projects for repairing Paris's nagging social and spatial problems were hatched between the 1890s and the 1910s, interrupted by the First World War, and not realized until the 1920s. Meanwhile, long-standing dreams of opening the city were disappointed.

In the last two chapters we saw that Parisian discussions of transportation between the 1870s and 1910s often revolved around the assumption of Paris's basic inadequacy in this area. But in spite of this perception (or *because* of it), transportation development in

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167 Jacques Bertillon, “La crise des loyers” *Je Sais Tout* (Apr-May, 1912), pp. 697-704.

168 Prefecture de la Seine. *Commission d'extension de Paris* vol. 1 aperçu historique and vol. 2 considérations techniques préliminaires (Paris: Chaix, 1913). Quote, vol. 2, p. 45.

this era was booming. By 1914, Paris enjoyed an impressive array of transportation networks: autobuses, tramways and the Métro. As we have seen in this chapter, the same era turned out quite differently for Paris's built environment. In spite of decades of argument about housing, hygiene and density, these problems remained acute. New legislations in the 1880s regulated building height and set basic standards for access to toilets, water, light and air. Jules Siegfried's law of 1894 created financial incentives for “worker housing” or “low-cost housing” development projects in the periphery and suburbs. The public health law of 1902-3 gave the authorities the right to intervene more in buildings, pushing the boundaries of the public further into private space. The laws of 1906, 1908 and 1912, created government assistance for developing low-cost housing. As lingering problems remained unsolved, a language of crisis emerged. Much more than in the case of transportation infrastructures, the authorities in Paris were weighed down by Haussmann's legacy in dealing with the built environment. The power of landlords, a lop-sided housing market, liberal ideologies about property, the controversy around expropriations and a simple lack of money kept Paris's various dreams of opening the city from being realized until the 1920s.

The ongoing rush of immigration to Paris decisively overtaxed infrastructures throughout the long 19<sup>th</sup> century. As Michael Wagenaar argued, between 1850 and 1914 “the built environment and infrastructure were increasingly unable to meet modern demands,” amounting to an “urban crisis.” The problems were seemingly endless: poverty, crime, health, hygiene, and disease, sanitation, water supply, and traffic. As Wagenaar put it, French cities were confronted with “the alarming state of public health,

physical decay, congestion, and increased pollution.”<sup>169</sup> Describing Paris's early 19<sup>th</sup> century urban crisis, David Jordan used very similar terms:

All the basic urban services collapsed under this burden. Water, sewers, hospitals, police, transportation, education, commerce—nothing functioned adequately. Pedestrians and carts could no longer use the same space. Complaints as well as demands and schemes for improvement issued from every quarter. Then came the ghastly cholera epidemics of 1832 and 1849...<sup>170</sup>

The similarity between these two depictions of different eras is significant. It shows that Paris was consistently unable to solve its urban crisis from the 1830s through 1914. The authorities, under pressure from an increasingly sophisticated and insistent public dialog about public works and critical infrastructures like housing, water, and transportation, were constantly trying to catch up with population growth, combat wear and tear, and meet changing expectations about the moral and material standards of civilization. But expectations about the built environment, the standards for housing, hygiene and density we have seen throughout this chapter, were consistently disappointed. Parisians tried opening the city in a number of different ways, but only piecemeal progress was made.

Hénard claimed that as a devoted, patriotic Parisian, born and raised in the capital, he was as proud of his city as anyone else. But those who shout “Paris, City of Light” or “Paris, Queen City” do little to maintain the city's level of development as a model of civilization. The city's reputation could not last without the daily work of ongoing maintenance and improvement. Those who “fall asleep” on the job, content to boast about their city without maintaining it, “...will wake up one day very confused and very disillusioned, in perceiving that they have been left behind in many ways by other great

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<sup>169</sup> Wagenaar, “Conquest of the Center or Flight to the Suburbs? Divergent Metropolitan Strategies in Europe, 1850-1914.” *Journal of Urban History* 19/1, Nov. 1992, pp. 61-2. See also Nye, *Crime, Madness and Politics*, pp. 54-6.

<sup>170</sup> Jordan, *Life and Labors*, p. 96.

capitals.”<sup>171</sup> Throughout the period from 1870 to 1914, the built environment was one nagging place where Parisians worried their city lagged behind. As Hénard put it, it was never enough to reinscribe the city's reputation—one always had to dream of the future, as well. In this chapter we have seen various Parisian dreams about opening the city, dreams which were difficult to realize between 1870 and 1914, and remained fundamentally unfinished.

As Paris's urban problems scaled up, urbanism emerged to manage the growing complexity, heterogeneity and fragility of the built environment. Born in dreams of opening the city, this new discipline sought to integrate diverse concerns like social reform, spatial organization, disease control and architectural aesthetics. Urbanists wrote scripts not only for the forms of buildings and streets, but also for flows of people, light, air and microbes. This attempt at a comprehensive, interdisciplinary view of the city was designed to take on the problems of Paris's urban modernity in all their complexity—for example the social inequalities of the housing market, the physical damage caused by delinquent contractors or the flood of 1910, the political headache of Montmartre's direct actions, or the epidemic dangers of overcrowded tenements and unequal access to sanitation infrastructure. To solve Paris's long-standing urban crisis, urbanism would have to manipulate the built environment as the most basic of urban infrastructures. As built space became more complex, more heterogeneous and more fragile, this task became more daunting in scope and scale.

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171 Hénard, *Etudes sur les transformations de Paris*, pp. 57-8.

## Chapter 5: Flows of Water and Waste

Water is both a basic human need and one of humanity's oldest technologies. It has driven waterwheels, clocks, steam engines, factories, mills and power plants. It drives agriculture, industry, transportation, sanitation and recreation. In the home it is used for cooking, cleaning, bathing and gardening. It helps fight fires and is a cooling agent for living bodies and machines. It is the primordial element of hygiene, a symbol of purity across cultures.<sup>1</sup>

For cities, bodies of water are navigable, drinkable, a source of power and irrigation, a way to remove waste and therefore a key to hygiene. Richard White famously called the Columbia River an “organic machine...., an energy system which, although modified by human interventions, maintains its natural, its 'unmade' qualities.” More recently historians of technology have coined the term “envirotechnical” for things like bodies of water, complex systems which confound our distinctions between nature and technology.<sup>2</sup> It is rivers' ability to produce energy and do work, just as technologies do, which has attracted human settlement for thousands of years. As Cornelius Disco

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1 For more on the many meanings and uses of water, see “In this issue,” Martin's Reuss's Introduction, and Steven Jackson's “Writing the Global Water Crisis” from *Technology and Culture's* recent special issue on water, vol. 49, no. 3 (July, 2008), pp. 531-547 and 773-779.

2 Richard White, *The Organic Machine* (Hill and Wang, 1995), p. ix. The term “envirotech” emerges from the work of historians of technology working closely with the special interest group of The Society for the History of Technology (SHOT) with the same name: Sara Pritchard, Jim Williams, David Nye and Thomas Zeller.



argued, cities have an “affinity” for rivers and their multifarious potential.<sup>3</sup> So Paris lives on and by the Seine.<sup>4</sup>

In nineteenth century Europe, as elite projects like Haussmannization wired major cities for globalization, city dwellers became dependent on a tangle of roads and rails, pipes and wires for basic needs like food, water and mobility. Maxime du Camp recognized that in addition to these technical networks (he named the postal network, telegraph, railways and omnibuses, for example), Paris was also dependent on an envirotechnical network: the Seine. In 1875, du Camp wrote that the Seine “...is one of the major avenues by which the capital supplies itself, it completes the ensemble of our organs of communication, and in addition it has a special existence, represented by the industries which live on it and by it.” Du Camp noted that Paris depended on the Seine for many things, including raw materials wood and coal and basic foodstuffs wine and grain. Shipping also carried vinegar, oils, *trois-six* (a French spirit), sugar, coffee, soap,

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3 Cornelius Disco, “Taming the Rhine: Economic Connection and Urban Competition” from *Urban Machinery*, ed. Mikael Hård and Thomas J. Misa (MIT, 2008), pp. 23-48.

4 For these reasons, water is also becoming an important topic in urban studies, though the historians of technology clearly have a lead in what remains a young field for everyone. John Reader's recent *Cities* (Open City Books, 2006) is a notable exception, but then Reader self-consciously takes “an ecological point of view” on cities. The real leader here is *Resources Of The City: Contributions To An Environmental History Of Modern Europe*, ed. Dieter Schott, Bill Luckin, Geneviève Massard-Guilbaud (Ashgate, 2005). Another important example is Petri S. Juuti & Tapio S. Katko (eds), *Water, Time and European Cities: History matters for the Futures*, a multinational study funded by the European Commission, available online at [www.watertime.net](http://www.watertime.net). *The European Cities and Technology Reader*, ed. David C. Goodman (Routledge/Open University, 1999) has some treatment of sewers and water supply, but little on the role that bodies of water play in cities. Paul Stanton Kibel's *Rivertown: Rethinking Urban Rivers* (MIT, 2007), a collection of essays about American riverfront development, largely stays within the methodological bounds of urban planning. The number of more or less comprehensive urban studies which include no significant treatment of water is striking: *The American Cities and Technology Reader*, ed. Gerrylynn K. Roberts, Philip Steadman (Routledge/Open University, 1999); Ronan Paddison, *Handbook of Urban Studies* (Sage, 2001); Michael Pacione, *The City in Global Context* (Routledge, 2002); *The Blackwell City Reader* Gary Bridge, Sophie Watson, eds. (Blackwell, 2002); *The City Reader*, ed. Richard T. LeGates, Frederic Stout (Routledge, 2003); *The City Cultures Reader*, ed. Malcolm Miles, Tim Hall, Iain Borden (Routledge, 2004); *Key Concepts in Urban Studies*, ed. Mark Gottdiener, Leslie Budd (Sage, 2005); *The Global Cities Reader*, by Neil Brenner, Roger Keil (Routledge, 2005). The field remains quite young.

animal fodder, fish, metal, cotton, pottery, paper and furniture to Paris.<sup>5</sup> The Seine was also a source of life-giving water and a way to remove waste. Du Camp wrote that “it was at once the watering trough and the general sewer.”<sup>6</sup> Cities, like any organism or ecosystem, need to balance inputs of fresh nutrients with outputs of waste. For all of these reasons, the Seine is a crucial component of Paris's “urban machinery.”<sup>7</sup>

As a technology and a natural resource, then, water is precious for cities. Thus it is not surprising to see it at the center of social, cultural and political conflicts and negotiations. But if there is always a human-human struggle at work to control water as a resource, this entails a struggle between humans and nature, a human bid to control what will always remain a natural resource. In this chapter, we'll see the Seine in flood asserting its power, and the weather punishing the city with thirst and stink during heat waves and water shortages.

In late 19<sup>th</sup> and early 20<sup>th</sup> century Paris, water was at the center of the hygiene movement. The very basis of life, water is both the most everyday of things and the most primordial element of hygiene. Reforming Paris's practice of water use touched on hygiene at many levels, from practices of personal cleanliness in eating, drinking, and bathing, to waste water removal, pollution of the Seine, and water-borne illnesses like typhoid and cholera, which continued to plague the city in the 1880s and 1890s. Indeed, when water engineers called for the *assainissement* of the Seine, between the 1870s and 1900s, they envisioned something not unlike the *assainissement* of houses we saw in Chapter 4. Opening the city and reforming the city's use of water were often connected as

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5 Maxime du Camp, *Paris ses organes ses fonctions sa vie*, vol. 1, pp. 283, 313-318.

6 Maxime du Camp, *Paris ses organes ses fonctions sa vie*, vol. 5 (Paris: Hachette, 1874), pp. 283.

7 *Urban Machinery: Inside Modern European Cities*, ed. Mikael Hård and Thomas J. Misa (MIT Press, 2008).

two basic hygienic missions. As reformer-hygienist Jules Simon put it, “We'll start by giving the Parisian population air and water, and we'll have to see for the rest.”<sup>8</sup>

Reforming the way Parisians used water was thus an important point of departure for remaking the whole of their everyday practice. If there was any place to start in purifying the social body, it was with water.

In this chapter, I consider water from three angles. In the first and longest section, on Paris's strained water supply, I consider water as a natural resource and a human need, telling the story of the Water Service's struggle to meet the needs of a growing population with a growing appetite for water. In this section, we'll see the city challenged by water shortages in the summers of 1895-1906, as the Water Service worked to modernize the city's water system. In the second section on waste disposal, sewers and “cleaning up the Seine,” I consider water as a hygienic technology, manipulated in various ways by humans: filtered, measured, chemically analyzed, and polluted. This section shows Paris's growing ecological footprint. In the final section on the flooding of 1876, 1882-3 and 1910, I consider the Seine as a force of nature, always *just outside* of human control.

*“Le manque d'eau” – Paris's Water Supply Shortages*

Until 1854, Paris had no water distribution system, but a patchwork of sources serving local needs. Most potable water came from area rivers (the Seine, Marne, Ourcq and Bièvre) which were also the major channels of navigation and the main drains for

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8 In the preface to DuMensil's *L'Hygiène à Paris* (1890), p. 10. As Jean-Pierre Goubert put it, “In France as in Britain, the rapid strides made by the notion of public health during the 1830s had the virtue of integrating the question of water supply into a larger context which included the problem of housing, the cleanliness of towns, bodily hygiene, domestic habits, poverty and disease,” *The Conquest of Water*, p. 47.

human and industrial waste. In addition the city was dotted with wells, giving Parisians access to groundwater. For centuries monasteries and convents in the city kept reservoirs and beginning in the early modern period water could be bought from “water carriers” (*porteurs d'eau*), who collected water from various sources and sold it by the pail around the city.

As long as Paris’s population and productive capacity remained relatively small, the age-old practice of drawing clean water upstream and dumping dirty downstream could continue. But given the dramatic urban growth and industrialization of the nineteenth century, the Seine soon exceeded its capacity to support the city's population.

Well-known hygienist and hydrologist George Bechmann realized this, writing:

When men were spread out in small groups over vast spaces, nature almost always furnished for them all the elements necessary for their health in profusion: the air they breathed was pure, the water they drank contained no harmful substances, the ground they walked on took care of rapidly transforming any perishable organic matter that running water had not carried away.

But, to the extent that groups became larger and more compact, that the surface occupied by each of them increased, and that greater numbers of human beings found themselves together on the same expanse of terrain, more and more serious causes of insalubrity appeared, in the face of which nature was not long in showing itself powerless. So it was necessary to come to its aid with more perfected and more complex means, as agglomerations were denser and more extensive.

From this fact emerged artificial life, which is the condition of existence of the inhabitants of cities in general, and without which it would not have been possible to develop the enormous capitals whose rapid growth raises more difficult problems each day and calls without cease for new studies and constant efforts.<sup>9</sup>

In the cities of 19<sup>th</sup> century Europe, an important part of this “artificial life” was a set of technologically mediated ways of distributing water: canals, pumps, pipes, fountains. As Jean-Pierre Goubert has shown, over the course of the century these

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<sup>9</sup> George Bechmann, *Salubrité urbaine, distributions d'eau et assainissement*. 2 vols. 2nd edition (Encyclopedie des travaux publics, 1899), p. 7.

fixtures became more and more common in both public and private spaces, as well as more and more evoked as measures of civilization. Public fountains became fashionable in the first half of the century, enlightened gifts from governments to the people, but they rarely met the public's real needs.<sup>10</sup> From 1854 to 1914, the Travaux de Paris struggled to keep up with the growing needs of the population, by both piping the city and tapping new sources. But Parisian engineers also struggled to keep up with changing standards for water use. Ironically, public standards were rising in part because these same engineers were aggressively promoting higher standards in the educational campaigns of the hygiene movement.<sup>11</sup> The republican project of “moral and material improvement” often faltered because moral improvement outstripped material improvement. Just as public demand for transportation and housing was often disappointed in this era, so was demand for water. Across Paris's nineteenth century, the public learned that it was entitled to public services before those who promised it (the government and its experts) could deliver on their promises. This is particularly clear in the case of Paris's water supply.

Haussmann and Belgrand began the city's comprehensive water distribution network in 1854. Belgrand's idea (called *double canalisation*, double piping) was to outfit the city with two separate networks of pipe, one supplying river water for ‘public’ uses (street cleaning, watering public gardens and parks), and the other providing *eau de source*, natural spring or river water, for ‘private,’ domestic uses (cooking, cleaning, drinking, bathing). Belgrand worked the existing, partial network of pipes for distributing

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10 For more on water and civilization in the 19<sup>th</sup> century, see Goubert, *The Conquest of Water*.

11 Goubert's study of hygienic education in the French press, schools, and hospitals blazed the trail for this topic.

canal and river water, inherited from the public works of previous regimes, into the public service, and designed a whole new network for the private service.<sup>12</sup> Both sets of pipes would be routed through the city's new sewer mains, as we will see later in this chapter. The eau de source would come from the *Cochepies* and *Nemours* springs, about 110 kilometers south-east of Paris in Bourgogne, and would be carried to Paris on the grand *Aqueduc de la Vanne*.

Such a large-scale plan took time and money. In the meantime, the city was supplied with a provisional quantity of fresh water from the *Dhuis* (or *Dhuys*) springs. The Aqueduc de la Dhuis opened in 1865, carrying an average 20,000 cubic meters of water a day. But even after Haussmann and Belgrand's decisive intervention, the city still did not enjoy water distribution facilities adequate to its needs. In 1872, British aristocrat, art collector and philanthropist Richard Wallace found Paris (his home for many years), so under-served in terms of water that he famously donated around 100 public fountains. A number of "Wallace Fountains" can still be seen in Paris today.<sup>13</sup> Work on the Aqueduc de la Vanne ran 1863 to 1870, and it was not publicly opened until 1874. By the time it started delivering *eau de source*, 20 years after it was deemed necessary, it was already insufficient to meet the population's needs. Haussmann and Belgrand had indicated the path ahead, but the Third Republic inherited a lot of unfinished work.

In 1871, the city's network of pipes reached 1,431,000 meters—an impressive figure, but we should remember that it was landlords' responsibility to connect their

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12 For more on Haussmann and Belgrand's sewer planning, see: (1) Donald Reid, *Paris Sewers and Sewermen*, pp. 25-36; (2) Jean-Pierre Goubert, *The Conquest of Water*, pp. 61-7 and 196-9; (3) David Jordan, *Transforming Paris*, pp. 267-97.

13 Richard Kaufmann, *Paris of To-day*, translated from the Danish by Olga Flinch (New York: Cassell Publishing Company, 1891, Ch. 16 "The Water Supply," pp. 166-172.

houses to the city network with pipe and subscribe to the Water Service. In 1873, of 70,000 houses in the city, 15,706 subscribed only to river water from the canal d'Ourcq (60 francs a cubic meter), and 22,183 subscribed to the more expensive mix of eau de source and water from the Seine (120 francs a cubic meter). Only half of the houses in Paris had any kind of subscription to the water service, and only one third subscribed to the more expensive “private service.”<sup>14</sup> But water use was steadily growing; by 1881 there were 49,500 subscriptions, or two thirds of houses in Paris.<sup>15</sup>

During the unusually hot summers of 1880 and 1881, the water supply was strained. In 1880, household wastewater and storm water were no longer enough to flush the sewers, so their fermenting contents began to smell, contributing to the episode that David Barnes has called the “Great Stink of Paris.”<sup>16</sup> During the heatwave of July, 1881, reservoir levels dropped, leading to a water shortage. Like the Great Stink, this shortage provoked much public outcry. As Chief Water Engineer Couche put it in 1882, “Few subjects have occupied Paris more, for several weeks, than what we have come to call 'the lack of water' of this past July.”<sup>17</sup> According to Couche, everyone in Paris agreed on the inadequacy of the city's water supply, so much that a new expression, *manque d'eau* (literally 'lack of water'), had arisen to describe the situation. Parisians discovered the water shortage in 1881. That same year, the municipal council commission on water and sewers set a long-term goal of supplying Paris with 1,000,000 cubic meters of water a

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14 Prefecture de la Seine. Direction des eaux et des égouts. *Renseignements généraux sur les eaux et les égouts de la ville de Paris* (Paris: Gauthier-Villars, 1875).

15 M. Couche, Ingenieur en Chef des eaux de Paris. *Le service des eaux en juillet 1881* (Paris, Jan. 1882) AP VO3 220.

16 See David Barnes, *The Great Stink of Paris and the Nineteenth-Century Struggle Against Filth and Germs* (Johns Hopkins, 2006), p. 1: “In 1880, a pervasive and disgusting stench afflicted the city for most of the summer, provoking a popular outcry and a minor political crisis.”

17 Couche. *Le service des eaux en juillet 1881* (Paris, Jan. 1882) AP VO3 220, p. 1.

day, as opposed to the then current supply of 390,000 cubic meters a day.<sup>18</sup>

Hence the early 1880s was a busy time for Paris's water engineers, who embarked on two projects. The first was a hydrological study of northern France, to identify new sources of fresh water for the city. The second was outfitting the city with an increasingly sophisticated and diversified collection of water-processing technologies, from steam-pumps to draw water from the river, to chemical and bacteriological methods of water purification and new reservoirs. Both the public and private (potable) distribution networks grew. As engineers worked to complete the first project, they used the second to make up for the lack of water. Thus, sometime around 1880 they began to back-up the city's supply of *eau de source* with river water in case of shortage during the hot season. But this expedient measure was not always welcomed.<sup>19</sup> Defenders of Belgrand's principle of dual piping like Eugène Poubelle were uneasy with distributing river water for domestic uses. Many followed hygienist Dr. Thoinot in linking the distribution of river water with Paris's 1882 typhoid outbreak.<sup>20</sup>

Poubelle became Prefect of the Seine in 1883, and immediately began a series of hygienic reforms: the first concerned sewers (Nov. 4, 1883), the second concerned trash collection (March 7, 1884), and the third concerned the water supply (Dec. 8, 1884). No Prefect of the Seine is more famous for hygienic work, and Jean-Pierre Goubert has credited him with achieving “the utopia of Haussmann” by completing Paris's water

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18 Conseil Municipal de Paris. *Note du directeur des travaux de Paris sur les travaux urgents à entreprendre dans la ville de Paris, et sur les ressources à affecter à leur execution*, 1881 (AP VO3 220), p. 1.

19 As Robert Léon put it, “Since 1880, in the summer, a part of the water piping had to be supplied with river water...a disastrous expedient which could only be provisional.” See “Paris et son alimentation en eau,” *La Revue de Paris*, Dec. 15, 1913, pp. 849-69.

20 See L. Thoinot, “La fièvre typhoïde à Paris de 1870 à 1899. Role actuel des eaux de source.” *Bulletins Et Mémoires de la Société Médicale Des Hôpitaux de Paris* 3d ser.:v.16 (Paris: Masson, 1899), pp. 645-669.



system.<sup>21</sup> In December of 1884, as he delivered a report to the Municipal Council on increasing Paris's water supply, he said: "Today, because of the increasing alteration [read: *pollution*] of the Seine, both before and after Paris, *eau de source* is best from the point of view of salubrity." Many hygienists maintained that *eau de source* was the *only* safe choice for human consumption. The problem was ensuring that it was the only kind of water distributed to private dwellings. If two kinds of water were provided to each house, Poubelle asked, how could we ensure that tenants used them for their proper purposes? It was unacceptable to think that the city might supply river water for domestic uses and be responsible for further hygienic problems (or typhoid outbreaks). The only solution, he argued, was to provide only *eau de source* for all domestic uses.<sup>22</sup>

He thought Paris needed to more than double its water supply, adding an additional 240,000 cubic meters a day to the 140,000 cubic meters a day then provided by the Dhuis and Vanne aqueducts. The water would come from two sets of sources, even farther from Paris: the Vigne and Avre springs, 134 kilometers away, and the Voulzie and Durteint springs, 135 kilometers away. Paris's growing demand for water was widening the circle of its ecological impact. Time and money were also needed: the two aqueducts were estimated at 62 million francs, declared a work of public utility in 1890 and not opened until 1893.<sup>23</sup>

Poubelle's 1884 call to distribute only *eau de source* for domestic uses, then, was

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21 *The Conquest of Water*, p. 67.

22 See Poubelle's "Memoire au Conseil Municipal" (Dec. 8, 1884), in *Nouvelle Derivation d'eau de Source* (Paris: Imprimerie Municipal, 1884), p. 3: unité d'eau et de canalisation à l'intérieur des maisons et, par suite, distribution exclusive de l'eau de source pour la boisson, les soins de propreté individuels et pour tous les usages de l'habitation.

23 *Ibid.*, pp. 6-7. See also the comprehensive overview of Paris's water system created for the 1900 Exposition: *Notice sur le service des eaux et de l'assainissement de Paris* (Paris: C. Béranger, 1900), pp. 60-2.

a statement of goals, not a report on current conditions. Municipal reports of 1892 suggested that at least half of the buildings in Paris were still without a subscription to *eau de source*, even though the city's dual pipe network was finally complete.<sup>24</sup> The water service continued to distribute river water in the pipes of the private service, especially during summer heat or drought, at least through 1911. As Poubelle himself admitted, river and canal water from the public service would always be available from common spigots on the ground floors of buildings, for washing courtyards and stables, for watering gardens, and for various industrial uses. But what, then, was to stop tenants of buildings without a subscription to *eau de source* from going downstairs, several times a day, to gather water from the common tap to bathe, cook or clean? This disproportionately affected lower-rent buildings, more likely without a subscription to the private service. The Prefecture of the Seine could not control water use unless it could control the way landlords equipped their buildings and the way that tenants used water—another ambitious program for controlling design and use, like the housing reforms we saw in the last chapter.

Poubelle's entire term in office, 1883-1896, was characterized by frontal conflicts with the municipal authorities on the one hand, and with Paris landlords on the other. His administration fought for major interventions into Paris buildings, to address both the city's housing and water problems. His most famous regulation, of 1884, ordered landlords to provide their buildings with common garbage cans for the use of all tenants, so that garbage could be stored away from living spaces. The regulation so upset

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24 Ibid, p. 49-60. On p. 51, Le Mansois Duprey wrote: “La double canalisation est complète et les conduites sont partout à portée des immeubles.” This, at least, is what the administration wanted to project. We'll see later in this chapter that the network did not, in fact, reach all parts of Paris.

landlords and the newspapers that supported them (*Le Figaro*) that they named the cans “Poubelle” after the Prefect, a word that still means trashcan in French today. In 1892, subscription to the private water service was made obligatory, and in 1894, it became obligatory to equip each dwelling with direct to sewer drainage (*tout à l'égout*) for wastewater.<sup>25</sup> These hygienic regulations throughout Poubelle's career were coordinated with the housing reforms of 1884 and 1894 that we saw in the last chapter. Housing stock and the city's water system were slowly upgraded from the 1880s to 1910s because Poubelle and his successor Justin de Selves put pressure on Paris landlords in ways that Haussmann would not.

Such measures of control were important, but it was difficult to conceal the contradictions at hand. While the authorities wanted to encourage more water use, they never could provide enough water, and no matter how much they educated the public about the proper use of water, they did not trust the population to use water properly. While the practical exigencies of governance suggested water control, the theoretical exigencies of hygiene suggested more and more water use. The line between water use and abuse was all too fine, the gap between ideals and practices too wide. The Water Service's actions could only be contradictory. In 1880, it equipped subscribing houses with water-use counters for the first time, to prevent waste, but in 1892, even though it did not have enough spring water to go around, subscribing to the Water Service was made obligatory.<sup>26</sup>

Landlords were not the only obstacle. The real issue was one of what Bruno

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25 Matthew Gandy, “The Paris Sewers and the Rationalization of Urban Space,” p. 31.

26 Le Mansois Duprey. *L'Oeuvre sociale de la municipalité Parisienne 1871-1891* (Paris: Imprimerie Municipal, 1892). See also: *Notice sur le service des eaux et de l'assainissement de Paris* (Paris: C. Béranger, 1900), 58-9.

Latour calls “delegation,” the process of assigning work to humans and technologies.<sup>27</sup> Poubelle's move to reform water-use practices by limiting access to water—by physically shaping channels of water flow—suggests that the water service found *pipes* were more compliant, easier to control, than *people*. Education campaigns put pressure on users/tenants while regulation put pressure on landlords to modify buildings. In the meantime, the local government could not deny its constituents access to water, and so hygienically suspect sources of water continued flowing. The water service could control which buildings had access to pipes, but they could not yet control what Parisians used to make their soup. And so the complexity and heterogeneity of the city's water system—linking pipes, people and natural resources—prevented the water service from realizing their totalizing fantasy of remaking everyday water use.

Water engineers needed to control not only humans and technologies, but also natural resources. Hence the ongoing search for more sources of fresh water drove engineers farther and farther from Paris, a process which would increasingly put the capital in conflict with the provinces. Ecological questions gave way quickly to politics. In his 1889 article “The Derivation of Sources for the Supply of Cities” scholar of law and politics Léon Aucoc wrote “The combination which best serves the interests of city dwellers and brings them precious advantages, the derivation of eau de source, entails serious drawbacks for country dwellers who until then had enjoyed the derived waters.” In order to prevent political conflict between urban and rural spaces, he argued, projects for supplying cities had to be carefully studied and planned. As Paris's population grew, so did its appetite. Paris's water crisis threatened to deplete rural resources, spreading the

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27 Bruno Latour, “Where Are the Missing Masses? The Sociology of a Few Mundane Artifacts,” from *The Social Construction of Technological Systems*, ed. Bijker, Hughes and Pinch (MIT, 1983).

difficulty of Paris's nineteenth century urban problems into a broad hinterland and setting off regional conflict over natural resources.<sup>28</sup>

The water supply was hooked to natural forces in other ways, as well. The summer of 1895 brought another heat wave, the second “Great Stink” of Paris, and a serious water shortage, which became a source of public outcry in the press and the streets.<sup>29</sup> Following nearly a month of torrid heat without rain, reports began to appear in newspapers between the 7<sup>th</sup> and 9<sup>th</sup> of September that the Seine's water level was 70 centimeters below normal and the stink was becoming unbearable. Paris's sewers drained into the Seine at Clichy and St. Denis, but with the river so low, there was not enough water to cover or wash away all of the waste, both animal and industrial, present in the river. *Le Petit Journal* reported “multiple islands of muck, or rather fecal matter,” starting to form on top of the water, and “sludge” (*vase*) deposited on the banks as the water receded. After Clichy, the Seine was “nothing more than an immense cesspool; and we say pool because the current doesn't exist anymore to speak of.” The water was “thickened” and “blackened” and yet, the editors noted with shock and disgust, people continued to swim in it, in a desperate attempt to relieve the infernal heat.<sup>30</sup>

The 10<sup>th</sup> was the hottest September day on record, at 37C (98.6F).<sup>31</sup> On the 11<sup>th</sup>, the Prefecture of the Seine posted notices throughout the city informing residents that,

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28 Léon Aucoc, *La dérivation des sources pour l'alimentation des villes* (Paris: Alphonse Picard, 1889), p. 1. The article originally appeared in the *Comptes rendus de l'Académie des sciences morales et politiques* and was then excerpted and reprinted by Picard.

29 The month of September, 1895 saw a flurry of editorials in several newspapers: (1) *Le Petit Journal*: “Les odeurs de la Seine” (Sept. 8), “Le regime de l'eau de source” (Sept. 10), “En voulez-vous des microbes?” (Sept. 11), “L'eau de Seine” (Sept. 13), Ernst Judet, “L'eau et la politique” (Sept. 14); (2) *La Petite République*: “La baisse de la Seine” (Sept. 9), “La chaleur” (Sept. 10), “De l'eau!” (Sept. 13), “L'Eau de Seine” (Sept. 16), “Retour de l'eau de source” (Sept. 18); (3) *L'Intransigeant*: “Paris sans eau” (Sept. 11), “Paris sans eau” (Sept. 13), “L'eau de source: Plus d'eau de Seine” (Sept. 18); (4) *Le Matin*: “L'eau de source” (Sept. 12), Émile Gautier, “Paris qui boit” (Sept. 16).

30 “Les Odeurs de la Seine,” *Le Petit Journal*, Sept. 8, 1895.

31 “La Chaleur,” *La Petite République*, Sept. 10, 1895.

owing to a shortage of eau de source, the residents of the 1<sup>st</sup>—4<sup>th</sup> districts, as well as the better part of the 9<sup>th</sup> and 10<sup>th</sup>, would be supplied instead with water from the Seine for the next 20 days. The press and the streets were filled with protest. Even though the water was most likely coming from upstream of the main sewers, from the pump station at Ivry, it was still the same river, after all, and journalists did not miss the opportunity to claim that residents of the center city were drinking “this blackened, unclean liquid that they draw from the Seine, from the mouth of the sewers.”<sup>32</sup> Among other vivid terms, journalists called the water yellow, unclean, thick, nauseating, slimy, fetid, and warm. *Le Petit Journal* said that it was of “doubtful clarity,” and hot as a double-boiler—in fact, it was more a “purée of microbes” than water, properly speaking.<sup>33</sup> Another paper described “...the population, already panicked by the idea of microbes, of fevers, of epidemics of all kinds.”<sup>34</sup> At the very moment when the Seine was low and especially dirty the water service had to start distributing it as potable water.

Talk of cholera and typhoid was soon to follow, in what became a full-on indictment of the city authorities and their inability to properly govern the city, provide for the basic needs of its residents, and take care of that master problem of urban life: *hygiene*. Geographer Émile Gautier saw the situation as ironic. How was it possible that France's advanced civilization (his word) could produce high-speed trains and electric light, but not meet the most basic of human needs—fresh water? Appealing repeatedly to hygienic scholarship and standards, Gautier, writing in a major newspaper, sought to convince the public that the authorities were not keeping up with modern hygienic

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32 M. Charnay, “De l’eau!” *La Petite République*, Sept. 13, 1895.

33 “Le Régime de l’Eau de Seine” *Le Petit Journal*, Sept. 10, 1895.

34 “L’Eau de source” *Le Matin*, Sept. 12, 1895: “la population déjà affolée par l’idée des microbes, des fièvres, des épidémies de toute nature.”

knowledge and practices, and therefore not keeping up with the progress of civilization.<sup>35</sup>

Worse yet was continuing mistrust of the public from politicians and engineers, quick to defend themselves against such criticisms by blaming the public for wasting water. Humblot, Chief Engineer of the Water Service, said Parisians had been enjoying “a veritable aquatic orgy.” Apart from drinking extra water and taking cold showers or baths to relieve the heat, it was common practice to leave one’s water running in the sink to let it cool, and then leave one’s carafe under the running water to chill it, so that it would keep drinking water cool longer. Bienvenuë, an engineer just beginning his well-known work on the Métro, suggested that some Parisians, including some in his building, were leaving the water running all night, just to cool their apartments—precisely at the moment when water was shortest and most needed.<sup>36</sup>

These remarks were poorly chosen, only inflaming an already heated public discussion. The contradictions were maddening: if the city engineers recognized that humans needed extra water in uncommon heat like this, how could they expect Parisians to conserve it? As one journalist put it, if Parisians have to endure a water shortage during every heat wave, when thirst is greatest, “that not only concerns hygienists, but also logicians.”<sup>37</sup> Although some newspapers confirmed Bienvenuë’s suspicion that Parisians left their taps running, others questioned its likelihood: “Well!” one journalist wrote, “we don’t know what kind of building M. Bienvenuë lives in, but it must have a very special disposition.” Most of the time, he explained, faucets are installed in kitchens

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35 Émile Gautier, “Paris qui boit,” *Le Matin*, Sept. 16, 1895. Gautier asked how Paris would keep up with “...les exigences légitimes de la consommation [qui] vont en croissant indéfiniment avec les progrès de l’hygiène consciente et l’extension ininterrompue de l’industrialisme?”

36 *Le Matin*, Sept. 12, 1895.

37 “L’eau de Source: Paris qui boit et Paris qui gaspille,” *Le Matin*, Sept. 12, 1895.

or bathrooms. Houses with taps in the bedrooms, or Parisians who left the tap in the kitchen running to cool off the bedroom, must have been “quite exceptional.”<sup>38</sup> This was a subtle way of suggesting Bienvenuë's wealth and privilege, his being out of touch with the public. Such caustic sarcasm was not uncommon among journalists that summer, and who could blame them?—they had first been deprived of water during a heat wave, and then blamed for the shortage.

In an article called “Water and politics,” journalist Ernst Judet argued that the water shortage demonstrated the powerlessness of the Water Service's engineers to control the forces of nature: “The powerlessness of our perfected civilization shines before the phenomenon which overwhelms us, the habitual changing of the seasons.” Judet inverted narratives of progress, contrasting science and civilization with Paris's current conditions, using words like “monstrous” and “barbaric.” As he explained, it is precisely during the summer that people need the most water. To distribute water freely in the winter and then ration it in the summer was “a barbaric and absurd system.” Far from scolding the population for using water in the summer, he argued, we should encourage it, because “it is a condition of well-being and health which can only be denied in case of siege” and “any contrary proposition is simply monstrous.” In fact, Judet argued, the water shortage showed why the French should stay close to their revolutionary tradition, putting pressure on the authorities to deliver what was a public right: water, only to be denied “in case of siege.” Parisians not only had a right to water, but also to *clean* water. As another journalist would put it in 1898, following the arguments of Gautier and Judet, “The hygiene of water thus enters into the domain of the

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38 “L'eau de Seine,” *Le Petit Journal*, Sept. 13, 1895.



state's obligations.”<sup>39</sup>

Judet's polemic explicitly reminded Parisians of the politics of water. Other journalists made the point, too. Charnay wrote, “The suppression of water during heat waves has become commonplace, a subject for summer stories, quite useful for journalists short on political news.”<sup>40</sup> Charnay found the shortage a convenient prop for denouncing the city's entire public works establishment:

Meanwhile, *voilà* all that the municipal council of Paris has been able to do, now that it holds sovereignty over budgetary revenues. Hundreds of millions are wasted to open new streets, generally useless, except for landlords who receive the indemnities from expropriation, to pave the least frequented but well inhabited streets in wood, to construct sewers that plague the city and the suburbs. And Paris has neither means of transport, nor even water to drink!”

He even accused the water service of using eau de source to water gardens in the *quartiers de luxe*, the posh neighborhoods on the west side. Like Judet, Charnay reversed the narratives told by politicians and engineers to shore up their social power. It was not the public that wasted water, but the authorities who wasted all sorts of resources—water, money and time.<sup>41</sup>

In spite of all this controversy, the 1895 water shortage did not last 20 days, as predicted. On September 16<sup>th</sup>, just 5 days after the distribution of river water was announced, the temperature was dropping, the level of reservoirs was rising, and the city informed residents that spring water would be gradually restored. To be safe, they suggested that residents continue to boil their tap water for another two to three days. By

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39 Jean Frolo, “Ce qu'on boit” *Le Petit Parisien*, July 8, 1898.

40 Ernst Judet, “L'eau et la politique,” *Le Petit Journal*, Sept. 14, 1895: “L'impuissance de notre civilisation perfectionnée éclate devant le phénomène dont nous accable le changement d'habitude des saisons.” Like Judet, journalist Charnay wondered why Parisians weren't making more of a fuss: M. Charnay, “De l'eau!” *La Petite République* (Sept. 13, 1895): “La suppression de l'eau pendant les chaleurs caniculaires est devenue une habitude, une matière à chroniques estivales fort utiles aux journaux à court de nouvelles politiques.”

41 M. Charnay, “Le retour de l'eau de source,” *La Petite République* (Sept. 18, 1895), p. 1.

the 18<sup>th</sup>, the water shortage was fading in the press; the controversy lasted only a week. But Paris's water problem was far from solved. Parisians were made to endure water control measures of various kinds (rationing, shut-offs, distribution of river water) again in the summers of 1896, 1898, 1900, 1904, 1905, 1907 and 1911, as well as during the flooding of 1910.<sup>42</sup> Many of these shortages lasted longer than a week, some nearly a month. The more the water service struggled to supply Paris with enough *eau de source*, the more its options dried up. By the eve of the First World War, 1895's critique of the Water Service would become well-developed, common fare.<sup>43</sup>

In effect, we need to invert the history of the hygiene movement we are used to hearing. Rather than interpreting the hygiene movement only as a *response* to the nineteenth century's urban crisis, the case of Paris's water shortages suggests the hygiene movement may also have helped *cause* some aspects of the crisis. I am not arguing for the ideological nature of crisis—far from it. Although it is easy to see that crises are often in the eye of the beholder, the results of neurotic perception, Paris's water crisis was real, urgent and material. Given the city's population, the natural system at its heart (the Seine) had long since exceeded its capacity for supplying fresh water and removing waste. The population was out of scale with the river's natural capacities. Hence the Water Service's aggressive attempts to mediate the relationship between nature and humans with new technology, to turn this natural resource into an “industrial product” as Jean-Pierre Goubert famously argued. By further enclosing water as a commodity and monopolizing distribution, the Water Service made Parisians dependent on their pipe network for this

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42 Elisabeth Hausser. *Paris Au Jour le Jour: Les événements vu par le presse 1900-1919*. Paris: Editions de Minuit, 1968, pp. 37-40, 165, 200, 418.

43 Robert Léon, “Paris et son alimentation en eau” *La Revue de Paris* (Dec. 15, 1913), pp.

basic human need.<sup>44</sup>

It was not just that engineers were losing the battle to keep up with the growing population, as Humblot pleaded in 1896. They were *bound* to lose the battle, because standards for water use were also rising. The hygiene movement constantly redefined the need for water, for both ideological and practical reasons. In 1861 Paris had a population of approximately 1,700,000 and used an average of 115,000 cubic meters of water a day (68 liters/person/day). In 1895, with a population of 2,500,000, water use had increased to 550,000 cubic meters a day (220 liters/person/day). In these 34 years, the population grew by 1.5 times, while water use grew by more than 3 times. Theoretical standards for the amount of water needed per person per day were on the rise, too; in 1884, Poubelle estimated 150 liters; in 1896, Humblot estimated 220.<sup>45</sup>

In addition to increasing standards for individual and domestic use, and increasing demand from the public, the spread of hygienic thinking produced ever more uses for water. One of the most important was street cleaning. Between 1894 and 1897, the public, the municipal council and the Travaux de Paris kept up a lively debate about how omnibus stops should be washed. Paved with wooden blocks, they were often covered in horse urine and feces, and the filth seeped into the porous pavement. Horses surely found the stops convenient places to relieve themselves while not moving and not working, but this brought humans into constant contact with horse waste. Hence a number of complaints made to the authorities in these years demanded reform of the regime of bus

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44 Jean-Pierre Goubert, *The Conquest of Water: The Advent of Health in the Industrial Age*, trans. Andrew Wilson (Polity, 1989).

45 (1) Poubelle, 1884; (2) Humblot, *Étude & programme pour le complément de l'alimentation de Paris en eaux de source et de rivière. Rapport de l'Inspecteur général* (Nov. 4, 1896), pp. 12-14.

stop washing, or to have stops paved in cement.<sup>46</sup> Local hygiene campaigns, like the projects for disencumbering and cleaning-up the sidewalks we saw in the last two chapters, or subtle changes in daily practice, could thus put new demands on the water supply. We also know that water was needed for the hydraulic elevators of the 1890s, for example in the Eiffel Tower and the Hôtel de Ville<sup>47</sup>, and used to pull the Montmartre funicular, opened 1900.<sup>48</sup>

In the summer of 1896 the Water Service was still responding to the crisis of 1895 when another shortage struck. Humblot produced a study tying Paris's growing water use to population growth, and envisioned a long-term plan to match the water supply with the population's needs by 1930. Following Belgrand's lead, Humblot suggested that filtered river water be used to bolster the supply of eau de source in case of shortages, stressing that contemporary filtration systems could keep the public safe. Increasing the water supply, he argued, "Is even a pressing necessity in regard to the approach of the Universal Exposition of 1900: we would certainly not like to show muddy streets, covered in dust and sullied by the detritus of traffic, any more than dried-up fountains, to the numerous foreigners that it will attract to Paris."<sup>49</sup> A plan to tap the Loing and Lunain sources had already emerged in November of 1895. In fact, Humblot's 1896 report was

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46 See the documents collected in AP VONC 1350, "Voies Publiques - affaires diverses."

47 See: (1) M. H. de Graffigny, "Industrie: Les ascenceurs," *La Revue scientifique* – series 4, vol. 14 (Paris: Bureau des Reves, 1900), pp. 400-06; (2) J. Reyval, "Installations électriques de la Tour Eiffel," *Revue D'Électricité* vol. 26, no. 3 (Jan. 19, 1901), pp. 79-88.

48 The Montmartre Funicular was approved by the municipal council in 1891, but opened for service until 1900. In this funicular traction was produced by the counter-weight itself, which took the form of a large container of water. The mass of water could be adjusted to the same weight as the car, and when both were hooked to the same cable, the downward motion of the counter-weight would pull the car upward. See: Louis Figuier, *l'Année scientifique et industrielle* yr. 37 (1893) (Paris: Hachette, 1894), p. 109-10.

49 Humblot, 1896: "C'est même une nécessité pressante, en égard à l'approche de l'Exposition Universelle de 1900: on ne voudrait certes pas montrer aux nombreux étrangers qu'elle attirera à Paris des rues boueuses, couvertes de poussière et sallies par les détritux de la circulation, non plus que des fontaines taries," pp. 4-5.

the culmination of running discussions between engineers Huet, Humblot and Bienvenuë since 1892. As Bienvenuë wrote in 1895, the problem was to move beyond “the precarious equilibrium that the arrival of the waters of the Avre has permitted us to obtain.” He realized that all plans to tap new sources between the 1860s and 1890s had barely provided enough water by the time they were completed, including the 1893 Avre aqueduct. His sense of urgency was clear: “If we want this result to be attenuated in the summer of 1898, we must act without delay.”<sup>50</sup> Like projects for developing the tramways and the Metro we saw in Chapter 3, the project for increasing Paris's water supply was given a boost in the mid-1890s by the impending exposition.

As if to prove Bienvenuë's point, another shortage arrived in the summer of 1898, and again the newspapers were alive with debate. Jean Frolo, writer for *Le Petit Parisien*, sounded a note of despair: “The question of potable water comes back periodically to the order of the day for the public authorities, without ever being resolved.”<sup>51</sup> *Le Temps*, meanwhile, reported that the Water Service was considering three new plans to capture sources: the first, to connect sources in the area around Paris with existing aqueducts, the second, to draw water from Lake Léman, on the border with Switzerland, and third, to draw water from the Loire and Loiret rivers, the same source used by the city of Orléans.<sup>52</sup> The second plan pushed Paris's appetite for water farther than it had ever gone, into the Swiss Alps, while the third plan got Paris tangled in a centuries-old politics of Bourbonism vs. Orléanist.

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50 Prefecture de la Seine. Ville de Paris. Direction Administrative des Travaux. Direction des Eaux. *Aqueduc de Dérivation des Sources du Loing et du Lunain. Projet d'Exécution. Bordereau des Pièces.* Nov. 22, 1895, p. 3.

51 Jean Frolo, “Ce qu'on boit” *Le Petit Parisien*, July 8, 1898.

52 “L'eau à Paris,” *Le Temps*, Aug. 24, 1898. A quick look at the office files of the *Commission technique d'eau potable* (AP VO3 1221) shows that these three plans were actively discussed between 1897 and 1900.

Between 1898 and 1903, the city of Orléans, home to a dynasty with a long history of conflict with Paris and Versailles, continued this old family feud by other means, as home to an angry movement to save local waters from Paris's thirsty grasp. Drained of the precious waters of the Loiret, one local put it, Orléans would be less clean, less healthy. The river's aquatic plants would die, decomposing and creating a bog, possibly a source of “dangerous miasmas.” Local waterways could no longer guarantee the “freshness of the soil or even the means of irrigation” for local farmers, and they would be less navigable. Plus, a recent typhoid outbreak had everyone on edge.<sup>53</sup> The Orléanists' fear of Paris's ecological impact on their region echoed similar complaints from the Paris suburbs. They were not the only ones organizing against Paris because of water, as we shall soon see.

The shortage of 1898 also brought a technical change. After the Avre aqueduct was opened in 1893, the Water Service hoped that backing-up the potable water supply with filtered river water would no longer be necessary. But the shortage of 1898 dashed these hopes.<sup>54</sup> That summer, the Water Service began to mix in river water again, a choice which would have disastrous consequences in the typhoid outbreaks of the summers of 1899 and 1900. After the shortages of 1895 and 1898 the Water Service wasted no time making sure the Loing and Lunain aqueduct was ready for the 1900 exposition. But on Friday, July 20<sup>th</sup>, 1900 the temperature reached 37.9 C (100F), the

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53 *Note sur le Captage des Eaux de Val d'Orléans*, par M. Félix Marboutin, Ing. des Arts et Manufactures, Sous-chef du Service Chimique à l'Observatoire Municipal de Montsouris. (May 24, 1903) AP VONC 1217. See also: Commission technique chargée d'étudier les diverse questions se rattachant à l'Alimentation de Paris et de la Banlieue en Eaux potables. *Compte-Rendu de la séance du 30 Novembre 1900*, AP VO3 1221. One commissioner mentioned his certainty that Orléans “would” oppose the capture of water from the Loire and Loiret. He was right.

54 Dr. Thoinot, “La fièvre typhoïde à Paris de 1870 à 1899. Role actuel des eaux de source.” *Bulletins Et Mémoires de la Société Médicale Des Hôpitaux de Paris* 3d ser.:v.16 (Paris: Masson, 1899), pp. 645-669.

highest since 1874. In spite of the new aqueduct, water ran short and the exposition was deserted. Even though Friday was at the time the “chic” day to attend the exposition, only about 150,000 visitors came (compared with figures like 700,000 from the previous Sunday). Ticket prices dropped from 45 to 20 cents. In addition to propping up the supply with limited quantities of filtered river water, then, the Water Service also tried something new: shut-offs. On Saturday the 21<sup>st</sup>, newspapers began to warn that water would be shut off from 11pm until 6am the next morning.<sup>55</sup>

Each night between July 21<sup>st</sup> and August 5<sup>th</sup>, engineers shut off the 'private service' half of the dual piping system in order to prevent any use of eau de source at all. Overnight, while no one could deplete them, reservoirs would refill.<sup>56</sup> This technical decision reflected the authorities' ongoing distrust of public water use. The word “waste” returned to the public spotlight and all the familiar scripts from 1895 were replayed. The engineers at the water service accused the public of wasting water and journalists threw it back in their faces. Vivid descriptions of the dried-up, gooey Seine deployed a language of disgust and outrage. The newspapers began to speak of “the poisoning of the Seine,” reporting dead fish, cats and dogs floating on the river, whose waters had become a slow-moving, “blackened sludge” (*boue noirâtre*).<sup>57</sup>

Some new problems arose, too. Jean Frolo of *Le Petit Parisien* was particularly concerned about the ecological state of the river in the suburbs, much worse by his

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55 Hausser, *Au Jour le Jour*, p. 37.

56 “L'eau à Paris,” *Le Petit Parisien*, July 22, 1900.

57 See the following articles from *Le Petit Parisien*: “L'eau à Paris” (July 22, 1900), “L'Empoisonnement de la Seine” (July 26, 1900), “L'Empoisonnement de la Seine” (July 27, 1900), “L'eau de source” (July 27, 1900), “L'eau à Paris” (July 28, 1900). Also see the following from *Le Temps*: “L'Eau à Paris” (July 22, 1900), “L'Eau à Paris” (July 24, 1900), “La secheresse et la Seine” (July 24, 1900), “Les incendies et le manque d'eau” (July 25, 1900), “L'Infection de la Seine” (July 26, 1900), “L'Infection de la Seine” (July 27, 1900), “L'Eau à Paris” (July 28, 1900), “L'Eau à Paris” (July 30, 1900), “Faits divers” (Aug. 1, 1900).

estimation. At Saint-Denis, at the mouth of one of Paris's main sewers, the situation was critical: “the sewer has formed, by its dejections, a body of viscous and stinking matter which, at a length of thirty meters, advances in the river whose current is so feeble that it cannot break it up.” Reports were equally graphic from Clichy, Suresnes, Epinay, Saint-Ouen, Argenteuil, Bezons, Marly and Pecq. Suburban politicians quickly called for a meeting to address the situation, deciding to form a “Union of shoreline municipalities” (*syndicat des communes riveraines*), which demanded an audience with the Minister of Public Works. Like the Orléanists we just met, these suburban leaders felt the need to organize against Paris to protect their natural resources.<sup>58</sup>

Worries about environmental pollution and public health echoed across the city and the suburbs. Thanks to the Poubelle administration, all subscribing houses enjoyed eau de source for drinking, cooking, bathing, and flushing toilets. The 1900 shut-offs, therefore, threatened not only the potable water supply, but also the city's drainage and sewer networks, which were flushed in part with household wastewater. On July 24<sup>th</sup>, the Academy of Medicine protested, noting that compromising the sewers in this way could entail serious public health risks.<sup>59</sup> It was not the sewers, but rather the fresh water supply that delivered the greatest public health risk of the summer: a typhoid epidemic. Hygienist Dr. Thoinot had already sounded the alarm in the medical community in 1899, but the public scandal, which Jean-Pierre Goubert called one of the most famous of its era, didn't break until 1900. Thoinot noted that between 1894 and 1898, the typhoid rate declined sharply, a trend which confirmed the Water Service's high hopes for the Avre aqueduct. But the typhoid rate spiked suddenly after 1898, from 556 cases and 105 deaths

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58 “L'Empoisonnement de la Seine,” *Le Petit Parisien*, July 27, 1900.

59 Hausser, *Au Jour le Jour*, p. 38.



in 1898 to 2,371 cases and 404 deaths in 1899. The wave crested in 1900 with 3,148 cases and 568 deaths. Dr. Thoinot sounded the alarm just as he had in 1882, arguing that the epidemic resulted from the city's decision to back-up the supply of eau de source with river water starting in 1898.<sup>60</sup>

Journalists picked up the idea and ran with it. In August 1900, reporters from *Le Matin* interviewed two men from the municipal laboratory at Montsouris, responsible for water analysis, who had noticed an abnormal quantity of typhoid bacteria in their samples. While the engineers at the Water Service continued to argue both that using filtered river water was safe, and that it was not completely safe, but absolutely necessary, these municipal scientists sharply disagreed: “What do they think now about their abundant distribution 'of purified Marne and Seine water'? How many more victims do they need to convince them that their frightful mixes are nothing but a violent poison?”<sup>61</sup>

Already in 1898, the shift from distributing river water to overnight shut-offs was connected with the changing reputation of river water in both expert and public perception. Even the proponents of using filtered river water were uneasy about the process, and the 1899-1900 epidemics only made it worse. In 1900 meetings at the Prefecture of the Seine, several engineers, perhaps sympathetic with the Orléanist faction, recommended that the Water Service stay away from the Loire and Loiret rivers, because (a) the city of Orléans would certainly resist, (b) the sources were definitely contaminable

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60 (1) “La fièvre typhoïde” *Le Matin*, Aug. 29, 1900; (2) Dr. Thoinot, “La fièvre typhoïde à Paris de 1870 à 1899. Role actuel des eaux de source.” *Bulletins et mémoires de la société médicale des hôpitaux de Paris* 3d ser.:v.16 (Paris: Masson, 1899), pp. 645-669; (3) Goubert, *The Conquest of Water*, pp. 24 and 49.

61 “La fièvre typhoïde à Paris” *Le Matin*, Aug. 27, 1900.

and probably contaminated, in view of (c) its recent typhoid outbreak. This led to an uncertain and inconclusive discussion about filtered river water. Ultimately the issue remained undecided, pending study results from the lab at Montsouris. Many, even many water engineers were unsure about the filtration process, but with no official line on filtration scripted, they fell back on the status quo: distributing filtered river water was a necessary evil.<sup>62</sup> But many in Paris, lay and expert alike, knew that river water was increasingly unsafe to drink. In 1900, talk of “cleaning up the Seine” (*assainissement de la Seine*) and “poisoning of the Seine” (*empoisonnement de la Seine*) was closely related to the typhoid scare and the Academy of medicine's warnings about the sewers. Behind all of this was a growing awareness of the city's ecological impact, and an awareness that water was now an industrial product which could be manipulated by humans, for better or for worse—manipulation could purify water, or it could contaminate it.

Like the tramway and Metro accidents of 1900, the water shortage and typhoid outbreak disturbed the Exposition and its technophilic messages, another embarrassing international showcase of infrastructural inadequacy, engineering mistakes and hygienic backwardness. In 1902, George Bechmann, a key academic voice in the hygiene movement and Humblot's successor as Chief Engineer of the Water Service, wrote “We have not forgotten the crisis that the service of potable water distribution in Paris, the *private service*, passed through in 1900.”<sup>63</sup>

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62 Commission technique chargée d'étudier les diverse questions se rattachant à l'Alimentation de Paris et de la Banlieue en Eaux potables. *Compte-Rendu de la séance du 30 Novembre 1900*, AP VO3 1221.

63 *Rapport de l'Ingenieur en chef du Service Technique des Eaux et de l'Assainissement* (G. Bechmann, Oct. 8, 1902). Bechmann admitted the insufficiency of the water system, rather than evoking natural causes for the water crisis, and showed embarrassment about 1900. The report appears in *Alimentation de Paris en eau potable: mesures préliminaires en vue des nouvelles adductions d'eau* (Paris: Chaix, 1902), pp. 13-40.

The summers of 1901-3 brought a cool spell, with highs rarely getting above 30 C; the need for water was less and reservoirs did not dry up. There were no shortages in these years, and herein lies an important pattern: Paris only experienced shortages during periods of intense heat and lack of rain. Even as a fully packaged, industrialized product distributed in pipes, water remained a natural resource, sensitive to ecological changes. The water supply was intimately connected with the weather, which put water engineers in a difficult place. On the one hand, they knew that the water supply depended on the cooperation of natural forces, and could use this fact to deflect criticism and blame for Paris's supply problems. On the other hand, publicly claiming that these were natural and not technological problems called into question the engineers' ability to control and master nature.

The lasting problem of water pressure shows how complex the relationship with nature could be. Water pressure is dependent on several physical facts: the amount of water in question, its elevation, and most basically, gravity. Unless there is a sufficient amount of water pushing along a sufficient slope, gravity cannot move the water. This meant that from the 1860s to the 1890s, while the water distribution system remained unfinished, piping water to the higher ground in Paris (e.g. hilltops like Montmartre and Belleville), as well as to the upper floors of buildings, was always difficult. Because these hilltops were working class areas, this meant water troubles for those already less economically fortunate. Due to the social geography of the Paris apartment house, the same pattern repeated on a smaller scale in each house: the poorest people lived on the highest floors, and also had the most precarious access to water distribution. During summer water shortages, as the Water Service often feared that reservoir levels would get

so low that it could no longer sustain water pressure.<sup>64</sup>

Shortages returned in the summer of 1904, but not before journalists sounded the alarm. On July 17<sup>th</sup> *Le Petit Parisien* asked, in light of rising summer heat, whether there would be a water shortage. The fact that the paper raised the question *before* the shortage shows how well Parisians understood the pattern; each heat wave brought with it a shortage of eau de source, overnight shut-offs and distribution of filtered river water.<sup>65</sup> On the 20<sup>th</sup>, the paper wrote: “So many works of adduction and capturing [of sources] have not yet allowed [us] to predict heat waves and each summer a new disturbance comes to hurl itself at the Water Service!”<sup>66</sup> In 1904, all of the signs were present: distribution of river water, overnight shut-offs and a note from Dr. Thierry, director of the Prefecture of the Seine's hygiene service, that Parisians should boil their water in view of a recent typhoid outbreak.<sup>67</sup>

In the summer of 1905, water was shut off every night from July 31<sup>st</sup> to August 10<sup>th</sup>, but there was no heatwave, no shortage, and no uproar in the press. Reservoir levels never ran low; engineers just padded the city's supply for good measure.<sup>68</sup> Even more than 1904, the summer of 1905 demonstrates the dull compulsion of a city used to water shortages. The Water Service was storing water in case of a heat wave, now a normal safety measure to be taken every summer. Far from Jean Frolo's editorial fire of 1895-1904, *Le Petit Parisien* greeted the 1905 shut-offs with nothing but an advertisement for “Cap powder,” a mass-market water sterilizer, as if to say “you can't fix the Water

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64 Couche, *Les Eaux de Paris en 1884* (Paris: Chaix, 1884), pp. 51-55 (AP VO3 220).

65 “La chaleur” *Le Petit Parisien*, July 17, 1904.

66 “La chaleur” *Le Petit Parisien*, July 20, 1904.

67 “L'Eau à Paris,” *Le Petit Parisien*, Aug. 17, 1904.

68 “L'Eau à Paris,” *Le Temps*, Aug. 11, 1905.

Service, so save yourself.”<sup>69</sup> The routine was repeated in 1906: as one popular science author put it, “Each year, at the same time, the question of potable water poses itself. This year, the situation is already aggravated due to an exceptionally torrid summer.”<sup>70</sup>

Water shortages like those of 1895-1906, however, only affected those with a subscription to the water service. For the many Parisians we met with delinquent landlords, or who lived in sub-standard housing, finding water was *always* difficult, not only during summer heat. In spite of the authorities' claim that as of 1892 the entire city was piped for water distribution, there were notable exceptions, places on the map of Paris where the tendrils of modern infrastructure did not yet reach. In 1906, *Le Petit Parisien* reported on a group of houses in the “Zone” at Pantin with no running water (figures 24 and 25).<sup>71</sup> The “Zone” was a 250-meter-wide ring of land between the city limits and the 1844 fortifications. Technically under the jurisdiction of the military, and called *zone non aedificandi* (non construction zone), the space was largely abandoned by the military after 1870, and became a liminal realm of barren spaces, squatters and shantytowns (*bidonvilles*).<sup>72</sup>

Reporters from *Le Petit Parisien* interviewed Mme. Pornine, who ran a bar in the area at 10 rue de Flandre. She explained that the 15 households occupying this space in Pantin had approached the authorities again and again, petitioning them for water, but “each one has been useless.” Condemned to scavenge for water and share with one another, she explained, the only way to find water was by ruse, fraud or bribe—“and

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69 “L'Eau,” *Le Petit Parisien*, Aug. 5, 1905.

70 “À travers la science” *Le Petit Parisien*, Aug. 27, 1906.

71 “Un Sahara à Pantin” *Le Petit Parisien*, Aug. 13, 1906.

72 See: (1) Norma Evenson, *Paris: a Century of Change*, pp. 204-7; (2) Rosemary Wakeman, “Nostalgic Modernism and the Invention of Paris in the Twentieth Century” *French Historical Studies* 27/1 (Winter 2004), pp. 115-144. John Merriman, *The Margins of City Life* (Oxford, 1991), pp. 6, 34, 59, 65, 81, 121; (4) Janet Horne, *A Social Laboratory for Modern France*, pp. 250-2.



Figure 24: View from the fortifications to the Zone near Saint-Ouen. From bottom to top, one sees the trench of the fortifications, the bald land of the zone, and the shantytowns pushed up against the city limits of Saint-Ouen (image Wikipedia commons).

what water we find now!” Every two to three days, a man came to clean the gutters, opening a stand-pipe on the *rue du Chemin de fer* to help him sweep. The spigot was only open for an hour, and water pressure was not strong, so as she told them, “you've got to hurry to get what you need. Housewives go running with their urns, and they line up like at the theater.” Thanks to Belgrand's dual system, the water that came out was not potable, but it was easy to steal.

If this option didn't work, there was also a spigot on the other side of the street, at the corner of *rue du Vivier* and *rue de Solferino*, but this water was technically under jurisdiction of the suburban commune Aubervilliers, and thus patrolled by agents threatening “onerous fines.” To find water in this neighborhood, Mme. Pornine explained, “you must take care to go at night, like criminals, keeping yourself well

hidden.” Sometimes residents of Aubervilliers would offer water, but the residents of the zone couldn't count on their consistent generosity, and they couldn't show their generosity too overtly, or agents would fine them for misusing water as well.

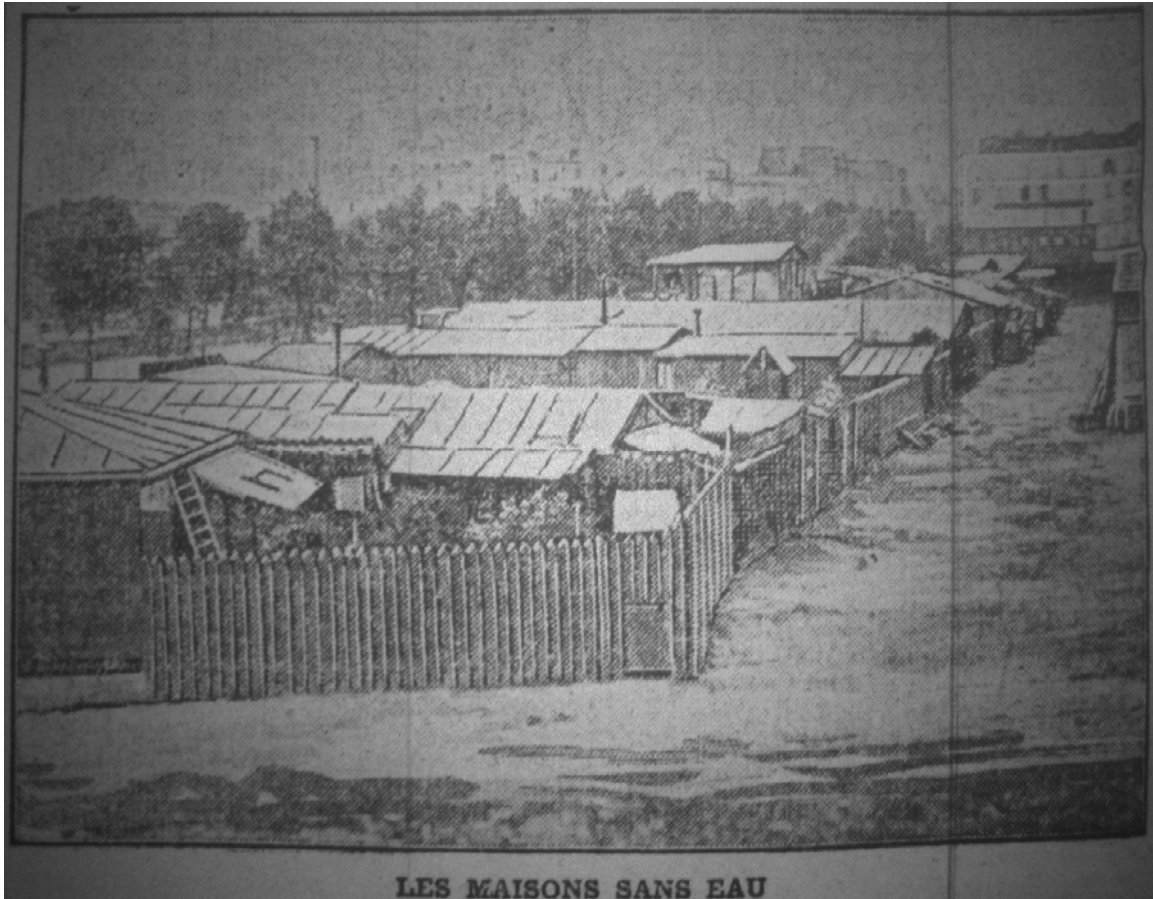


Figure 25: *Le Petit Parisien*'s photograph of the shanties in Pantin without water.

The problem was that the Zone fell between jurisdictions, between the city and the suburbs, and was only overseen by the Army, which was completely disinterested. Hence, in the Zone's desperate conditions, tenants, property managers and landlords had banded together to ask the authorities for help.<sup>73</sup> *Le Petit Parisien* also interviewed M. Clermont, a property manager (*gérant* and *locataire principale*), who detailed the city's

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73 This contrasts significantly with the landlord-tenant conflicts we saw in the last chapter.

plan to distribute water: spigots would be installed at the homes of the two *locataires principales*, and all the tenants who sublet from them would have to collect water there. The water service submitted plans to the Army for review, and the zoniers were still waiting for a response when *Le Petit Parisien's* article was published. But infrastructure was still lacking. As local inspector (*agent-voyer*) M. Courtois put it coldly, “The zoniers would have water when they want it! For that, all they need to do is to obtain the piping. It's one or the other: either they establish it at their own cost, or they guarantee the water company a sufficient minimum of subscriptions.”

Everything about this 1906 episode in the Zone—daily life as a struggle to find water, the indifference of some authorities (both military and civilian), the cruelty of others (the Aubervilliers police, the water company), and the battle over boundaries (city vs. suburbs, subscriber vs. non-subscriber)—suggests that, for all the shortages *within* the network of Paris subscribers in these years, times were much harder for those *without* a subscription. These zoniers, who remained “off the grid” of Paris infrastructures, had a difficult time finding water now that it was enclosed, privatized and commodified. The lack of open water outside the network was a much longer-running and more devastating shortage than any of the summer shortages experienced by subscribers in Paris. This story shows that engineering narratives of infrastructural progress were often exaggerated, conveniently neglecting those parts of the city and the population not yet served by modern infrastructure. This explains journalists' zeal in exposing counter examples like this shantytown in the Zone. Not all Parisians had equal access to fresh water. On the lowest rungs of the social ladder and at the margins of the city everyday life could be more like life in early modern Paris, where there was no municipal water distribution



system, and daily household practice necessarily included the search for water.

Paris's water supply problems would come up again and again in the years between 1906 and 1914. In 1907, *L'Intransigéant* ran a story about the controversy over filtered water; in 1909, *L'Autorité* called another typhoid outbreak an “administrative scandal.”<sup>74</sup> The flood of 1910, which we'll see later in this chapter, brought another water crisis because floodwaters filled the sewers to capacity, mixing fresh water, waste water and storm water, all of which ran through the sewers. But the biggest water shortage came with the heat wave and Great Stink of 1911, as we'll see at the end of this chapter.

### *Waste, Sewers and Pollution of the Seine*

One of the most radical things Haussmann's administration did, definitely without a full sense of its consequences, was to help break the organic cycle for Paris.<sup>75</sup> In the cyclical rhythms of ecology, each species' waste is useful for some other species. In human history, we can see this in the centuries-old process of waste recycling, transforming waste into useful, productive things like fertilizer, fuel and raw materials.<sup>76</sup> In this process, everything cycled back into the earth; there was little mediation in the relationship of humans to nature. But along with Bechmann's “artificial life,” nineteenth century urbanization brought a new problem to Europe: large populations began to outstrip the natural waste-processing capacity of water and soil. The Seine had long been a natural main drain for Paris, but in the 19<sup>th</sup> century's rapid urbanization the city outgrew

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74 Paul Bersonnet, “Parisien, bois ton eau sans crainte!” *L'Intransigéant*, Aug. 12, 1907; “Aux Service des Eaux. Un scandale administratif. Une epidémie de typhoide,” *L'Autorité*, Aug. 23, 1909.

75 Matthew Gandy, “The Paris Sewers and the Rationalization of Urban Space,” *Transactions of the Institute of British Geographers* NS 24 (1999), pp. 23-44, see p. 35.

76 See Gandy, “The Paris Sewers and the Rationalization of Urban Space”, see also Steven Johnson, *The Ghost Map*

the river. As Sabine Barles put it, “Cities thus became parasite ecosystems..., living at the expense...of river systems.”<sup>77</sup>

Waste also changed in meaning and value. As agronomy professor Muntz explained in 1891, in rural, agricultural, subsistence societies, feces has great value as fertilizer. All food for humans and animals comes from the earth, and all feces goes back into the earth, constantly recycling nitrogen and other nutrients. In urban societies, this cycle is broken. All waste comes from consumption of imported products, and “far from being a source of wealth, as in the fields, becomes a cause of difficulty.”<sup>78</sup> Waste cannot be used on site, and must be exported. Hence nineteenth century cities searched for new, technologically-mediated ways to dispose of and process waste. For Parisians like Muntz, urban modernity entailed inhabiting an ecosystem in which the natural cycle had been broken.

Paris's earliest waste disposal practice, dating to the middle ages, was to throw all waste, relatively unsorted, into the street, hence the French term *tout à la rue* (everything into the street). The contents of chamber pots, kitchen scraps, paper and cloth—all waste produced by animals, people, households and workshops was sent to the street, a theater of recycling. Here an urban underclass of rag-pickers (*chiffonniers*) of various kinds—some looking for cloth, some for manure, wood, paper, metal, glass, bone, etc.—sorted through the waste and cleaned it up for redistribution.<sup>79</sup> Whatever remained was, at least

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77 Sabine Barles, “Urban metabolism and river systems: an historical perspective – Paris and the Seine, 1790-1970,” *Hydrology and Earth Sciences Discussions* 4 (2007), pp. 1845-78, quote p. 1846.

78 A. Muntz and Ch. Girard. *Les Engrais*, vol. 1, 2nd edition (Paris: Librairie de Firmin-Didot et Cie, Imprimeurs de l'Institut, 1891), p. 351. As waste's economic value changed, so did its cultural meaning. It went from fertility to filth. See Matthew Gandy, “The Paris Sewers and the Rationalization of Urban Space,” p. 32, where he discusses Alain Corbin's “olfactory revolution .”

79 William Blanchard Jerrold. *Imperial Paris; including new scenes for old visitors* (London: Bradbury and Evans, 1855), Ch. 8: “Chiffons and Chiffonniers,” pp. 176-192. See also the excellent analysis of

in theory, swept by rainwater through the gutters into the Seine.

From the late middle ages into the early modern period, Parisians developed a separate system for human feces based around *fosses fixes*, “fixed cesspits” dug under houses that received the dejections of chamber pots and toilets.<sup>80</sup> By the 19<sup>th</sup> century, this was the main form of human waste disposal in Paris. Gérard Jacquemet reports that 70,000 of Paris's 80,000 houses were equipped with them in 1880.<sup>81</sup> A class of *vidangeurs* grew up in the city, men who emptied cesspits and carried Paris's waste to processing plants outside the city where it was made into fertilizer.<sup>82</sup> The city could not use all of its own waste, but farmers in the department could, and they could thus provide the city with all of the imported produce it needed. From the mid-1700s to mid-1800s, then, Paris's waste was exported to and recycled by a rural hinterland, which fed on the capital's waste and turned it into the capital's imported foodstuffs.

Hausmann and Belgrand made Paris's first attempts at a comprehensive, unified sewer network, growing the network from 143 km of pipe to 773 km.<sup>83</sup> They planned a “combined” system, meaning a system which would handle human waste, the residues of street cleaning, and storm water, hence the phrase *tout à l'égout* (everything into the sewer). This system thus threatened to undo the lives and livelihoods of chiffoniers and vidangeurs, automating and technologizing waste disposal, obviating forms of human

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urban recycling in mid-19<sup>th</sup> century London in Steven Johnson, *The Ghost Map: The Story of London's Most Terrifying Epidemic—and How it Changed Science, Cities and the Modern World* (Riverhead Books, 2006), Ch. 1 “The Night Soil Men,” pp. 1-24.

80 The first royal decree on cesspits dates to the 1530s, in reaction to a plague epidemic. See Donald Reid, *Paris Sewers and Sewermen*, p. 10.

81 Gérard Jacquemet, “Urbanisme parisien : la bataille du tout-à-l'égout à la fin du XIXe siècle,” *Revue d'histoire moderne et contemporaine* (1979), pp. 505-548.

82 It was either dried and made into human guano (*poudrette*), or dried and saltpeter (sodium nitrate) was extracted from it for fertilizer.

83 Donald Reid, *Paris Sewers and Sewermen: Realities and Representations*, p. 30.

labor that had been essential to urban waste-processing for centuries.<sup>84</sup> It also threatened to cut the economic circuit between the capital and its hinterland, possibly dumping Parisian feces in mass quantities into the Seine for the first time.

Even Haussmann himself was uneasy about using the new sewers to handle human waste, concerned for the commercial interests of the vidangeurs and the Seine as a source of fresh water.<sup>85</sup> Hence the 1860s was a dynamic and difficult decade for Paris's sewers, which saw the experimental beginnings of a sewage farming program under engineer Alfred Durand-Claye that would continue for several decades. Durand-Claye envisioned a city in which every apartment could enjoy modern toilets, piped directly to the sewers, in which sewer mains would not empty into the Seine.<sup>86</sup> There was always a tension between the repressive impulse to hide or evacuate waste, and the sublimative impulse to transform waste into something useful like fertilizer.<sup>87</sup> Already by 1866, not long after human waste first began entering the Seine via the sewers, engineers and politicians were already concerned about pollution, though they used words like “alteration” and “corruption.” The discussion of direct to sewer drainage was always linked, between the 1850s and 1910s, to the question of cleaning up the Seine, a question of the proper relationship between the city and the river, between humans and nature.

The sewer program that the Third Republic inherited from Haussmann was not only physically unfinished (only the mains were complete), but was also conceptually

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84 Dolly Jørgensen, “Cooperative Sanitation: Managing Streets and Gutters in Late Medieval England and Scandinavia,” *Technology and Culture* 49/3 (July, 2008), pp. 547-567.

85 Donald Reid, *Paris Sewers and Sewermen: Realities and Representations*, p. 80; Matthew Gandy, “Paris Sewers and the Rationalization of Urban Space,” pp. 32-3.

86 See “Hygiène publique,” on Durand-Claye's sewer plans, from *Comptes rendus hebdomadaires des séances de l'Académie des sciences* vol. 72, 1871, pp. 89-92.

87 I have borrowed this psychoanalytic language from Donald Reid, *Paris Sewers and Sewermen*, “Introduction.” He borrowed it from Freud, via Mary Douglas.

unfinished, still experimental. Engineers and hygienists were still unsure about (a) whether waste was better used wet, as in sewage farming, or dried, like powdered fertilizer, (b) whether it should ultimately go into the soil, the Seine or the sea, and (c) how a comprehensive reform of waste disposal could ever succeed in Paris, given the opposition of powerful commercial interests: landlords and vidangeurs. It was this manifold uncertainty which shaped what urban historian Gérard Jacquemet famously called the “battle” of the *tout-a-l'égout* in the early Third Republic, the struggle of the Water Service engineers against vidangeurs, landlords, the municipal council and the scientific community to generalize direct to sewer drainage throughout the city. The Paris sewers, just like the Métro, passed through a protracted dream phase between the Second Empire and the First World War, during which development was slow, designs were not yet stabilized and infrastructure remained a common topic of public debate. Much like the trolley system of tramway traction, the apparently modern, international *tout-a-l'égout* was not so quickly adopted in Paris.<sup>88</sup>

The question was precisely how to evacuate Paris's enormous surplus of waste, without polluting the Seine, considering that the Seine had always been the city's main drain. Could the problem of waste be solved, or merely moved away from the city? If waste was merely moved away, then who would have to deal with it? As Paris's population and appetite increased, so did the amount of waste it produced. The sewage farming system, for example, grew steadily between the 1860s and the 1890s, from 5

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88 I do not dwell on the development of the sewers in this chapter, because there is already quite a good literature on sewer development in Paris. Donald Reid's *Paris Sewers and Sewermen* is a landmark, here, but there has been important supplementary material in: (1) Gérard Jacquemet, "Urbanisme parisien : la bataille du tout-à-l'égout à la fin du XIXe siècle," *Revue d'histoire moderne et contemporaine* (1979), pp. 505-548; (2) Roger-Henri Guerrand, "La bataille du tout à l'égout," *L'Histoire* 53 (Feb. 1983), pp. 66-74.

hectares of irrigated land in 1866, to 115 hectares in 1876, 300 hectares in 1880 and 1,800 hectares in 1897—and the system still needed room to grow.<sup>89</sup> The plan submitted for an *enquête* by Durand-Claye, Mille and Belgrand in June of 1875 estimated that in order to process all of Paris's wastewater through sewage farming, the city would need 6,659 hectares of land, adjacent to the suburban communities Gennevilliers, Nanterre, Rueil, Argenteuil, Sartrouville, Le Pecq, and Achères.<sup>90</sup> When residents of the suburbs read these plans, they reacted with what Jacquemet called a “general uproar.” Of 32 municipalities represented in the General Council of the Seine-et-Oise department, 27 rejected the plan, and 8,500 signatures were collected to support this opposition. One journalist asked whether the capital had “the right to sacrifice Gennevilliers.”<sup>91</sup> By the 1890s, it was estimated that the city would need 7,820 hectares of land for sewage farming, a space larger than the land area of Paris. Adolphe Carnot, a member of the *Commission supérieure de l'assainissement de Paris* (High Commission for the Clean-up of Paris), had studied 40,000 hectares of land suitable for the purpose, some more than 60km from Paris.<sup>92</sup>

The city's increasing production of waste, like its search for sources of fresh water, threatened to spread its urban problems into a broad hinterland. In the debates of the 1860s and '70s concerning the *tout à l'égout*, Paris engineers stressed the necessity

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89 (1) Jacquemet, "La bataille du tout-a-l'égout," p. 509; (2) F. Launay, *Les champs d'épandage de la ville de Paris et le parc agricole d'Achères* (Paris: Masson et Cie, 1897), p. 5; (3) Conseil General de la Seine, no. 29. *Rapport au nom de la Commission départementale des eaux sur l'assainissement du département de la Seine*, presented by MM. Paris and Carmignac, 1909, p. 3.

90 See Durand Claye et al. “Avant-projet d'un canal d'irrigation à l'aide des eaux d'égout entre Clichy et la forêt de Saint-Germain” in Commission d'enquête sur l'avant-projet d'un canal d'irrigation à l'aide des eaux d'égout entre Clichy et la forêt de Saint-Germain, *Assainissement de la Seine: épuration et utilisation des eaux d'égout* (Paris: Gauthier-Villars, 1876), pp. 8-11.

91 Jacquemet, "La bataille du tout-a-l'égout," pp. 509-510. For more on suburban opposition to the plan, see Dr. Salet, *Mémoire sur l'avant-projet de dérivation des eaux d'égout de la ville de Paris* (St. Germain en Laye: T. Lancelin, 1876).

92 See the special issue of *La Construction Moderne* on the *tout à l'égout*, March 3, 1894.

and modernity of this system, contrasted with the barbarity and stink of cesspits, without solving the question of where waste flushed into the sewers would go. In 1884, hygienist Marié-Davy coined the phrase *tout à l'égout, rien à la Seine* (everything into the sewer, nothing into the Seine), the same year that the Director of the Montsouris Observatory called for *tout à l'égout, tout à la mer* (everything into the sewers, everything into the sea), by way of the long-envisaged canal from Paris to the sea. Everyone could agree that human waste needed to be evacuated from Paris, and that covering it and carrying it in water was the most “civilized” way to do this, but few could agree on where the waste should ultimately go: into the Seine? Into the soil of the suburbs? Into the sea?<sup>93</sup>

In addition to the problem of where waste should go, there was a technical problem. As the battle over the *tout à l'égout* continued into the 1880s and 1890s, many wondered whether Paris's strained water supply could provide enough water to appropriately flush the sewers. Poubelle's decree of November 14, 1883 recommended that each apartment of two rooms or more have its own toilet (rather than common toilets for shared use), and that each toilet should drain directly to the sewers, be equipped with a hydraulic apparatus to ensure a flush of 10 liters per person per day, and a siphon at the exit pipe, to prevent waste and odor from backing up into the toilet. Coupled with the decree of December 8, 1884, which recommended distributing only *eau de source* for all domestic uses, this meant that these new toilets would be flushed with *eau de source*. Up to an estimated 10% of the city's much needed fresh water would be flushed into the

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93 See: (1) *Journal d'hygiène* 9e v. (1884), p. 576; (2) Ponts et Chaussées - Direction des Travaux de Paris - Service de l'Assainissement de la Seine. *Rapport de l'Ingénieur ordinaire, Assainissement de la Seine en aval de Paris* (Aug. 31, 1892), AP D1 S8 6; (3) Allan Mitchell, *Rêves parisiens: L'échec de projets de transport public en France au XIXe siècle* (Presses des Ponts, 2005), pp. 48-64.

sewers.<sup>94</sup> As Senator Paul Strauss put it in 1895, “Are we going to lose, indefinitely and constantly, through the tout à l'égout...all the eau de source that we supply at great cost and so inadequately...?”<sup>95</sup> The tout à l'égout system, like new practices of personal cleanliness and street cleaning, was yet another new drain on the city's strained water supply. The water shortages and stinking sewers of 1880, 1895 and 1900, which we saw earlier in this chapter, show the depth and longevity of this problem.

We can show that more and more waste was going into the sewers instead of cesspits. In 1881, Durand-Claye estimated the amount of waste emptied from cesspits at about 1,000,000 cubic meters a year.<sup>96</sup> Hereafter, the number of houses using cesspits declined steadily, from around 80,000 in 1880 to 25,821 in 1913. Hence the amount of waste processed by Paris's several suburban waste-processing plants also decreased in these years. As cesspits were phased out, direct to sewer drainage was gradually phased in, growing from only 213 hookups in 1885 to 52,053 in 1913. This greatly increased the amount of wastewater sent to be processed in sewage farming, which for example grew from 7,212,928 cubic meters in 1873 to 226,544,409 cubic meters in 1902.<sup>97</sup> Across the period from 1870 to 1914, solid waste removed from cesspits was gradually replaced with wastewater flushed into the sewers.

As Paris's method of waste disposal changed, so did the physical composition of

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94 Préfecture de la Seine. *Assainissement de Paris. Réforme du mode actuel de la vidange. Projet de règlement relatif aux cabinets d'aisance, aux tuyaux d'évacuation, etc. Projet de loi autorisant une taxe par tuyau de chute*, 1883.

95 Quoted in Jacquemet, “La bataille du tout à l'égout,” p. 518.

96 In 1881 Durand-Claye estimated that Parisians produced an average of 2,520 cubic meters of waste a day, or 919,800 cubic meters a year. See *Observations des ingénieurs du service municipal au sujet des projets de rapport présentés par MM. A. Girard et Brouardel, M. Alfred Durand-Claye, rapporteur* (Paris: Chaix, 1881), pp. 5-6. The *Annuaire statistique de la ville de Paris* for 1881 estimated even more waste, at 1,126,706 cubic meters; see pp. 134-5.

97 (1) Jacquemet, “La bataille du tout-a-l'égout,” p. 543; (2) *Annuaire statistique de la ville de Paris* 1902 (pub. 1904), p. 94.



its waste, requiring a constant search for new methods of waste management. Hence vidangeurs treated cesspit waste with chemicals (such as aluminum sulfate and iron sulfate), dried waste to make fertilizer, and eventually incinerated waste.<sup>98</sup> Wastewater treatment underwent a similar development in these years, from Durand-Claye's late-1860s plan to filter wastewater using the soil to the chemical and bacteriological purification of the early 1900s, and eventually purification with ozone, invented by the French chemist Marius-Paul Otto in 1906.

Belgrand dreamed in 1855 that all Paris's wastewater could go into the Seine, but none of it within the city of Paris, hence the main drains were placed fairly far down, at Clichy and St. Denis. But this merely moved the problem of waste downstream, both compromising the suburbs' water supply with Paris's waste and doing nothing to prevent further dumping by the suburbs. The Minister of Public Works called the first Commission to work on the *assainissement de la Seine* (clean-up of the Seine) in 1874, estimating that Paris contributed about 200-300,000 cubic meters of partially dissolved solid waste to the Seine every day. In 1882, the departmental government formed the *Commission de l'Assainissement de Paris* to do two things: to improve the hygiene of houses in Paris and ensure the evacuation of all "impure products" they produced—another indication of how closely the reform of housing and the reform of water use were connected.<sup>99</sup> The Commission's technical section worked on the question of cleaning up the Seine, estimating that the city now produced 400,000 cubic meters of waste a day. It also showed that both the Seine and the Marne, important sources of water, were

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98 For more on the various methods of treating urban waste, see M.W. Ramsay, "L'Épuration des eaux d'égout," a presentation given at the Sixth International Congress on Applied Chemistry, Rome, April 24 to May 3, 1906 (Paris: Bureau de la Revue et du Répertoire, 1906).

99 Commission de l'Assainissement de Paris, Séance du 15 janvier 1885 (AP VI5 1), p. 5.

compromised by suburban sewers and industry upstream of Paris. The impact of the upstream suburbs on Paris mattered as much as Paris's impact on the downstream suburbs.<sup>100</sup> The waterways of the entire department needed work. By 1899, Paris's produced nearly 500,000 cubic meters of waste a day.<sup>101</sup>

Just as the amount of wastewater produced by the city and the land area used to process it were growing, so was the geographic extent of the clean-up problem. In 1892, Belgrand's idea to stop all dumping of untreated sewage into the river inside the city limits was set to go into effect in 1893.<sup>102</sup> It took until 1894 to put it into law, and the city's main sewer at Clichy, still within the city limits, was not finally closed until July 8, 1899. Even while the *tout à l'égout* remained incomplete, because of both infrastructure and subscriptions, it was an important hygienic struggle to complete the *rien à la Seine*. Closing the main sewer at Clichy became an opportunity for republican fanfare and celebration of public works like the opening of the Avenue de la République we saw in Chapter 1, with neighborhood houses spontaneously decorated by citizens, and plenty of police protection to control the crowds. A litany of important politicians, doctors, engineers and hygienists attended. President of the Municipal Council Lucipia called it “a veritable triumph of hygiene over routine,” and Prefect of the Seine De Selves suggested it should be given special mention at the coming 1900 exposition.<sup>103</sup>

With no sewage going into the Seine, Paris would need more space for sewage

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100 Prefecture de la Seine, imprint No. 5. Direction des Travaux de Paris. Commission Technique de l'Assainissement de Paris, 4eme Sous-Commission. Séance du 9 Décembre, 1882. Rapport présenté par M. Mille, pp. 5-8 (AP D1S8 6).

101 “Au Jour Le Jour: L'Assainissement de la Seine” *Le Temps*, July 9, 1899, p. 3.

102 Poubelle, Memoire au Conseil Municipal, Dec. 19, 1892 (AP D1S8 6).

103(1) Donald Reid, Paris Sewers and Sewermen, p. 82 (2) “Au Jour Le Jour: L'Assainissement de la Seine” *Le Temps*, July 9, 1899, p. 3; (3) “L'Épuration de la Seine,” *Le Petit Parisien*, July 9, 1899, p. 1.

farming, so the authorities expanded the system to 6,300 hectares of terrain.<sup>104</sup> Once Paris's main drain was closed, it begged the question of how the Seine was being altered by sewers across the department. Only two weeks after the ceremony at Clichy, the Clichy Municipal Council noted that suburban communes throughout the department were still dumping their waste into the Seine, and demanded that the departmental government do something about it.<sup>105</sup> In 1900 the Prefect of the Seine and the Minister of Public Works teamed up to create a project for the suburbs, which were then still dumping an estimated 357,000 cubic meters a day of their own into the Seine.<sup>106</sup> In order to accommodate the growing quantity of waste to be processed by the soil and by farming, the departmental authorities worked to implement purification methods, mostly modeled on British septic tank systems (especially the bacteriological system of Dr. Calmette), between 1904 and 1907.<sup>107</sup> By 1907, what had started in the 1870s as “cleaning up the Seine” had become a project for cleaning up the Seine, the Marne and the Bièvre.<sup>108</sup> The debate Belgrand started in 1855 concerned Paris's effect on the Seine; 40 years later, the same discussion concerned the effect of the entire department on all of its waterways. Just as Paris's search for fresh water widened the circle of its ecological impact in these years, so did the long-standing question of how to flush everything into the sewer, but nothing into the Seine. The plans hatched in 1907 would see plenty of

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104 “L'Épuration de la Seine,” *Le Petit Parisien*, July 9, 1899, p. 1.

105 *Rapport de l'Ingénieur ordinaire* and *Rapport de l'Ingénieur en Chef*, Sept. 15, 1899 (AP D1S8 6).

106 *Etat d'infection de la Seine en aval de Paris: Réponse au Service Municipal d'Assainissement: Avis de l'Ingénieur en Chef* (Réstal), Oct. 3, 1900 (AP D1S8 6).

107 Conseil Général de la Seine, *Compte rendu de la séance du samedi 24 Décembre*, 1904, on AP VONC 1217; Conseil Général de la Seine, *Rapport #4* (June 29, 1905) and Conseil Général de la Seine, *Rapport # 13* (July 5, 1907), both in AP D1S8 6.

108 Conseil Général de la Seine, *Rapport au nom de la Commission des eaux et de l'assainissement, sur l'établissement d'un programme avec épuration biologique des eaux d'égout pour l'assainissement de la Seine, de la Marne et de la Bièvre*, No. 13 (1907), presented by Louis Parisot (AP D1S8 6).

administrative work, but no realization, before 1914.<sup>109</sup>

Much like the dream life of the Métro and the “battle” of the tout à l'égout, projects for cleaning up the Seine were slow-moving between the early 1870s and 1900. In these years, all three Paris governments—local, departmental and national—worked on the problem of the city's increasing pollution of the Seine. What began motivated by growing awareness of the modern city's ability to pollute water had become by 1900 motivated by the inverse: recruiting chemical and bacteriological means to show modern science's ability to purify water. Where Paris's wastewater is concerned, the period from 1870 to 1914 saw engineers, politicians and journalists struggling to grapple with the finite filtering capacity of water and soil, and humanity's power to manipulate water. Paris's organic cycle had been broken, hence the increasing attention put on purifying both potable water and wastewater, in this period, using technoscience to manipulate nature.

### *The Seine, Floods and the Role of Nature*

Paris lies in the Seine basin, a large, teardrop-shaped area in north-eastern France whose rivers drain into the Seine, which rises in central France near Dijon, and drains into the English Channel at Le Havre. Where Paris stands, the river has cut a wide valley into the earth, leaving behind a ring of hills. Paris's basic topology is that of a bowl, and the flat plain at the bowl's center is the Seine's floodplain. Like many rain-fed rivers, the

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109 Conseil Général de la Seine, Rapport #29 (Dec. 3, 1909); Conseil Général de la Seine, *Rapport # 7* (March 17, 1911); Conseil Général de la Seine, *Rapport #3* (June 8, 1914) – these last two are in AP D1S8 7.

Seine floods regularly.<sup>110</sup> From 1700 to 2000 it flooded 75 times, on average 25 per century, or once every four years. Two thirds of these floods (48) never got higher than 6 meters, which the Prefecture of Police today considers the threshold of significant physical damage to the city. On its course through the city, the Seine is a relatively humanized or technologized waterway, its channel heavily built-up with stone, its quays far above the normal water level. Hence a majority of floods are not catastrophic for the city, as the exceptional floods of 1658, 1740 and 1910 were, during which waters reached over 8 meters. Floods typically come during the winter, almost always between November and April. Between 1891 and 2001, 73% of floods that reached 6 meters or more came in January, and the other 27% in December or February.<sup>111</sup> That Seine floods are loosely rhythmic in this way does not make them any easier to predict. The only chance of predicting when Paris will flood lies in flood reports from the Seine's many tributaries, following large amounts of rain throughout the Seine basin.<sup>112</sup> Floods are a normal part of life in Paris, and under most circumstances, the Seine's fortified river bed and the natural filtering capacity of the earth are enough to keep water out of Paris. But when floods were extraordinary, they left deep traces in the archive. Between 1870 and 1910, Paris saw flooding greater than 6 meters in 1876 and 1883.<sup>113</sup>

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110 For a concise distinction between rain-fed and alpine rivers, see Cornelius Disco, "Taming the Rhine," cited above.

111 Paris Prefecture of Police, *Plan de Secours Spécialisé Inondations Zonal* (Jan. 1, 2006), vol. 1, Ch. 1.3, pp. 25-28. Online at [http://www.prefecture-police-paris.interieur.gouv.fr/prevention/innondation\\_janvier2006/sommaire.htm](http://www.prefecture-police-paris.interieur.gouv.fr/prevention/innondation_janvier2006/sommaire.htm). It is important to note that flood rhythms change over time, too. Before 1891, Paris saw major floods over 6 meters in March of 1751, 1784, 1804, 1807, 1817, 1844 and 1876.

112 As hydrologist Médéric Clément Lechallas pointed out, Belgrand had already made this argument in 1876, that major Seine floods "...sont toujours le résultat d'une série de crues successives des affluents torrentiels," which saturate the soils of the entire Seine bassin, removing the natural draining properties of the soil. See *Hydraulique fluviale* (Paris: Baudry et cie, 1884), p. 287. This argument remains current even today.

113 The flood of 1872 was around 6 meters, but measurements differ. Paris also saw waters above 5 meters

In 1876, floodwaters crested at 6.69 meters on March 18th. Reporters from *Le Temps* visited the worst areas of flooding in the suburbs upstream of Paris. Here, “the spectacle is much more terrible.” In places the river swelled to 5 or 6 km wide. “But the number of flooded houses is incalculable.” The flood threatened to put people out of work, out of food, out of home. The worst damage was at Alfortville, a largely working class area. The reporters used words like *incalculable*, *effroyable* (frightful), *terrible*, *spectacle*, *monotonie*, *immense* and *lugubre* to describe what they saw. In Paris, flooding on the quai de Passy compromised omnibus service, and flooding in the basement of the Palais Bourbon shut down the print shop. The Esplanade des Invalides also flooded. Some of the worst damage occurred in Bercy, an industrial area on the river bank, home to warehouses where many of Paris's foodstuffs and raw materials were stored, especially wine. *Le Temps* pleaded, “We hope that it will be the origin of a radical reform in the regime of the Seine with the aid of constructions worthy of a people truly master of its destiny.” Even though the necessary works would be “gigantic,” some preventative work on engineering the waterway would ultimately cost less than cleaning up after a similar catastrophic flood.<sup>114</sup>

Belgrand's study of the 1876 flood became one of the most referenced hydrological works of the era.<sup>115</sup> For those whose houses flooded, popular encyclopedias

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in 1877, '79, '80, '86, '89, '96 and '97. Paris Prefecture of Police, *Plan de Secours Spécialisé Inondations Zonal*, pp. 25-28.

114 “Faits divers,” *Le Temps*, Mar. 18, 1876 no. 5449, p. 2. The point would be made later, but not heeded soon enough. In 1900, one engineer suggested that Paris could be defended against floods by reworking the barrages at Bezons and Bougival, which helped control the river around Paris. The barrage at Bezons, for example, was not physically renovated until 1933. See: *Etat d'infection de la Seine en aval de Paris: Réponse au Service Municipal d'Assainissement: Avis de l'Ingénieur en Chef* (Réstal), Oct. 3, 1900 (AP D1S8 6).

115 Médéric Clément Lechalas, *Hydraulique fluviale* (Paris: Baudry et cie, 1884), p. 287; A. de Preaudeau, *Manuel hydrologique du bassin de la Seine* (Paris: Imprimerie Nationale, 1884), p. 56; Leveson

*Le Magasin Pittoresque* offered advice on how to dry out and repair humid walls.<sup>116</sup>

Zola's fast-paced and tragic short story *L'Inondation* (The Flood) conveys a sense of the violence and drama of flooding in the Garonne basin in 1876, which killed more than 500. The story's narrator and protagonist, an aged farmer living on the Garonne river near Toulouse, father of three and great-grandfather of two, is the last one left when the flooding river swallows up his farm, house and family.<sup>117</sup> Flooding in the Paris area was also an important subject for impressionist cityscapes; Alfred Sisley depicted flooded Marly and Bercy in 1876, and Camille Pissaro flooded Pontoise in 1882.

In 1883, floodwaters crested at 6.24 meters on January 5th. In fact, the Seine suffered two distinct floods that winter, first in December of 1882 and second in January of 1883. As engineers from the *École des Ponts et Chaussées* explained, two separate and roughly equal floods were propagated by two separate periods of unusual precipitation in the Seine basin. The flooding caused little damage to property or human life, and so struck the men of the *Ponts et Chaussées* as a learning opportunity, the first chance to test Belgrand's 1854 flood warning system. Ideally, they claimed, they could provide four to five days warning with the right meteorological data. Their conclusion was that the science of predicting floods was a difficult one, but already making great strides; they were optimistic that rigorous empiricism and a mountain of data could one day crack the

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Francis Vernon-Harcourt, *Rivers and Canals: The Flow, Control, and Improvement of Rivers and the Design, Construction, and Development of Canals Both for Navigation and Irrigation, with Statistics of the Traffic on Inland Waterways* (Oxford: Clarendon, 1896), p. 151. Ellwood H. McClelland, *Floods and Flood Protection: References to Books and Magazine Articles* (Carnegie Library of Pittsburgh, 1908), p. 39.

116 "Moyens de sécher et assainir les habitations humides" *Le Magasin pittoresque* 1876 (yr. 44), p. 358.  
117 (1) Emile Zola, *The Flood* (New York, The Warren Press, 1911); (2) For more on the damages caused by 1876 flooding in the Garonne basin, see Société de statistique de Paris, Centre national de la recherche scientifique, *Journal de la Société de statistique de Paris* (Paris: Berger-Levrault, 1875), p. 265. Although the publication date is printed as 1875, the collection amazingly contains many materials on 1876, including these records of flood damage.

river's code.<sup>118</sup>

While the historical record for 1876 shows us one side of the story, that of human suffering, the weakness of humanity before the forces of nature, the historical record for 1883 is cold and technical, reflecting another narrative, that of dispassionate analysis and humanity's rational mastery over nature. Floods defy narratives of human mastery over nature, showing that even the most technologized, humanized, envirotechnical waterways have explosive physical powers with undeniable and sometimes catastrophic consequences. They also tend to inspire reflections on the relationships between humans and nature, and attempts to repair humanism, to shore up narratives of technological mastery over nature and re-humanize the environment. Floods prove us wrong, while they drive us to prove them wrong.

No flood of the era was more catastrophic or more spectacular than 1910. That January, Paris saw the worst flooding since 1658. Swelled by the autumn's unseasonal rains across the Seine basin, the river rose from its usual 2 meters to over 8 meters deep. In spite of contemporary newspaper reports of human and animal corpses floating on the water, people trapped in their homes, food shortages and familiar fears of a typhoid outbreak, human casualties were relatively light. The flood's real impact was hundreds of millions of francs in infrastructural damage, which brought the bustling capital to a near standstill for more than a week and compromised it for months.

The government commission called to report on the flood, composed of influential Parisian scientists, engineers and elected officials, identified 5 main types of

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118 *Annales des ponts et chaussées* no.53 pt.1 v.2 1883, Memoires et documents No. 50, "Etude sur les crues de l'hiver 1882-1883 dans le bassin de la Seine." Written by G. Lemoine and A. de Preaudeau (Paris: A. Dumas, 1883), p. 314-346.



infrastructure effected: (1) transportation networks (roads, railways, tramways, the Métro), (2) sanitation networks (sewers, trash collection, street cleaning), (3) communication networks (telegraph and telephone), (4) power networks (distribution of electricity, gas and compressed air in underground conduits), and (5) the built environment more generally (roads, bridges, quays, houses).<sup>119</sup> A chain of related concerns follow in the commission's report: flood prevention measures, public health and hygiene, Paris's ecological effect on its downstream suburbs, shortages of resources, unemployment, homelessness, and more broadly the politics of infrastructure. In the face of all this damage and all these concerns, however, the commissioners stressed their optimism and how well the city held up, defending what Graham and Marvin in *Splintering Urbanism* called “the notion of the ordered, unitary city, mediated by standard ubiquitous infrastructure networks.” This “modern infrastructural ideal” or “modern unitary city ideal,” as they call it, was an influential idea in Paris from Haussmann to the First World War, as we have already seen.<sup>120</sup>

Floodwaters reached Paris on January 22nd. Engineers for the East Paris Tramway network were so sure that their power plant at Ivry would flood that they shut down the entire network preemptively.<sup>121</sup> Paris's tramways depended on the functioning of the street network and the electrical grid, but both of these networks were quickly compromised by floodwaters. Over the course of the next week, Paris's several tramway companies struggled to keep service running by reverting to older modes of traction,

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119 La Commission des Inondations. *IV Rapport général de M. Alfred Picard* (Paris, Imprimerie Nationale, 1910).

120 Stephen Graham and Simon Marvin, *Splintering Urbanism: Networked Infrastructures, Technological Mobilities and the Urban Condition* (Routledge, 2001), pp. 49, 52 and 62.

121 “Les inondations: le désastre s'étend à la région parisienne,” *Le Petit Parisien*, Jan. 22, 1910, p. 1.

notably horse power and steam. Older trams and omnibuses, on a steep decline in Paris since the introduction of electric trams in preparation for the 1900 Exposition, were suddenly in high demand, and were rolled out of storage and back onto the rails.

The failing tramways were a sign of problems deeper underground. Beginning with Haussmannization, the Paris sewers were used for bundling infrastructure.<sup>122</sup> In Haussmann's famous quote about "organs of the large city," when he called the sewers "underground galleries," saying and that "pure fresh water, light and heat would circulate like the various fluids whose movement and maintenance are essential to life," he was not only being metaphorical.<sup>123</sup> "Underground galleries" were the sewer mains. Because he and Belgrand chose a "combined" sewer system the mains required were enormous. These enormous mains thus provided a space in which to bundle infrastructures, where the technical components of Haussmann's modernized city could be hidden, kept out of his beloved streetscape. Hence, "pure fresh water, light and heat" were literal references to water and gas pipes running through the sewer mains.<sup>124</sup>

This left multiple networks vulnerable to flooding in 1910: fresh water, waste water, gas, electricity, telegraph, telephone and compressed air. Compressed air, for example, was used to send messages in Jean-Baptiste Berlier's network of pneumatic tubes, as well as to power clocks and elevators throughout the city. On the evening of January 22nd, across the city, the hands of Paris's synchronized clocks stopped between 10:48 and 10:53 when the Popp company's compressed air plant at Quai de la Gare flooded. Standard, human time stopped. The humanized environment partially dissolved

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122 Graham and Marvin, *Splintering Urbanism*, pp. 53-55.

123The entire quote is reproduced in Chapter 1.

124 Goubert, *The Conquest of Water*, pp. 61-7.

in the floodwaters, showing us what historians of technology call “sociotechnical”—social systems, structures and routines densely intertwined with technological systems.<sup>125</sup>

Floodwaters not only infiltrated the city laterally, via the river bed, but also bubbled up from the groundwater, traveling through the deep, layered structures of the city—basements and cesspits, catacombs and stone quarries, sewers and railway tunnels. Contemporary astronomer and popular science author Camille Flammarion called Paris a “vast molehill,” run through with underground channels, forming “a sort of ant-hill network.” Consequently, he argued, “All of Paris rests today on a worm-eaten base”<sup>126</sup> The sewers, carrying Paris's sources of light, heat, water, power and sanitation, wound through this vast space beneath Paris, putting the city's most basic services at risk. One angry handbill circulated in Paris after the flood stated “The city of Paris brought the flood to you with its sewers.”<sup>127</sup>

Underground Paris was also the scene of heavy construction during the rapid transportation development of 1899-1914. Tunnels for two separate railways, the *Nord-Sud* underground railway and the Métro's Line 4, were in progress when the flood hit. Workers were just beginning to build the access stairway for the *Nord-Sud* station at the Place du Palais Bourbon on January 22nd when floodwaters burst in. The space intended for the stairway was crossed by a major sewer-line that ran under the rue de l'Université and fed into the main sewer of the Bièvre. River water had risen high enough to reverse the flow of the pipe, pushing water away from the river, underneath the Left Bank. The

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125 Wiebe Bijker, *Of Bicycles, Bakelites and Bulbs: Toward a Theory of Sociotechnical Change* (MIT, 1995).

126 Camille Flammarion, “Le fleau qui rampe” *Je sais tout* vol. 62, year 6 (March 15, 1910), pp. 172-182, quotes pp. 177 and 180 (“une sorte de réseau de fourmilière” and “Tout Paris soutient aujourd’hui sur une base vermoulue...”).

127 See Jeffrey Jackson, unpublished manuscript on the 1910 Flood, p. 96. Cited with author's permission.

sewer pipe began to crack under pressure and floodwaters, now mixed with sewage, poured into the worksite, wrecking scaffolds, carrying away construction materials, and collapsing the roadway of the rue de l'Université above. Soon the workers stood agape as an underground river rollicked between the quays of the unfinished station, carrying away wood, brick, stone and their tools.<sup>128</sup> The next day, *Le Petit Parisien* reported that the roadway of the boulevard St. Germain had collapsed as a result of this underground flooding, as well.<sup>129</sup>

The flooded Nord-Sud tunnel led floodwater underneath the Right Bank as well. Underneath the Gare St. Lazare, the Nord-Sud tunnel passed beneath the Métro's Line 3. On January 24th, the Nord-Sud tunnel was full and water began bubbling up into the Métro. Métro engineers Bienvenuë and Hétier reported that employees rushed to erect barriers to keep water out of the Opéra. The *place de l'Opéra*, not far from the train station, was the symbolic center of Haussmann's city. Recall from Chapter 3 that the Opéra worksite was opened and re-opened in 1903, 1905 and 1910. By 1910, Métro lines 3, 7 and 8 crossed underneath the plaza in an enormous, triple-decker cement hub.<sup>130</sup> These massive underground works were perched atop the underground lake famously depicted in Leroux's *Phantom of the Opera*, and therefore at immediate flood risk. Métro tunnels flooded in several other places, too, including the Rennes station on Line 4, not far from the breach at rue de l'Université. In all, Hétier and Bienvenuë estimated that 19.4 kilometers of the network's total 63, or about one third, were flooded.<sup>131</sup>

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128 "Les inondations: le désastre s'étend à la région parisienne," *Le Petit Parisien*, Jan. 22, 1910, p. 1.

129 "Les inondations: la Seine continue à monter, le désastre s'accroît partout," *Le Petit Parisien*, Jan. 23, 1910, p. 1.

130 Flood Commission, Rapport Hétier et Bienvenuë, p. 241. See also Max de Nansouty, "Causerie Scientifique: Sciences Appliquées: Le grand trou de la place de l'Opéra," *Le Temps*, July 31, 1903.

131 Flood Commission, Rapport Hétier et Bienvenuë, p. 245.

Problems for the Métro emerged as soon as floodwaters hit the city. On the morning of January 22, lines 1 and 6 had to be shut down when their power plant on Quai de la Rapée flooded. Like Paris's underground infrastructures, its power plants were vulnerable. We have already seen that electric tramways and pneumatic clocks were quickly knocked out as their power plants flooded. Paris power plants were typically built on the banks of the river, on relatively low ground, to facilitate drawing water and dumping waste, so they were quick to flood. The same fate awaited all of Paris's major train stations on the national train network or *grande lignes*. The Gares d'Austerlitz, de Lyon, des Invalides and d'Orsay all sat on or near the banks of the Seine, and those that did not—the Gares de l'Est, du Nord and St. Lazare (de l'Ouest)—had multiple connections with Paris's flooding underground (hence the Gare St. Lazare was filled by water from the Nord-Sud railway).

Of the city's four main garbage processing plants, only the one at Romainville was on ground high enough to escape flooding. The build-up of unprocessed waste (garbage dumped from people's houses and swept from the streets) became so large that already by January 23rd, the Prefect of the Seine and Prefect of Police agreed that all waste which could not be processed should be thrown into the Seine.<sup>132</sup> A contemporary picture book shows men lined up along the viaduct at Auteuil, shoveling waste from carts into the river.<sup>133</sup> This only aggravated the long-standing conflict between Paris and its suburbs over the capital's pollution of the Seine.<sup>134</sup> In Paris, by contrast, fresh water pipes ran in

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132 Flood Commission, Rapport Boreux et Tur, *L'Évacuation et la destruction des gadoues à Paris*, p. 163.

Contemporary postcards show the dumping in progress.

133 *Crue de la Seine: Paris inondé* (Paris: éditions ELD, 1910).

134 (1) Flood Commission, Rapport M.P. Alexandre, *Les Communes Suburbaines*, pp. 422-500; (2) Jeffrey Jackson, Unpublished manuscript on the 1910 Flood, p. 132, cited with author's permission; (3) *Commission d'Extension de Paris, vol 2: considérations techniques préliminaires* (Paris: Chaix, 1913),

the sewers, bundled with gas, electric and compressed air lines. As soon as the sewers flooded, Paris's fresh water supply was slowly mixed with sewage, river water and storm water. On January 23rd, the Water Service had newspapers publish a warning for Parisians to boil their water before consuming it.<sup>135</sup> The city's vital circulus, balancing inputs of fresh resources and outputs of waste, was slowed.

Such infrastructural breakdown had a devastating impact on the city's everyday life. The flood put many people out of work and out of their homes, and disrupted the social-cultural scripts (maps, itineraries, etc.) that Parisians used to navigate their city. *Le Petit Parisien* told the story of a bourgeois commuter, forced to transfer from the Gare d'Orsay, which was closed, to the Gare d'Austerlitz, all the way across the left bank. The tramway was the best way to make the transfer, but it was also closed due to flooding, and he was forced to take a coach: "Coach! To the Gare d'Austerlitz, and at a gallop! What a story! I'm gonna miss my train, I am! Damn flood! Damn weather! Hurry up! Coach!"<sup>136</sup> As Hétier and Bienvenuë found in investigating the Métro, interruption of service on the network during the flood "has been without a doubt one of the most obvious facts for the immense majority of the Parisian public, in regard to the trouble, as profound as it was unexpected, that it brought to the relations of everyday life."<sup>137</sup> The degree to which modern everyday life in Paris had become dependent on networked infrastructures like the tramways and Métro was "as profound as it was unexpected."

As these networked infrastructures failed, the normal routines and rhythms of

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plate 25 contrasts density of sewer lines in north-west Paris with sewer lines in the nearby north-west suburbs.

135 *Le Petit Parisien*, Jan. 23, 1910, p. 2.

136 "Le Désastre s'étend de la région Parisienne." *Le Petit Parisien*, Jan. 22, 1910.

137 Rapport Hétier and Bienvenuë, p. 235.

everyday life dissolved, the cityscape transformed surreally, and Parisians were forced to develop 'hacks' and 'workarounds,' new ways to navigate familiar urban spaces, now estranged. Streets became canals, second-story windows became doors, and out-of-work men and women became spontaneous volunteers, roaming the city looking for others who needed help. Sandbags, rowboats and lumber were suddenly in high demand. As many contemporary authors put it, Paris had become Venice.<sup>138</sup> Signs of upheaval were all around. Driven from their underground homes, thousands of rats now scurried in the streets. Crowds of Parisians, awed by the spectacle of the furious river, gathered on bridges to watch. The Eiffel Tower reported unusual ticket sales on January 22<sup>nd</sup>, selling over 1,000 tickets to Parisians excited to view the flooded city from above.<sup>139</sup>

Extraordinary circumstances made engineers of Parisians, as it challenged the city's engineers. Parisians were forced to exercise their ingenuity in such difficult circumstances. There is no more obvious symbol of this ingenuity than the *passerelles*, wooden walkways thrown up ad hoc on scaffolds throughout the city's flooded quarters (figures 26 and 27). As Parisians struggled to keep afloat, the city's engineers scrambled to erect barriers, pump water from buildings, and make quick decisions. Newspaper *Le Petit Parisien* wrote of “the powerlessness of the engineers” (*l'impuissance des ingénieurs*) to stop the forces of nature.<sup>140</sup>

*Le Petit Parisien* was not the only newspaper questioning the authorities' ability to handle the situation. Writing for *Le Soleil*, journalist Henry De Larègle argued, “It is not contestable that the functionaries of the State and of the city of Paris are in part

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138 *Je sais tout* vol. 62, year 6 (March 15, 1910), p. 160.

139 *Le Petit Parisien*, Jan. 22 and 23, 1910.

140 “Les inondations: le désastre s'étend à la région parisienne,” *Le Petit Parisien* no. 12,138 (Jan. 22, 1910), p. 1.

responsible, not for the flooding itself, but for its disastrous consequences.” He had several critiques for the authorities: that the Left Bank train stations should never have been built so close to the river, for example, or that the company which operated the Nord-Sud should be held responsible for all the damages caused by its tunnels. Rumors that the city's sewers had burst abounded. And though engineer Colmet-Daâge, attached to the flood commission, could demonstrate that the sewers had not burst, but merely reached maximum capacity<sup>141</sup>, journalists like De Larègle thought the authorities shirked responsibility by claiming that it was not the city's pipes which had failed, but the privately-owned pipes which connected houses to the sewers.<sup>142</sup>



Figure 26: “Improvised passerelle, Porte d'Ivry.”

141 Flood Commission. Rapport Colmet-Daâge. *Les égouts publics et les branchements particuliers à Paris*.

142 Henry De Larègle, “Les responsabilités,” *Le Soleil*, Feb. 11, 1910, p. 1.





Figure 27: passerelles on the rue de l'Hôtel Colbert

Journalist Ernest Judet, writing for *L'Éclair*, wrote:

Everyone is beginning to understand that the current catastrophes are not accidents without cause, but are the screaming proof that the innumerable *travaux* in which Paris is covered have been engaged at random, thanks to the engineers and entrepreneurs, whose ideas and plans have never been subjected to the appropriate critique of the collective interests of the city. Both groups shot blind, running after solutions and progress whose charm their imaginations have increased ten-fold, and which the public ignores, but enchanted by certain seductive innovations, it has unfortunately become love.<sup>143</sup>

<sup>143</sup> Ernest Judet, "Les cinq pouvoirs," *L'Éclair* (Jan. 19, 1910).

Judet's virulent critique of engineers, contractors (*entrepreneurs*) and elected officials cut through the ideology of technological determinism and the technological sublime, accusing these men of being seduced and enchanted by technological innovation. The science they peddled looked like religion to him. Judet built on a discussion which had been brewing in the Paris press since at least 1906, concerning delinquent contractors and the disfigurement of the cityscape by the construction sites of unfinished works. Judet shows us that the city hit by floodwaters in 1910 was the unfinished city of construction sites we saw in Chapter 3.<sup>144</sup>

Newspaper *Le Matin* generalized the critique: "One says to have faith in science: one learns that it contains goodness, morality, and peace. We believed what was said. But today everyone is asking the same question: How has this science, so sure of itself, been defeated by the primitive waters? How was it not capable of protecting the most beautiful city against the capricious river?" For *Le Matin*, not the Paris authorities, but *science itself* was put on trial by the flood. Graham and Marvin's "modern infrastructural ideal" was not far off. *Le Matin* posed science and modernity against the "primitive waters," forces which threatened to undo the city's modernity. The article ended by calling the flood "the 1870 of the engineers," a humiliating defeat like the one France suffered at Prussia's hands in 1870.<sup>145</sup> Using languages of critique which had been developing since

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144 See, for example: "Les malfaçons," *Le Matin*, Jan. 16, 1906; "Les malfaçons du Métropolitain" *Le Matin*, Jan. 26, 1906. "Les malfaçons du Métropolitain" *Le Matin*, Feb. 6, 1906; "Au Métropolitain," *L'Humanité* Aug. 16, 1907; "Questions Parisiennes: l'Hygiène et le Métropolitain" *La Patrie*, Aug. 16, 1908; "La désorganisation des services publics" *L'Intransigeant*, Aug. 18, 1908; "Les Embarras de Paris" *L'Aurore*, Aug. 23, 1909; "Les Travaux de Paris: on n'en finira jamais!" *La Libre Parole*, Aug. 22, 1909; "Les Embarras de Paris" *le Radical*, Aug. 29, 1909; "Les Propos du Lanternier" *La Lanterne* Aug. 18, 1909; "l'Hygiène au Métropolitain" *L'Humanité*, Sept. 3, 1910; "Un musée, une bibliothèque et un lycée menacés d'un chantier," *Le Matin*, Aug. 25, 1911.

145 Henry de Jouvenal, "Maintenant, l'avenir" *Le Matin*, Jan. 31, 1910. This critique continued well after the floodwaters had receded. See: "La place de l'Opéra n'est plus qu'un trou immense!" *L'Intransigeant*,

at least 1895's water shortage and omnibus strike, the press called out the engineers from the Travaux de Paris specifically, defending the citizenry against any Haussmannesque abuses that his successors might carry out.

The flood cracked the surface of the technophilic ideologies promoted by Paris engineers since the 1850s as the last word in city planning. It showed that Paris's modern means of transportation, communication and waste disposal, as well as its industrialized sources of power, were fragile. It showed Parisians how much everyday life in their city had come to depend on these icons of modernity, how much the city's normal social-technical circulus depended on the cooperation or control of the Seine. The flood showed Paris the awesome complexity and heterogeneity of their city. It brought the technical parts of infrastructure, so commonly hidden in capital cities like Paris for aesthetic reasons, into view. It showed that social relations depended on dense ties to technology and the forces of nature, binding humans, their tools and their environment in peculiarly modern, mediated ways.

With the comforts and confidence of urban modernity stripped away, Parisians were forced to resort to older technologies: rowboats replaced urban railways for mobility, candles replaced gas for heat and light, and animal power replaced electricity.<sup>146</sup> As they improvised new ways to navigate the city, Parisians watched how quickly and easily the edifice of “modernity”—normally so attractive and imposing, even hegemonic, and offering benefits like convenience, efficiency and productivity—

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Aug. 25, 1910; “Partout des Trous” *L’Intransigéant*, Sept. 2, 1910; “Sabotage stupide” *L’Éclair*, Aug. 1, 1911; “La Capitale Sabotée” *L’Intransigéant*, Aug. 5, 1911; “Paris-Chantiers,” *L’Éclair*, Aug. 6, 1911; “Affaires Municipales” *Les Nouvelles*, Aug. 9, 1911; “Les bûcheronnes de Paris” *L’Intransigéant*, Sept. 30, 1911.

<sup>146</sup> Recall from Chapter 3 that candles and lanterns were also important during the Métro accident of August 10, 1903.

crumbled, leaving behind an uncanny other of everyday life, the intimate spaces of their home town turned to an obstacle course. This upheaval of normality in the city was so fascinating to Parisians that they actively sought new ways to experience and remember the city, hence the ingenious photographers who walked the city taking pictures, and the enormous market in Paris for mementos like the postcards and photo albums they produced, now one of our best sources for reconstructing this historical moment.<sup>147</sup>

We should heed sociologist Eric Klinenberg's argument that there are “social disasters” as well as “natural disasters.”<sup>148</sup> I argue that Paris's infrastructural paralysis in 1910 resulted as much from the previous half-century of urban renewal and infrastructural overhaul as from the forces of nature. In this chapter, I have foregrounded the relationships between society, technology and nature. We have also seen that Parisians were aware of these relations, and aware of the fragility of the urban condition, using the authorities' difficulties in responding to the flood as a lever for critiquing modernity, science, technology and government.

The 1910 flood taught that what engineers and the public had recognized as urban modernity since Haussmann was fragile, complex and contingent. It taught that the rhythms and routines of modern life were run through with technology, that they were social-technical. But it also taught that society and technology were tied to the forces of nature, and that stress in any one part of a heterogeneous chain of networks could

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147 (1) *Crue de la Seine: Paris inondé* (Paris: éditions ELD, 1910); (2) *L'inondation à Paris et dans la Banlieue Janvier 1910: 60 vues* (Paris: Oeuvre des orphelins-apprentis d'Auteuil, 1910); (3) Michel, Albin, ed. *Paris dans l'eau: Les Inondations pendant les Journées des 26-27-28-29-30 & 31 Janvier 1910: Cinquante Vues photographiques inédites d'après nature* (Paris: éditions de Luxe, 1910); (4) *Paris inondé, 29 Janvier 1910, 32 vues* (Paris: Piere Petit, 1910); (5) *Paris Inconnu: L'Inondation de 1910* (Paris: Société Anonyme de L'imprimerie de Vaugirard: S<sup>te</sup> d'éditions artistiques de tourisme et de sports, 1910). This last book was sold by the Red Cross to raise money for disaster relief.

148 Eric Klinenberg. *Heat Wave: a Social Autopsy of Disaster in Chicago* (University of Chicago, 2002).

produce failure in other parts. It complicated the simplistic, optimistic and teleological narratives of technological progress familiar from forums like the Universal Expositions. Since the summer of 1900, these had been called into question again and again, by water and housing shortages, typhoid outbreaks, tramway and Métro accidents, and development sullied by delinquent contractors. The flood of 1910 drove home an already familiar message: the darker side of urban modernity, a world of ecological damage, social conflict, urban collapse, technological weakness, bureaucratic ineffectiveness, and social strain. The flood of 1910 showed Parisians what I've called the fragility of modernity.

At the end of July, 1911, in the midst of another heatwave, the water was shut off again; river water was distributed, and the press overflowed with accusations and caustic sarcasm. One journalist reported that he was surprised, when he turned his faucet, that a dead dog didn't come out, adding "Cholera, here? Yeah right! It would die of thirst."<sup>149</sup> *L'Éclair* ran a cartoon depicting a haggard old man sitting down at a café: "Waiter, an absinthe...pure!...so as not to waste water!" (figure 28).<sup>150</sup> Journalists peppered the press with snide jokes. One journalist found his neighbors in turmoil. During the shut-off, one neighbor was reduced to reading a book called *A Glass of Water*; another had to open a bottle of mineral water to take a bath. The fat lady across the way took a bath in a salad bowl with *eau de mélisse* (a lemon balm tincture), while the concierge at number 30 reported, tears in her eyes, that her canaries died because she watered them with *Eau de Vichy*, a famous mineral water reputed to have medical properties.<sup>151</sup> The irony was

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149 Louis Latape, "Canicula," *La Liberté*, July 31, 1911.

150 *L'Éclair*, Aug. 1, 1911.

151 Louis Latape, "Canicula," *La Liberté*, July 31, 1911.

palpable: all of these other things called *eau* were available, but no pure water.



Figure 28: "Les Résignés" (The Resigned), *L'Éclair*, August 1, 1911.

During the 1911 shortage, the critique of the administration which had been brewing since 1906, concerning the city of worksites, fed into the critiques bubbling up from 1910.<sup>152</sup> One journalist, bringing the Flood of 1910 to bear on the 1911 water

152 Louis Latapie, "Canicula," *La Liberté*, July 31, 1911; "360 a l'ombre" *Le Petit Journal* July 31, 1911; "Paris manque d'eau" *Le Petit Parisien*, July 31, 1911; Ernst Judet, "A l'eau! A l'eau!" *L'Éclair*, July 31, 1911; "L'Eau a Paris" *La Lanterne*, Aug. 1, 1911; "De l'eau! De l'eau!" *L'Autorité*, Aug. 1, 1911; "Les Parisiens continuent a manquer d'eau" *Le Petit Parisien*, Aug. 1, 1911; "Paris aura-t-il assez d'eau?" *Le Radical*, Aug. 1, 1911; "Affolement au Service des Eaux," *L'Éclair*, Aug. 1, 1911; "On est affole au Service des Eaux," *L'Intransigeant*, Aug. 1, 1911; "La Question de l'Eau," *La Petite République*, Aug. 2, 1911; "De l'eau!" *L'Aurore*, Aug. 2, 1911; "'Voici de l'eau' declare le Prefet," *Le Journal*, Aug. 2,

shortage, wrote:

Thus are Parisians destined to perish under the water or to die of thirst. The administration is incapable of sparing us the floods and the shortage. And to administer our interests in this way, it spends a half million a year! For, is there a city in the world worse governed, with a population at once worse served and more docile? Paris is dirty, Paris stinks, Paris is encumbered, Paris has too much water, Paris has a shortage of water...and Parisians, smiling, are going to bring millions to the taxman and throw ballots into the electoral urns as if to say: Thank you!<sup>153</sup>

Later he wrote, "It seems that the Republic is incapable of grand conceptions and major works. Since the Empire, in effect, it has done nothing great or useful in Paris." He thus undercut a narrative of progress in public works which Parisians had been hearing since the Poubelle administration (as we saw in Chapter 1 with the Avenue de la République).

Ernst Judet, so critical during the shortage of 1895, also connected the 1910 flooding with the 1911 shortage, spinning it into a general indictment of the Paris authorities: "a year ago we barely escaped a flood that the engineers aggravated, and none of the measures adopted to prevent its return are in the process of being realized." Was it any wonder, then, that the city could not handle the water crisis, instead presenting "the lamentable spectacle of crowds suffering in the heat, with no comfort, no refuge anywhere, deprived of water to drink, water with which to wash and bathe...?" This, he concluded, "is the shame of a capital like Paris."<sup>154</sup> Journalists also reminded Parisians of

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1911; "Bonne nouvelle: on va nous donner de l'eau!" *Le Petit Parisien*, Aug. 2, 1911; "Les faits du jour: Nous aurons de l'eau," *Le Radical*, Aug. 2, 1911; "De l'eau de Marne," *L'Eclair*, Aug. 2, 1911; "Le regime de l'eau filtrée," *L'Intransigeant*, Aug. 2, 1911; "L'Eau de Marne sterilisée," *L'Aurore*, Aug. 5, 1911; "L'Eau de Marne sterilisée," *Le Petit Parisien*, Aug. 5, 1911; "Les Grands Travaux: Paris Port de Mer," *Le Radical*, Aug. 5, 1911; "Les bassins filtrants qui ne filtrent pas," *L'Intransigeant*, Aug. 11, 1911; Laurent Surville, "Pour l'Eau a Paris: Conclusion de Notre Campagne," *L'Eclair*, Aug. 12, 1911; Laurent Surville, "Eau du Rhone ou du Lac de Geneve?" *L'Eclair*, Aug. 16, 1911; Joseph Denais, "Le Lac de Geneve a Paris?" *La Libre Parole*, Aug. 26, 1911; "L'Eau du Rhone a Paris," *Les Nouvelles*, Aug. 26, 1911. All of these articles are conserved in a press review in AP VONC 131.

153 Louis Latapie, "Canicula," *La Liberté*, July 31, 1911.

154 Ernst Judet, "À L'Eau! À L'Eau!" *L'Eclair*, July 31, 1911.

the search for water at the bottom of the social ladder. In the midst of the heatwave, “...the Wallace Fountains—what few are left—don't have enough in their two goblets for the eager clientèle jostling around them.”<sup>155</sup> Another newspaper reported people going door to door in Montmartre with any containers at hand: pans, pitchers, pots, buckets and bowls. Others just collected “yellowed” water from the gutters, planning to boil it.<sup>156</sup>

*Le Radical* noticed that the shortage defied the recommendations of doctors and hygienists:

You are thirsty; doctors tell you to drink often to supply your sweat glands and avoid kidney obstructions; doctors can spew their advice, [but] the City can't spew its water, and to the great detriment of hygiene and the desires of its inhabitants, it is particularly greedy at the same instant when they have the greatest need.”<sup>157</sup>

After a few days, the real problem was revealed. Speaking with sources close to the Water Service, *La Petite République* reported that the Vanne Aqueduct had ruptured sometime in mid July. During the three days it was being repaired, Paris lost about as much water (340,000 cubic meters) as it would normally consume in a day. Then, once the repaired aqueduct was put back into service, the drought overtook it, and water stopped flowing 130km from Paris—the problem of water pressure, again.<sup>158</sup> In mid-September, 1911 the Seine's water level was so low that navigation had to be stopped for a week.<sup>159</sup> What more evidence did the public need of the “powerlessness of engineers?” Unlike previous summer water shortages, 1911's critique of the Water Service was more pointed, because these were not deliberate shut-offs, but technical failures.

Another paper noted that the city's water filtration system was being renovated

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155 “360 à l'ombre,” *Le Petit Journal*, July 31, 1911.

156 “Paris manque d'eau,” *Le Petit Parisien*, July 31, 1911.

157 “La vie municipale: Paris aura-t-il assez d'eau?” *Le Radical*, Aug. 1, 1911.

158 “La question de l'eau” *La Petite République*, Aug. 2, 1911.

159 “La Seine Empoisonnée,” *Le Petit Parisien*, Sept. 23, 1911.



throughout the shortage. The administration “a bit hastily” decided the summer would be humid, and there would be no shortage. Thus, “with that rapidity of decision that characterizes grand projects,” the city decided to demolish the existing basins, “which do not respond to the exigencies of the Service and have need of being modernized.” But “the regrettable thing,” this paper wrote, “is that when one undertakes to modernize them all at once, this takes us back to a hygiene worthy of the middle ages.” The paper went on to explain that the meter-thick layer of sand which normally filtered the water had been removed from the basin. A temporary basin was set up to replace it, but it did not inspire confidence: “we have today but a wee little basin, a child basin, *constructed in twelve hours...*” The author called it a “toy basin,” which could only handle 35,000 cubic meters of water a day, and challenged the authorities directly: “We're keeping track of the rapidity with which this unclean liquid flows!” The author also thought the city's chlorine bleach (eau de Javel) water disinfection system was crude, and effected the taste of the water, suggesting that it invest 5,000,000 francs in an ozone purification system.<sup>160</sup>

These examples show journalists eager to connect the failings of 1911 with those of 1910 and before, and eager to discuss technical details. Far from leaving the technical details to engineers, as Municipal Councilor Deyhanin suggested in 1872, these journalists wanted and needed to discuss the technical details of public works, just as Municipal Councilor Duval-Arnould did in 1900 as he critiqued the Diatto system. These journalists sought to publicly contest the technical details of the water system, to inflame an already heated public dialog about public works. The press called out the Travaux de Paris and accused them of under-developing the city. Journalists expected more from a

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160 “Les bassins filtrants qui ne filtrent pas,” *L'Intransigéant*, Aug. 11, 1911.

modern, networked city, and knew that the city's engineers and the public did, too. Papers began to demand the waters of Lake Geneva themselves.<sup>161</sup> The situation remained dire in 1913.<sup>162</sup>

What have we seen in this chapter? Much like the large-scale plans for urban renewal we saw at the end of the last chapter, Paris's water problems were scaling up. Paris's water supply and wastewater disposal needs were growing, spreading the city's ecological impact on water farther and farther from the city limits, from the suburbs to Orléans, from the Atlantic to Lake Geneva. 1911 also brought the finalization of plans for flood control work and clean-up of the Seine, which included widening and deepening one branch of the river in central Paris, and modifying the flow of the Marne.<sup>163</sup> But like the urban plans we saw in the last chapter, these would lie dormant until after the First World War. From the last chapter into this chapter, we have seen that Paris's foremost hygienic problems (housing, density and water) between 1870 and 1914 were sites of constant work, but never fully resolved. As late as 1928, 18% of houses in the city still didn't enjoy the *tout à l'égout*.<sup>164</sup> One engineer suggested for the sake of flood prevention that the city rework the barrage at Bezons in 1900, another in 1910; it wasn't renovated until 1933.<sup>165</sup> Like the housing and density problems, Paris's nagging water problems

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161 There was also discussion of tapping the Rhône, an affluent of the lake. See: Laurent Surville, "Pour l'eau à Paris: Conclusion de Notre Campagne," *L'Éclair*, Aug. 12, 1911; Laurent Surville, "Eau du Rhone ou du Lac de Geneve?" *L'Éclair*, Aug. 16, 1911; Joseph Denais, "Le Lac de Genève à Paris?" *La Libre Parole*, Aug. 26, 1911; "L'Eau du Rhône à Paris," *Les Nouvelles*, Aug. 26, 1911.

162 Robert Léon, "Paris et son alimentation en eau" *La Revue de Paris*

163 "Les Grands Travaux: Paris Port de Mer," *Le Radical*, Aug. 5, 1911; Sabine Barles, "Urban metabolism and river systems: an historical perspective – Paris and the Seine, 1790-1970" (cited above), p. 1861.

164 Evenson, *Paris a Century of Change*, p. 212.

165 See: (1) *Etat d'infection de la Seine en aval de Paris: Réponse au Service Municipal d'Assainissement: Avis de l'Ingénieur en Chef* (Réstal), Oct. 3, 1900 (AP D1S8 6). (2) A. Morillon and M. Piketty, "La vérité sur les inondations" *Revue de la batellerie* no. 3 (July, 1910), pp. 2-7. This and other sources related to defending Paris against floods after 1910 can be found in AN F 14 16584.

show an urban crisis emerging before World War One, which would not see any significant corrective action until the interwar period. Water supply, flood control and Seine clean-up plans illustrate this clearly. Whereas transportation development moved swiftly after the 1890s, Paris's water system, like its housing supply, took more time to develop.

In spite of the hygiene movement's aggressive public campaign to educate the public about water use, and an ever-growing network of pipes, there remained spaces in Paris's periphery and the Zone that were off the grid. Public demand for water, like demand for transportation and housing, was disappointed throughout this era. The Republic's "moral improvement" was moving faster than "material improvement," because the public learned that it was entitled to public services before those who promised it (the government and its experts) could deliver on their promises. The Water Service increasingly enclosed water in Paris, making Parisians more dependent on the distribution network, on the state, and on the landlords for their water. But they did this before they could guarantee water to everyone. Even as they worked to grow the water supply, the complex of hygiene and civilization continued to produce ever more uses for water. Demand grew not only because of population growth, but increased per capita, as well.

The housing problem and the water problem were also similar in that their solution was stalled by Paris landlords. Getting laws, inspectors and standards to work inside the walls of privately owned buildings proved a difficult project for the Paris authorities. The 1892 and 1894 laws making eau de source and direct to sewer drainage obligatory for landlords were the first step, but frequently violated well into the 1920s.

Perhaps the most important reason that water and sewage development moved slowly in this era was the lesson taught by the 1910 flood, that the forces of nature would always be beyond the control of the city's engineers. Through heat, drought, stink, and flooding, we've seen the Seine and the weather schooling Paris. Throughout this chapter, we have seen Paris's water system as a heterogeneous network combining humans, pipes and other technologies, and the Seine. We've seen that water distribution and sewage infrastructures depended on the cooperation of ecological factors like gravity, heat and rainfall. Although water was more and more enclosed in this period, turned into an industrial product distributed in human-made networks, it still remained fundamentally a natural resource. It was *envirotechnical*, but never fully subject to human control. The Seine's floods drove this point home.

### **Conclusion: The Fragility of Modernity**

On the morning of March 10, 2005 I left my tiny, furnished studio apartment in Paris bound for the French National Library for research. The same day the International Olympic Committee was visiting Paris to evaluate its bid to host the 2012 Summer Games. I first realized something was wrong when I reached the *Corvisart* Métro station. The turnstiles were shut down and one could get in for free. Inside, the loudspeakers blared that there was a 20 minute wait for trains in both directions. Suddenly I realized what was going on: the CGT, the labor union that has represented Paris transit workers for decades, had called a strike for this most sensitive day. Sabotaging the city's Olympic bid would give their strike even more impact. Transit strikes are not uncommon in Paris, and they have a crippling effect on the city's everyday routine. The entire city slows down, and Parisians miss work or arrive late by the thousands. Today Parisians depend on the Métro (and RER commuter trains) even more than engineers Hétier and Bienvenuë found they did during the 1910 flood.

That day in 2005, I became one of these thousands of commuters knocked from our normal morning itineraries, forced to improvise a new route. I decided to walk to the library, but arrived to find that disorder had spread there as well. Makeshift paper signs were posted warning of delays due to *les mouvements sociales* (social movements) and the library was short-staffed. I was hoping to spend the day reading *L'Anti-concierge*, but

the microfilms were in transit and therefore unavailable. Luckily I had documents on hold from my last visit and could make a productive day of it. But I was never able to devote myself 100% to my work that day. I kept thinking of the shrewdness of the striking transit workers who planned to shut down the city on this especially significant day, compromising schedules, commuters, turnstiles and trains. I realized that a disruption in one sector (transport) could provoke disruptions in other sectors as well (information, the library). The strike removed the human inputs that the transit networks need to function, disrupting commuter itineraries and in turn disrupting the places commuters worked. The strike not only made it harder for me to get to the library, but also harder for me to get my work done once I was there.

That evening on my walk home I arrived at the Place d'Italie to find myself in a huge CGT demonstration, a noisy carnival of striking workers that had transformed my neighborhood's largest traffic circle into a bustling pedestrian mall. So strikers were also disrupting automobile traffic and embarrassing the city authorities hosting the International Olympic Committee. Months later I was working at the Paris Administrative Library in the Hôtel de Ville, by chance on the day the International Olympic Committee announced its decision. A crowd has assembled on the plaza in front of the Hôtel de Ville waiting for the announcement, and I could hear them cheering from the reading room. Then the announcement came: by 54 votes to 50, the 2012 games would be in...London. The crowd groaned. That night the France 1 evening news interviewed a bartender who said *l'amour des jeux est fini, c'est tampionnée*—"the love of the games is finished, it's stamped out."

That year in Paris also saw a rash of deadly fires in run-down apartment buildings

and hotels. The deadliest, on August 25<sup>th</sup>, gutted a building just blocks from the National Library on Boulevard Vincent Auriol, home to several families of West-African immigrants living in poverty. Almost 20 people died—the most lethal fire in Paris since 1944. *Le Monde*'s website recalled a phrase familiar from my research: “crise de logement” (crisis of lodging). On September 5<sup>th</sup>, I wrote in my Paris journal: “. . .as of yesterday, another HLM full of Ivoirians burned in the Paris region. That makes four fires since April.” Days later I left work at the National Library to find another raucous demonstration on my way home. A large crowd had convened in front of the still blackened building on Boulevard Vincent Auriol, preparing to march for immigrant rights and access to better housing. I marched with them in solidarity for several blocks before turning to go home. The evening news estimated that I was one of 5,000-15,000 demonstrators.

2005's transit strike and apartment fires showed me that the historical vulnerability of Paris's housing and transportation infrastructures, which I was uncovering in my research, still haunted the city. My experiences in Paris were constantly framed by news of growing unrest and violence in the Paris suburbs, as well as news from the United States covering the ongoing fallout from Hurricane Katrina.<sup>1</sup> In the summer of 2006, on my second research trip to Paris, I had to miss several days of work at the National Archives because the elevator that employees use to move documents to and from the stacks kept breaking. Then I spilled water on my laptop. The laptop survived, but it won't run Windows XP anymore; now it runs Linux. Also in 2006, the Prefecture of Police published the final version of its long-awaited Emergency Flood

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1 For more on the violence in the Paris suburbs in 2005, see Joshua Cole, “Understanding the French Riots of 2005: What historical context for the ‘crise des banlieues’?,” *Francophone Postcolonial Studies* 5:2 (Autumn/Winter 2007), pp. 69-100.

Plan<sup>2</sup>, as if to answer director Bruno Victor-Pujebet's gripping TV docu-drama of the same year, *Paris 2011: La Grande Inondation* (The Great Flood). *Paris 2011* revealed an inconvenient truth for Paris in the style of *The Day After Tomorrow*, arguing that a flood of 1910's magnitude would do much more damage today, due in no small part to the city's increasing complexity and reliance on networked infrastructures. It is no accident, in light of international coverage of Hurricane Katrina and the notion of the "100 year flood" that both Victor-Pujebet and the Paris Police recalled 1910 in 2006. To top it all off, on the day of my return trip to the United States, I nearly missed my plane because of another transit strike.

These experiences showed me that what Parisians learned from the flood of 1910—the fragility of urban modernity, the interconnectedness of overlapping heterogeneous infrastructural networks—was still relevant today. In 2005 and 2006, I saw firsthand that trains, libraries, apartment houses, elevators and computers are fragile infrastructures, vulnerable to disruptions of technical function, social routine and the forces of nature. As we think about the infrastructural failures of our own era we should remember Paris's experience from 1870 to 1914. The story of infrastructural modernization that I have offered in this study holds portable lessons about how the rhythms and routines of everyday urban life depend on carefully coordinated heterogeneous networks which link humans, technologies and the natural environment in complex ways. This is as true in 2009 as it was in 1914, as true in Paris as it is in New Orleans.

My story started with Haussmann, whose ambitious urban renovations kicked off

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2 Paris Prefecture of Police, *Plan de Secours Spécialisé Inondations Zonal* (Jan. 1, 2006), vol. 1, online: [http://www.prefecture-policeparis.interieur.gouv.fr/prevention/inondation\\_janvier2006/sommaire.htm](http://www.prefecture-policeparis.interieur.gouv.fr/prevention/inondation_janvier2006/sommaire.htm).



a long-running debate in Paris about the role of networked infrastructures in urban modernity. Haussmann was a global leader in promoting what Graham and Marvin called the “modern infrastructural ideal” or “modern unitary city ideal,” “the notion of the ordered, unitary city, mediated by standard ubiquitous infrastructure networks.”<sup>3</sup> Although he didn’t complete the comprehensively networked city, he managed to fix the ideal squarely in Paris’s collective consciousness, an ideal which Parisians then had to reinterpret for themselves as the next generation of politicians and engineers worked to retool his projects and complete them, giving rise to the massive amount of work on roads, rails, pipes and wires that we’ve seen in this study. Above all, Haussmann’s legacy to the Third Republic was Misa’s “compelling tangle of technology and modernity.”<sup>4</sup>

Thus, Haussmann started a dialog in Paris that he couldn't finish. By hooking networked infrastructures to urban governance, he politicized public works and associated them with urban modernity. By using infrastructural development to solve social problems, he coded infrastructural networks as modernizing, progressive, civilizing forces. He fancied himself a surgeon, but recognized his role as a “demolition artist.” He butchered the housing market, neglecting many parts of the city that needed the most work, turned real estate into a speculative commodity, turned landlords into one of the most powerful interest groups in Paris, and left the city deep in debt. Like David Harvey, I see Haussmannization as deeply ambivalent, creative destruction, as civilizing as it was barbarous. Nineteenth century Parisians knew this. Haussmannization gave rise to mixed reactions from the very beginning, as we saw in *Le Temps*, 1872. But it got Parisians

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3 Stephen Graham and Simon Marvin, *Splintering Urbanism: Networked Infrastructures, Technological Mobilities and the Urban Condition* (Routledge, 2001), pp. 49, 52 and 62.

4 Thomas Misa, “The Compelling Tangle of Modernity and Technology,” in *Modernity and Technology*, ed. Misa, Brey and Feenberg (MIT, 2003), pp. 1-30.

talking about urban modernity in terms of networked infrastructures and their human consequences, as Jules Verne did in *Around the World in 80 Days*. They began to debate how infrastructure and practice were related, to write scripts for how networked infrastructures should, could or would be designed and used.

Our first example of this scripting process was what I called the dream life of the Métro, 1872 to 1895. In imagining the city equipped with a new metropolitan railway network, politicians, journalists, architects, engineers and intellectuals of all kinds debated whether or not a railway was good for everyday practice in Paris, and how it would impact traffic flow, urban planning, cultural patrimony and health and safety. I borrowed Wiebe Bijker's concept of "interpretive flexibility" to describe the wide range of different dreams of the city's future inspired by the idea of the Métro. Although most Parisians treated the Métro-to-be as a foregone conclusion, this was never an unbroken story of technical progress. As designers tried to script the new railway as progressive (offering solutions to social, economic and spatial problems) they were constantly challenged by critics like architect Louis Heuzé, who coined the term *nécropolitain*, and Albert Robida, who depicted the Métro as the dishonor and violation of the "Queen City." In debating the impact that a future railway would have on their city, Parisians were exploring the relationship between infrastructure and practice, one of the basic themes of this study.

From 1895 to 1914, as Parisians began to build, operate and experience these new railways, a new problem arose—how could designers maintain scripts that coded these infrastructures as progressive in the face of user experiences that suggested otherwise—technical accidents, labor unrest, delinquent contractors and a city torn apart by

construction? In Chapter 3 I contrasted the efflorescence of design dreams from the 1870s to the 1890s with the dynamic, difficult and dangerous user experiences of the 1890s through the 1910s. This underscores the importance of considering both designer and user perspectives in the process of writing technical scripts.

Following the work of Madeleine Akrich and Bernhard Rieger, I have tried to develop a method for studying the process of script-writing empirically and historically which combines the strengths and avoids the weaknesses of social and cultural history and the social study of technology. While cultural historians like Rieger tend to produce excellent analyses of the meanings of technology, shedding much needed light on how users produce these meanings as much as designers do, they tend to blackbox the technical details of design, and to ignore the designers' point of view in ways that implicitly validate it. Social students of technology like Akrich, on the other hand, provide much needed analyses of technical design and the designer's point of view, but work so hard to deconstruct designs that they only investigate users empirically when they can help deconstruct designers' hegemonic scripts. Unlike Rieger, most of their empirical focus is on designers, not users, but this *also* tends to implicitly validate the designer point of view.

I argue that Actor Network Theory and studies of everyday life can help us develop a method that takes both technology and practice as empirical objects of study, and uses both designers and users as sources. We need to embrace the difficult empirical task of finding users in the archive, as well as the interpretive task of placing designers and users in historical dialog. Everyday life theorist Michel de Certeau argues that both designers and users write scripts, constantly analyzing the gap between these two social-

technical positions. Actor Network Theory allows us to add the important point that no sociotechnical system can operate without harnessing natural resources in some way, such that humans, technologies and nature should be placed on equal explanatory footing. All this is necessary, I hope to have shown, because we can never begin to unravel Misa's "compelling tangle of modernity and technology" without turning directly to the question posed by Jules Verne in 1872: (how) has technology shaped human practice by allowing humans to "master" nature in new ways? How could we ever test a hypothesis like Verne's without historicizing the relations between humans, technology and nature? In this study, I have attempted an interdisciplinary analysis which combines the fruits of social, cultural, spatial and everyday analyses of human practice, interdisciplinary studies of science and technology, and environmental history to do just that.

The experience of living in Paris in 2005-2006 showed me that this interdisciplinary analysis is as useful for understanding the present as for understanding the past. 2005's transit strike showed the gap between designer and operator scripts for Paris transit networks, as workers showed who really controls the network, and its much-needed role in maintaining the city's daily social and economic life (the flow of workers and work). 2006's flurry of discussion about what a flood the magnitude of 1910 would do today brought nature back into the equation. Although striking transit workers have enough power to shut down the city's vital circulation at will on any given day, the flooding Seine could do even worse, damaging the city's infrastructures so badly that they could not be restarted at will.

These pinpoint moments of crisis (1870, 1895, 1900, 1903, 1910, 2005, 2011) which set off chain reactions in heterogeneous networks (or networks of networks, to be

precise) show that some infrastructures and practices depend on others. For Paris, there is no potable water without the cooperation of the Seine, the rain, and gravity, and there is no electricity or passenger transport when water is out of place. There is no daily commute without cooperative workers who provide the daily maintenance of technical systems, because these systems cannot operate without human inputs. In moments of crisis when one part of the city collapses and others begin to fall with it, we can see the complexity and fragility of modern cities in clear relief.

But these pinpoint moments of crisis are no more devastating than the slowly seeping long-term fragility of urban infrastructures that we have seen in Paris's housing supply. Not only does the urban environment shape us; we also have a significant impact on the built environment through constant wear and tear, and a significant impact on the natural environment through our increasing appetite for resources and production of waste. From the shabbiness of 1880s Montmartre to the zonards of 1906 without water and the house fires of 2005, we can see Paris's urban modernity defined by uneven development. Even on a day-to-day basis, when the city's many overlapping networks are functioning "correctly" and "in harmony" with one another, some people have more access to the benefits of infrastructure than others, some have more access to updated infrastructure, and to the health, safety, convenience, power and comfort that come with it. Like Fogg and Passepartout, contemporary Parisians may live in the lap of luxury or in the squalor of sub-standard slums. Chapter 4 on the built environment and chapter 5 on water and waste were designed to bring out these contrasts. They show us that Paris's fragility is ongoing rather than emerging only during discrete moments of crisis and collapse.

We may still indulge in technological determinism and the technological sublime, telling ourselves reassuring progressive tales about technology and modernity, when we gloat over the increased capabilities of our newest handheld devices or the increasing fuel efficiency of our cars, but these notions seem quaint when we think of Hurricane Katrina, peak oil, and growing public awareness of global climate change. Of course new technologies allow us to tap into natural forces and resources in new ways; of course they increase human capabilities in new ways; of course they help us control resources, diseases, and each other. But they also remain fundamentally heterogeneous—social-technical-natural—so that mechanization can never fully “take command.”

Rather than thinking of modern urban life as *commanded* by technology (which in turn might be said to *command* nature), we should put ourselves in the shoes of the mechanic or the striking transit worker who provides (or withholds) the daily effort necessary to maintain a humanized environment and cooperative machines in the face of the forces of nature, social stress, and infrastructural wear and tear. We, like Haussmann and his engineers, embark each day on the difficult path of acting out and rewriting social, spatial and technological scripts which tie our practice to increasingly complex networks that combine natural forces, technological components and human effort. We get our water from the tap; we get to work on the train; we depend on electricity for any number of things (heat, light, mobility, communication, etc.). In order to make these elaborate social-technical-natural systems run, we have to do the constant work of coordinating nature, humans and our tools. Mechanization never fully took *command*, but it has always taken *work*.

This work, I argue, is both a continuing current of contemporary life and a long-

standing historical trend that historians need to investigate as we historicize this thing called “modernity.” In this study, we’ve watched how Parisians designed, used, scripted and re-scripted complex systems like tramways, subways, sewers, apartment houses, skyscrapers and water distribution systems during the early Third Republic and the Second Industrial Revolution. In treating both built space and technical networks as “infrastructure,” we’ve been able to empirically watch as designers and users work to coordinate nature, technology and people into a functional whole, a working city, and by the same token come to terms with social unrest, technical failure, and the power of nature.

In order to do this daily work of infrastructural design, maintenance, operation and use, all city dwellers—engineers, politicians, workers, citizens, consumers—need knowledge about how heterogeneous networked infrastructures operate, and what kinds of inputs they need from humans and nature. This knowledge is provided by scripts, which are often hotly contested. During the Paris water shortages of the 1880s-1910s, designers suggested that the water system malfunctioned because of natural factors beyond their control (drought) and user waste of water. Users, meanwhile, wrote scripts which suggested that government and engineers were mismanaging technical systems and failing to control nature in proper ways. Both perspectives make sense because Paris’s water distribution network was and is heterogeneous, requiring a balance of human inputs, technical function and natural humidity.

Other examples have shown us user and designer scripts that do not directly conflict, but rather rework the same ideas. In response to the tramway accidents of 1900-1901, users scripted the tramways as a “murderous” technology, while designers argued

that mechanical traction would “kill” horse traction. In the first case, murder was used to connote malfunction, while in the second it was used to connote technological progress. In response to the prevalence of disease in Paris’s low-income housing, hygienists of the era wrote design scripts which blamed apartments for being “murderous.” Here again, murder stood for malfunction, but this script was written by designers rather than users. In all of these cases, we can see Parisians coming to terms with the fact that their networked urban modernity brought not only increased mobility and reduced disease, but also social inequality and physical risks which could sometimes be deadly.

These themes of conflict and contest over scripts bring us to a final important point: the politics of infrastructure. Ever since Haussmann made providing infrastructure a duty of the state, the question of infrastructure’s relation to practice has been a *political* one. The dream life of the Métro showed us different levels of government fighting over jurisdiction of the network and public debate about the proper relation between the public and private sectors and the meaning of “public works.” The years 1895 to 1914 showed us citizens (striking workers, angry journalists, disgruntled users, campaigning politicians) talking back to the authorities, and the Métro becoming an important institution for building a local welfare state. In Chapter 4 we saw housing becoming a contentious political issue, the subject of liberal reforms, socialist campaigns and anarchist activism. In Chapter 5 we saw water and waste becoming political problems for Paris in its relations with the suburbs, other cities, the rest of France and even Switzerland. From the local to the national level, Paris’s story of infrastructural modernization is shot through with politics—struggles over meaning, struggles over resources, struggles over financing public works, struggles over jurisdiction, struggles for



legal reform, struggles over the “public” in republic or in “public works.”

This politics of infrastructure has had a lasting effect on how we understand urban governance. There can be no governing a city without careful management of infrastructures and resources, without attention to safety, health, mobility, housing, and water for citizens. Urban governance entails the maintenance of heterogeneous networks, while urban citizenship entails using them. Questions of technical scripting, therefore, give rise quickly to questions about rights and responsibilities. From the 1870s to the present, Paris’s housing problem has been continually referred back to the question of whether tenants, landlords or the state is responsible—i.e. responsible for causing the problem and/or responsible for solving the problem. Failures in water distribution, meanwhile, got Parisians talking about human rights—the right to fresh water, the right to health and safety—and the state’s obligation to make sure citizens enjoy them. Finally, the issues of expropriations and oversight of government contractors bring up the long-standing French problem with a revolving door between the private and public sectors. Thus, whether we are talking about housing, sewers, transportation or water distribution, struggles over how these urban infrastructures are used, operated and funded, struggles over who scripts them, who controls them and who benefits from them—these are always already political struggles. The increasingly plural, increasingly radical and increasingly polarized politics of early Third Republic Paris has helped me put this in clear relief.

Networked urban infrastructures, I mean to argue, are political in many senses. They are “not only shaped by political goals but also used as political tools.”<sup>5</sup> They are institutions that must be funded and regulated. They organize basic strands of the social

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5 Gabrielle Hecht said this of computers and missile-guidance systems, but she was making an argument about nuclear power plants, a claim designed to apply to any technical artifact. See *The Radiance of France*, p. 337.

fabric like time, space and work. They not only constrain or enable access to resources, but also *are* resources worthy of being controlled in their own right. Hence they become objects of political struggle, contentious public issues or election issues. To bring the analysis back to present, all we need to do is consider Paris's 2005 transit strike and its effect on Paris's geopolitical position via the International Olympic Committee, or the political damage done to the Bush administration's reputation by New Orleans' failing levees (and the devastating social inequalities behind them). The fragility of the networked city has had, and will continue to have, political consequences—consequences for how we understand urban life, how we understand technology's role in human affairs, and how we understand humanity's relationship with nature, and how we define “modernity.” As the politics of infrastructure confront us in the form of Hurricane Katrina or Paris's transit strikes and house fires, we would do well to take a moment to remember the story of modernity's fragility that I have told here.

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