

John Broich, "Colonizing the Thames," *Journal of Colonialism and Colonial History*,  
Volume 11, Number 3, 2010.

In the first half of the twentieth century, a cadre of colonial engineers and officials promoted a grand damming and canalization project for a major imperial river. Scholars have begun to uncover the significance of such imperial water control projects undertaken in the name of efficiency, revenue, social uplift. Christopher V. Hill, for example, describes Britain's efforts to dam and control the Kosi River in northeastern India, Timothy Mitchell analyzes water control in Egypt and its consequences for indigenous society and imperial objectives, and David Gilmartin offers a comparative picture of a culture of river management among British Indian officialdom.<sup>1</sup> This is another history of an imperial river, a river that won the attention of colonial officials with long experience overseeing projects of damming, embanking, and almost reinventing rivers. This is yet another case in which engineers—the same engineers who had refashioned the Nile and Indus—promoted plans for “improving” both land and society through a monumental river project. That river was the Thames.

Between 1900 and 1950, a succession of engineers, legislators, and other public figures developed and promoted a project to construct a dam across the River Thames south and east of London. According to the plan, the river's level would rise to its historical high-water mark above the dam, really a barrage. Over forty miles of the Thames would cease to be a tidal estuary, the tides locked out of central London. This new “river lake,” as the scheme's promoters called it, was envisioned as providing a new port for ocean-going vessels; cargo ships and passenger liners would pass through massive locks and glide nearly into the heart of London. Waterbuses would ply the lake, enlarging public transport. And the barrage itself would incorporate a rail line within and a new highway on top. It was project designed to increase London's wealth and make the river more “useful” to society. “If we succeed,” argued the project's supporters, “...we

shall...make room for a resuscitation [of the river] in line with modern requirements and enabling amenities for the millions living on its shores which centuries have failed to acquire for them.”<sup>2</sup> And the scheme would eliminate a “dismal and dreary” terrain in far East London to be replaced with “modern accommodation” on transformed river’s shores and employment in new industries built there for “the working population.”<sup>3</sup>

The project’s backers could as easily have been speaking of the Sindh or the Nile as the Thames. They could as easily have be arguing about a woeful lack of development of the natural advantages of the Punjab region as of London; as easily discussing improving the lot of native town dwellers in Singapore or Hong Kong as working-class Englishmen in East London. Far from a coincidence, former colonial officials and engineers who had overseen the damming and rearranging of other rivers in the Empire held many leadership positions in the Thames Barrage Association. And the association held up those engineers’ names—Sir Murdoch MacDonald of the Nile, Sir Thomas Ward of the Indus—like standards at their vanguard. The barrage proponents argued that these men’s experiences with engineering in the Empire demonstrated the social and economic value offered by mammoth river control projects and qualified them to advance one for the imperial capital. The engineers and other Association members and supporters argued, in other words, that they could do for London what they claimed to have done for Cairo or Lahore: enhance the efficiency of the landscape for the betterment of colonial denizens and the wealth and success of the empire at the same time. In the words of one barrage supporter speaking in the House of Lords, there’s was an “up-to-date scheme...which spells improvement and advance...which we have been witnessed in many other countries in respect of their rivers.”<sup>4</sup>

This is a case in which colonial engineers and administrators, working in concert with engineers and officials based in Britain, sought to employ the “tools of empire” on the metropole.<sup>5</sup> Put more subtly, it is an instance in which colonial engineers brought frameworks within which they promoted and executed river projects in the colonies to bear on a project for the imperial capital. In that way, the Thames Barrage was colonial. Colonialism as it is usually defined comprises a dominating non-native group and a subordinate native people. But this case suggests the usefulness of expanding this definition. This project may be described as “colonial” because it embodied the ideals underpinning colonial water projects. It was colonial because it was championed by figures famous for their role in colonial water projects, figures who tried to parlay that fame into success for the London scheme. And it was colonial because it proposed creating a working-class colony in far eastern London with new industry and public transport intended to “improve” East End natives. This is a case, in sum, in which impulses so often directed outward by colonial water engineers were directed instead at the metropolitan core by the very same individuals.

This case contributes to a growing literature that recharacterizes the relationship between European colonial centers and the non-European societies that Europeans sought to manipulate and dominate. This case, simply stated, informs historians’ attempts to describe the imperial center and periphery. For decades, historians of the British Empire have rejected the model that simply saw power and influence centered in the metropole and straightforwardly projected onto the colonial periphery by the dictates of crowns, viceroys, or district officers.<sup>6</sup> Instead, they have offered a picture in which European influence occurred at delimited sites or “beachheads,” through a range of actors that extended far beyond governors and institutions. And the transmission of power was

complicated, compromised, and resisted. Colonial influence happened through performances, representations, disciplines, subtle limits to traditional ways of life, and through the creation of social spaces that encouraged certain behaviors while inhibiting others.<sup>7</sup> Among these transformations, technologies, especially those for controlling and distributing water, were particularly powerful in influencing non-European societies.<sup>8</sup>

Not only has this literature complicated simple narratives about center and periphery, it has suggested a multi-directional flow of influence and information.<sup>9</sup> Networks of influence were not always centered on London and some cross-colonial networks cultivated the exchange of ideas, commerce, and political influence with little regard to the imperial capital. Tony Ballantyne, for example, describes about the development of concepts of race that largely excluded London, moving instead between India, New Zealand, Ireland, and elsewhere.<sup>10</sup> Thomas Metcalf and Priya Satia depict India itself as a powerful nexus of empire, with the Government of India seeking its own interests in the Middle East and Indian Ocean to such an extent that it blurs the identity of India as colonized or colonizer.<sup>11</sup> And a growing body of work suggests that administrators and other figures who spent their career in the far-flung empire were less agents of the center bearing its decrees outward as natives of neither center nor periphery. Indeed, they understood that their identity, rooted in two worlds, enhanced their authority.<sup>12</sup>

Key figures in the Thames Barrage Association were not wholly natives of either center or periphery. Prominent politicians who advocated for the scheme, like Sir Louis Dane, spent most of their working lives in the empire. Other eminent figures promoting the barrage like Sir Thomas Ward were born in the various corners of the empire and

built their own water projects exclusively outside of Britain. They were members of a culture that spanned the world, even if it manifested itself in different ways in different corners. It was as natural for inhabitants of that culture to advocate for a project of large-scale water control in the London region as it was for them to advocate water control in the hinterland of Karachi.

This case undermines the very usefulness of the concept of a center and periphery. Personnel and concepts echoed around the corners of the empire, shifting, redirecting, transforming with each ricochet. In this story, the personnel moving through imperial society are the water control engineers who oversaw dam projects in India, then Egypt, then advocated the same for London. The overlaying idea is one that colonial administrators and other figures saw at the center of their civilizing mission: the concept of technology as a force for both profit and for “improving” (as they understood the idea) the lot of common people. The literature on this culture of technological faith and universalism is underdeveloped. Mitchell partially focuses on it in his *Rule of Experts*, but there has been surprisingly little work on it since Headrick wrote extensively about the great faith that officials and engineers placed in technology as a transformative, “civilizing” force in the empire.<sup>13</sup> But unlike Headrick’s uni-directional picture of transformation, this case suggests that ideas about the role of water in society bounced between Manchester, Bombay, back through the Institution of Civil Engineers in London, to Alexandria, and back again to London.

### **A colonial association**

The Thames Barrage Association formed in the first years of the twentieth century and carried on its efforts through the Second World War.<sup>14</sup> It first converged around a design

by T.W. Barber, a civil engineer who worked in Russia and England, and James Casey, a Britain-based nautical engineer. From its earliest days, the Association compared its Thames project to those underway on rivers in the empire, calling it “similar to that across the Nile.”<sup>15</sup> By the 1930s the leadership of the Association itself became overwhelmingly colonial in professional background. In those years, a network of officials and engineers who had made their names in the empire became the leaders and promoters of the Barrage Association. Vice-president Alexander Reid had built bridges and hydroelectric works in China, Egypt, and Mesopotamia.<sup>16</sup> Fellow board member Sir Thomas Ward was born in the Cape Colony and spent most of his professional life in India. He canalized rivers, oversaw the irrigation works of Punjab, offered a proposal for the irrigation of Mesopotamia, and eventually rose to the position of chief engineer for overseeing irrigation in all of British India.<sup>17</sup> Member Arnold Musto joined the Association upon returning from India where he had just contributed to the damming of the Indus with the Lloyd (later, Sukkur) Barrage, one of the world’s largest.<sup>18</sup> The greatest engineering name associated with the proposal was Association Vice-President Murdoch MacDonald, who was one of the earliest and most vigorous promoters of the scheme, active in writing and appearing on its behalf.<sup>19</sup> He contributed to the construction of the Aswan Dam on the Nile and Sennar Dam on the Blue Nile and spent two decades directing other embankment, canal, and damming projects on the river. He ended his career abroad as head of the Egyptian Ministry of Public Works, essentially placing him in charge of the Nile and its ever-growing network of technology.<sup>20</sup>

Beyond the engineers, the barrage scheme’s supporters also numbered colonial officials and planners. Architect and town planner Edwin Lutyens was a vice-president.<sup>21</sup> Strongly associated with the design of New Dehli, Lutyens sought to recreate some of the

grand tableaux he had made in the Indian capital in the imperial capital.<sup>22</sup> To realize his monumental vision, he argued that he required a stabilized river level.<sup>23</sup> He also believed that the Thames Barrage would enhance both the efficiency of London transport.<sup>24</sup> Barrage advocate Edgar Bonham-Carter had a long career as an administrator in Mesopotamia and the Sudan. There, he aided in the creation of a vast canalization and damming project on the Blue Nile, one of the river's tributaries.<sup>25</sup> He laid the legal groundwork for the project, consulted with Murdoch MacDonald and other water engineers, and helped negotiate the scheme through diplomatic twist and turns around Khartoum, London, and Cairo.<sup>26</sup> Upon his retirement from the empire, Bonham-Carter became a London County Councilor and turned his attention improving the metropolis. Barrage supporter Lord Snell was Parliamentary Under-Secretary of State for India and supported water control projects in Mandate Palestine, an interest he shared with other Association members.<sup>27</sup>

The most prominent non-engineer among the Association's leadership was president Sir Louis Dane, who took the reins of the Association in 1935.<sup>28</sup> Born into a family of Indian civil servants and military officers, Dane spent his career as a colonial administrator in the northwestern province of Punjab. Throughout a career that ended with him as governor of the expansive province, Dane was a committed supporter of a number of river control schemes within his territory.<sup>29</sup> He promoted damming, canalization, and irrigation projects for what he perceived as their economic benefits and civilizing qualities,<sup>30</sup> characterizing them as having almost miraculous potential.<sup>31</sup> Always with one eye focused on the possibilities of river development, he scouted the location of what is today one of Asia's largest dams, the Sukkur Barrage, while on a boating excursion in 1908.<sup>32</sup> In the same years that Dane was proposing to dam and, in a



sense, canalize the Thames, he was petitioning the Colonial Office with a proposal to dam the Litani River and divert its waters to parched Mandate Palestine.<sup>33</sup>

Each of these individuals were professionally linked to at least one other—often by having directly collaborated on the creation of a river control project. The entire network was fused through at least one link. Several individuals were further connected by the London-based East Asia Society after having first worked together abroad. While the details of how and when precisely the colonial colleagues joined ranks in the Barrage Association are lost, their diverse past associations, detailed in Figure 1, go some way in explaining it.

The Barrage Association constantly underlined its colonial credentials as evidence of its members' expertise in massive civil works projects. In Parliament, in newspaper columns, and in their promotional literature they and their supporters heralded the names and experiences of their colonial figures as shrewd, accomplished, indefatigable veterans of far greater challenges than “merely” damming the Thames.<sup>34</sup> “[Ward and Musto’s] Sukkur Dam...[and MacDonald’s] Egyptian dams serve to put the Thames in its place,” argued the Barrage Association.<sup>35</sup> Supporters in both Houses of Parliament and government agencies cited the eminence and imperial successes of the engineers as part of the basis for their support.<sup>36</sup> The group comprised, said one Barrage Association member in the House of Lords, “the greatest engineers in the land.”<sup>37</sup> And newspaper and other writers recited the colonial conquests of the Association’s engineers, like Murdoch MacDonald’s Aswan Dam on the Nile and the Punjab dams overseen by Sir Louis Dane.<sup>38</sup> It was an age when engineers could be household names and imperial

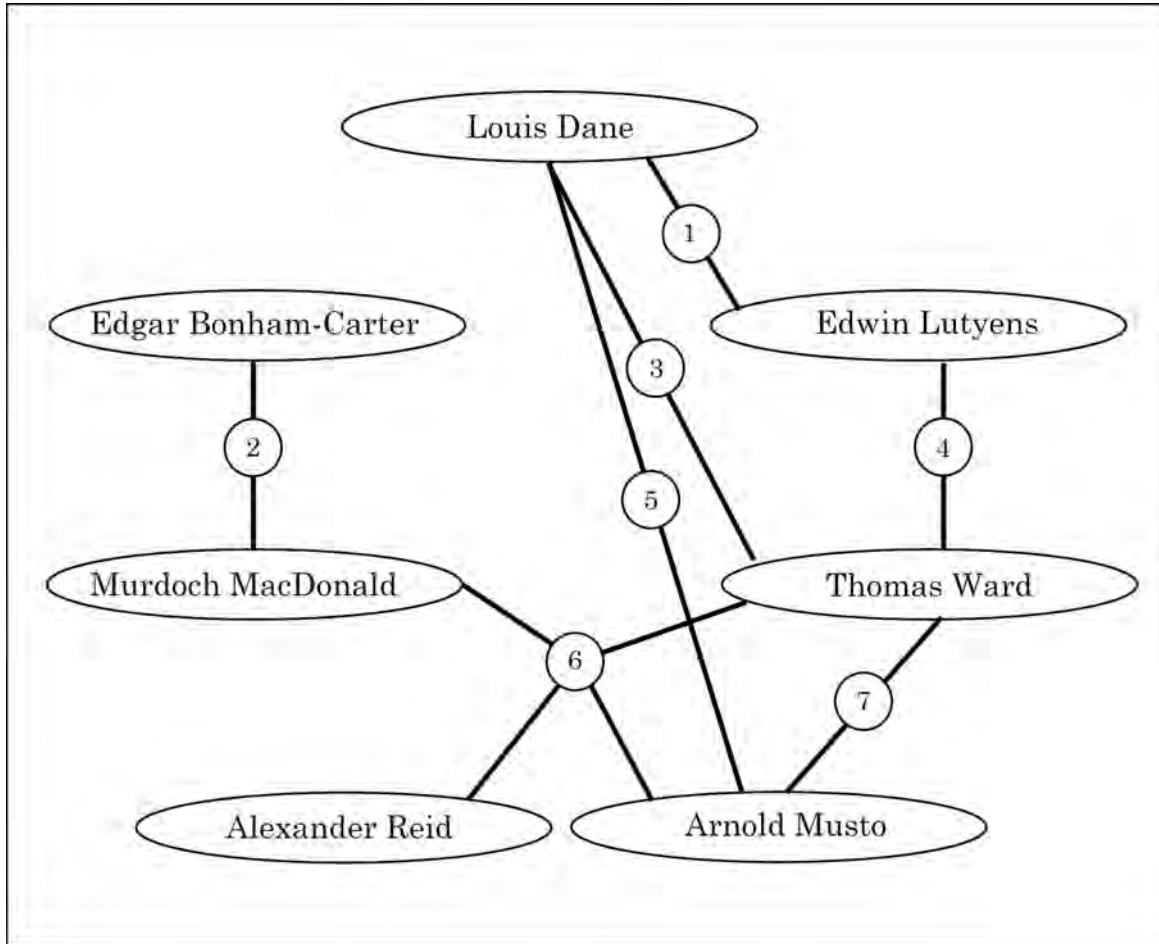


Figure 1: Professional connections, most made in the Empire, between Barrage Association members

1. Louis Dane and Edwin Lutyens worked closely together on the creation of New Delhi. Dane was Lieutenant Governor of the Punjab (1908-1913) out of which the capital was carved on the west bank of the Yamuna (formerly Jumna) River.<sup>39</sup>
2. Edgar Bonham-Carter worked with Murdoch MacDonald on the creation of the Sennar Dam in the Sudan. MacDonald prepared the plans in 1913 and Bonham-Carter handled the legal and diplomatic aspects of planning, with the two collaborating directly.<sup>40</sup>
3. Sir Thomas Ward was a water control engineer for the Indian Public Works Department with long experience in the Punjab before Sir Louis Dane assumed the Lieutenant Governorship of the province in 1908. Ward advised Dane on irrigation colonization and undertook dam and canalization projects in the Punjab, as well. Ward was also a member of the New Delhi Planning Committee with which Dane was associated. And Ward was a member of the East India Association, of which Dane was a frequent Council member and sometime Chairman.<sup>41</sup>
4. Sir Thomas Ward collaborated with Edwin Lutyens as part of the New Delhi Planning Committee.<sup>42</sup>
5. Arnold Musto was a water control engineer in Sindh, just south of the Punjab, during Sir Louis Dane's Lieutenant governorship. After retiring from India in 1934, Musto joined the East India Association in London, of which Sir Louis Dane was Chairman.<sup>43</sup>
6. Sir Murdoch MacDonald was brought into contact with the Thames Barrage Association's other water control engineers, all of whom were Institution of Civil Engineers members, as ICE President generally, and directly via particular ICE events.<sup>44</sup>
7. As Inspector General of Irrigation in India (1917-1922), Sir Thomas Ward was closely concerned with the approval and progress of the Sukkur Barrage scheme designed and executed by Arnold Musto. The two collaborated on a report on colonial water projects in 1938 intended to survey the possibilities for water control in sub-Saharan Africa. And the two interacted via the East India Association in London.<sup>45</sup>

engineering works made headlines, and the Association claimed both the names and headlines.

Evoking the names of colonial heroes like MacDonald, Dane, and Ward and their works amplified the Association's suggestion that water control technologies like those employed so often in the colonies were a universal boon to societies. In other words, the Association's engineers and other experts could just as easily apply them to Britain as India or Egypt. What is more, the Association played on a potential chauvinist instinct in their audience, suggesting that while the colonies were benefiting from the best river engineering of the age, Britain itself was not. "If this were Egypt or India, it would have been done long ago," argued the Association in its literature.<sup>46</sup> "The Thames [is] now falling short of the requirements of the agglomeration of humanity on its shores... It would seem that [a "problem"] directly affecting the centre of the British Empire should merit first consideration," the Association added.<sup>47</sup> A supporter stated in the *Cornhill Magazine* that "the age that has seen the Nile controlled might easily see the Thames reduced to discipline." If a river was failing or threatening a city "in any of our Colonies," he wrote, "the newspapers would ring with invective...and...it would probably cost a Colonial Secretary his place."<sup>48</sup> The Association and its supporters implied that interests in Britain were neglecting Englishmen in favor of colonial subjects or colonial profit-seekers:

In India alone there is an area under irrigation to-day larger than the whole of Great Britain. The Sukkur Dam, the Boulder, ...the Egyptian dams serve to put the Thames in its place. ...Wherever populations require food or electric current these huge dams arise. Yet when London bridges become underscoured...or its riverside is flooded as in January 1928, nothing is done and the tides continue to handicap transport and firefighting.<sup>49</sup>

The Association enumerated the handicaps imposed by an “unimproved” river: erosion on embankments and bridges, the threat of flood, and the danger that fireboats would be unable to approach burning buildings at low tide. But the argument that Association returned to most often was one of economic efficiency. While modern ships were increasing in tonnage and size, the river’s depth remained insufficient. The tides made navigation more dangerous at all times—not just at low tide, they argued. And on the twice-daily ebb tide, ships had to anchor at the mouth of the Thames—they would not fight the outgoing current or risk the low water level. Ships often had to take on pilots to navigate into the regulated dock basins; they also frequently faced long waits as they were allowed—one by one—into the dockyard’s locks. Pilotage, delays, and limited ship accommodations all cost importers and exporters money.<sup>50</sup> The new barrage would incorporate massive locks to lift large ships into the new deep harbor pool. Dock facilities could be multiplied many times over, spreading upriver; large passenger and cargo ships could dock in the heart of the metropolis. Proponents claimed that the new city-side reservoir would also be a source of fresh water. Where it passed through central London, the Thames would now add to London’s water supply since it would no longer be inundated with salt water as tides rose and since silt from upriver would settle in less turbulent waters.<sup>51</sup>

The Barrage Association suggested that the Thames was a problem landscape and that it was shameful to leave that problem unsolved. Through this claim, Association members advocated damming the Thames by echoing arguments they had long articulated for their colonial engineering projects. Murdoch MacDonald, for example, argued that “mankind [would not] permit” the “waste” of an unimproved Nile.<sup>52</sup> Arnold

Musto argued for greater control of the Indus on the grounds that not “improving” the river equaled embracing “stagnation” and, as a model of inaction, was a threat to the very moral character of Sindhi farmers.<sup>53</sup> And Sir Louis Dane argued that “the development of industries and...prosperity of the peoples and provinces of India” depended on overcoming the cultural and natural obstacles to “the utilization of the power of the great rivers.”<sup>54</sup> As members of the Thames Barrage Association, they decried the “waste” of economic opportunities, the shame of tolerating the “nuisances” that nature threw in the path of “modern requirements.”<sup>55</sup> A tidal Thames was a problem that “need not be suffered much longer.”<sup>56</sup> In a meeting between the Association and several government officials in 1942, Sir Louis Dane directly argued that the Association was modeling its aims for barrage-based economic development on its experiences in the empire. “Sir Louis Dane,” the meeting’s minutes record, “...argued from the advantages of raising the level of and controlling the flow of the rivers in the Punjab, which employed millions of acres to be irrigated, to the advantages of making the Thames at tideless.”<sup>57</sup>

Related to arguments based on economic development, social-Darwinist anxieties also motivated the Barrage Association. Emerging strongly around the time that the barrage was first proposed, social-Darwinism and eugenics were popular ideas among British officialdom.<sup>58</sup> They questioned not only whether the British were breeding young men physically fit to fight the Boers or the next rival, but whether British society—its economy, its technology and industry, as a whole—was a fit organism.<sup>59</sup> They imagined that Britain was in a contest to be the fittest state-organism on Earth, just as Darwin’s finches had been in a contest to be the fittest to survive their niches. For the Barrage Association, the British were failing to adapt to—or rather, adapt—their



A THAMES BARRAGE AT WOOLWICH

"Things to Come."

A. van Anrooy, R.I., 1936.

Figure 2. Imagined view of the Thames barrage by A. van Anrooy from ; J.H.O. Bunge, *Tideless Thames in Future London*. London: Thames Barrage Association, 1943.



Figure 3. Upper Jhelum Canal regulator, date unknown. Louis Dane oversaw the construction of the canal and its many barrages during his tenure as Governor of the Punjab. It opened soon after Dane's retirement from India Photo courtesy University of Minnesota Libraries, Ames Library of South Asia.

landscape and thus failing this test of the fittest. In their words, they were failing to employ the river up to its “carrying capacity limits.”<sup>60</sup> Meanwhile, Britain’s up-and-coming rivals in wealth and industry were transforming their waterways. It was time, one Association member wrote in *The Times*, to put the Thames “under proper control as is the case with almost every other European river of importance.”<sup>61</sup> In a letter soliciting support from potential members, the Association wrote that it was a matter of “national importance in view of the increasing competition of Continental Ports,” competition that could be off-balanced by “facilities for the rapid discharge of vessels at all hours and at all points which would result from the creation of a deep tideless lake...”<sup>62</sup> And the Association pointed to Americans’ success in the Panama Canal and dammed Charles River at Boston.<sup>63</sup> Europe, America, even India was creating more and more productive environments, the Association warned, while the Thames remained unimproved.<sup>64</sup> “In an age of evolution,” members wrote, enhancing the Thames was a matter of “national interest.”<sup>65</sup>

### **Putting the Thames to use for poor benighted East Enders**

Colonial administrators and engineers premised their water control schemes, in part, on the promise of new and greater opportunities for low-caste subjects. Barrages and canals were supposed to benefit the masses by employing them in construction, by potentially contributing to industrialization through hydropower, by expanding cultivable land, and by relieving population pressure by providing new opportunities to settle on formerly marginal soils.<sup>66</sup> So water control schemes and the creation of colonies went hand-in-hand. Association president Sir Louis Dane himself encouraged such so-called “canal

colonies” in the Punjab; these were supposed to benefit Indians and Britain economically, while providing employment and social mobility for poor Indians.<sup>67</sup>

The Barrage Association and its supporters argued that the Thames scheme offered some of the same benefits to the lowest caste of Londoners. The estuary below the barrage would see higher tides because of the bottleneck that the barrage created; that is, with the new dam in place, the incoming tides would have to go somewhere—if it could no longer sweep up the river it would be forced pour over the river’s banks in places. To keep low-lying downriver lands from flooding, engineers would have to build great earthwork embankments at strategic locations extending in total around forty miles. In other words, engineers would transform parts of the lower Thames into a canal contained by embankments, an engineering operation performed frequently in the Empire by the Association’s river engineers.<sup>68</sup> This newly-reclaimed land would provide the foundations for new colonies of working-class Londoners and new factories. In the words of the Association, poor Londoners would be lifted from “the squalor of the East End with its crowded and unhealthy living” and transplanted into a new “belt of garden villages” along the canalized estuary with “modern accommodation.”<sup>69</sup> Facing the river would be new factories in which the colonists would labor, enabling “the working population...to spread and so relieve the congestion of the ever-increasing East End population.”<sup>70</sup>

The Association would “make these places attractive to working people” in part by facilitating new public transportation services.<sup>71</sup> The working-class colonists below the new Thames Barrage could readily reach central and western reaches of London on waterbuses, formerly impractical on the tidal Thames. The Association claimed that



“many thousands of workers” throughout London would have access to “modern London transport,” to “water-bus[es of]...modern design and speed estimated for a capacity of 16 millions a year.”<sup>72</sup> This argument, that as a reservoir the Thames would increase the mobility of Londoners, was one of the cornerstones of the Association’s argument for using the river to promote social efficiency; it was a counterargument to a 1934 public inquiry that had studied the possibilities of using of the Thames for more public transport only to rule that the swinging tides made a reliably and speedy service unlikely.<sup>73</sup> “The heads of the London Passenger Transport Board are a landlubberly lot,” argued barrage supporter and MP A.P. Herbert. “It is a singular and saddening thing that in this great maritime country whose greatness has been built upon the water, and even in this House which stands beside the mighty Thames, anyone who suggests that our waterways should be more efficiently equipped and more fully utilised is [dismissed].”<sup>74</sup>

### **The barrier prevails over the barrage**

The Thames Barrage was never built. The main thrusts of the Barrage Association in the first decade of the twentieth century, the late 1930s, and the mid-1940s failed. The creation of a new port authority for London in 1908 pushed consideration of a barrage off the public agenda the first time, even though it enjoyed the support of influential Londoners and attracted great interest from a number of local government bodies.<sup>75</sup> The demands of fashioning a new authority simply drove consideration of a barrage off the table. In the 1930s, consideration of a Thames barrage was impeded by that very same body, the Port of London Authority. The PLA had jurisdiction over the Thames below Teddington weir; any question of transforming the river had to be brought for its consideration, first, and it was not interested in debating the matter. The Port Authority

raised technical objections, suggesting that sediment and sewage from upriver communities in the Thames Valley would accumulate in a Thames-turned-reservoir.<sup>76</sup> “The Port Authority feel that the proposed scheme is one which they alone, in the exercise of powers entrusted to them by the legislature, are competent to pass judgment,” the PLA stated, “They have rejected it as being ...undesirable.”<sup>77</sup> The Association answered that their colonial engineers and administrators had proven themselves up to any technical challenge damming the Thames, a mere stream compared to the Indus or Tigris, could present.<sup>78</sup> “Immensely larger quantities of water...have been put under human control by modern engineering under conditions much more difficult than can ever obtain in the Thames,” they argued.<sup>79</sup>

But finally, in spring 1938, the Association influenced enough of the right individuals and brought enough pressure to bear in the public discourse that it won a public hearing under the auspices of the hostile Port Authority, but presided over by neutral engineer.<sup>80</sup> The Association had won the support of key individual members of the London County Council and, especially because of the scheme’s advantages for river commuter transport, won a majority’s support for a public inquiry, at least.<sup>81</sup> And the Association had the support of eight London Borough and Town Councils.<sup>82</sup> But just one week before the hearing was to take place in March 1938, word came down from the Committee for Imperial Defence that the barrage would present too attractive a target for enemy bombardment. The committee feared that a breach would leave shipping or military vessels on the upriver side of the barrage stranded. In its secret report to the Ministry of Transport, the committee admitted that the barrage would probably increase the shipping traffic in the Port of London, but that such a concentration of ships was a drawback in times of looming war.<sup>83</sup> The Barrage Association maintained its pressure,

though, and saw an opportunity when thoughts turned to rebuilding London, especially the docklands.<sup>84</sup> The Association redoubled its efforts, publishing a book promoting the scheme in 1943, yet that renewed effort too came to naught.<sup>85</sup> The Barrage Association struggled to win its project enough attention given rival demands of war and reconstruction.<sup>86</sup> And perhaps, as historians have suggested, British colonial governments were more willing to experiment with technical and social schemes than the metropolitan governments.<sup>87</sup> But whatever else, the Barrage Association was struck a great blow by the losses of key colonial leaders: Sir Thomas Ward and Sir Edwin Lutyens died in 1944, and Sir Louis Dane died in 1946.

Today's Thames Barrier is only remotely the offspring of the barrage. The barrier had its origins in the devastating flood of 1953. That January, high tides, fierce wind, and low pressure combined to drag a surge of water up the estuary and over the river's banks. Over 30,000 were evacuated and over 300 died. The river came within inches of breaching the embankments in central London: Londoners imagined even worse consequences had the waters not receded at the final moment. Members of the Barrage Association had no part in planning for the barrier. The barrier's designer, Charles Draper, only began his career in 1948 and worked entirely in Britain; nor was the barrier's chief engineer a veteran of colonial river engineering.<sup>88</sup> Its design—really a set of liftable gates that usually sit on the river bottom barring nothing—had nothing in common with the Association's stationary dam with its integral road and railway. Flood protection was a relatively low priority for the Barrage Association, which never imagined a surge like that of 1953, while preventing flooding was the *raison d'être* of the barrier. What is more, the Barrage Association was motivated by a vision of making the

river a more productive economic and social amenity or apparatus; the barrier had no such function.

The Greater London Council, which investigated and commissioned the barrier in the late 1960s and the 1970s, was solely focused on diverting disaster, it did not aim to halt tides and fundamentally transform the Thames.<sup>89</sup> One reason it dismissed a barrage was because investigators were concerned about the possibility of silt born downriver from the Thames Valley collecting in a tideless pool in a dammed river. Engineer Ray Horner, who took part in the planning for the present-day Thames Barrier, writes that he, for one, feared this; had Londoners halted that action, silt would have settled to the river bottom or anywhere it met resistance:

The proposal would have altered the regime of the river drastically and the resulting siltation would have been so heavy that dredging would not have been practical. ... The reduced volume of water moving to and fro will not have the power to keep the river silt in suspension, silt will be deposited along the sides of the estuary and the cross section of the waterway will be reduced.<sup>90</sup>

The expanded port facilities that the Barrage Association envisioned would, Horner believes, most likely have silted closed, for example, and the river would have actually become *more* shallow than before.<sup>91</sup>

In their imperial river control projects, the Association's engineers encountered unforeseen and sometimes disastrous outcomes of their dams, canals, and canal colonies. The landscape did not always behave as their data suggested it would and the societies that they sought to shape did not always change as expected. Unfamiliar soil and rock types contributed to collapsed works, irrigation proved unsustainable, and local communities resisted the changes that river control works brought to their daily lives and

livelihoods.<sup>92</sup> If retrospective assessments are correct, it is possible that colonial engineers' plans for colonizing the Thames would have played out in unanticipated and unfortunate ways. In this manner, at least, the outcomes of imperial river engineering might indeed have been universal the world over.

## **Conclusions**

Besides contributing to a picture of a decentered empire, this case adds to a body of work on urban environmental history. That literature explores how human communities have sought to transform water, land, and organisms in order to transform themselves. William Cronon describes how Chicagoans extended their reach into distant hinterlands to transform and consume the resources of the American plains;<sup>93</sup> Martin Melosi details how town dwellers moved waste through and out of their midst via hidden technologies in order to prosper;<sup>94</sup> and Jared Orsi reveals the creation of a ubiquitous system of flood defense system for Los Angeles that at once threatens and sustains its success.<sup>95</sup> All of these stories describe the creation of technical systems that appear to conquer or disable nature so that human will can be done; but the technologies actually wed human and non-human at the site of the city, so that the fate of both are more and more intertwined. A change in one extends far into the other. The case of the proposed Thames barrage would have been no different. Even as the Barrage Association was proposing annihilating the tides and “unmaking” the Thames as a river, they were never capable of eliminating the forces of nature and were only on the verge of managing land and water ever more minutely.

Crowning the Victoria Embankment is a 3500-year-old Egyptian obelisk that originated at the apex of the Nile delta that Londoners call “Cleopatra’s Needle.” In 1877

it was shipped from Egypt under the guidance of engineer Benjamin Baker, who was advising Egypt on canal and rail projects and who would eventually oversee the construction of the first Aswan dam on the Nile. The Needle is pictured in Jonathan Schneer's *London 1900*, in which he argues that the character of the metropolis at the turn of the century was heavily shaped by the existence of the empire.<sup>96</sup> The empire permeated London decoration and architecture, entertainments and other popular culture, and its political culture, he argues. The case of the Thames barrage scheme fits into Schneer's picture of an imperial center integrated with the empire via culture and politics; the colonial engineers and officials who pushed the colonial reform of the Thames were members of a colonial culture that crisscrossed the world and had an important crossroad in London. But the story of the empire manifesting itself through a great engineering project (or in this case, trying but failing) is absent from histories like Schneer's and others that have tended to focus on very different cultural expressions, from advertisements to music-hall shows.<sup>97</sup>

And it was perfectly natural for members of that particular colonial culture to recommend applying the technological and social principles they employed in the empire to Britain. This case reconfirms that they believed that theirs was a science and art that, though learned as apprentices or students in the British Isles, could be applied to landscapes (and ultimately to societies) the world over. Timothy Mitchell has demonstrated that British imperial officials felt that, with their science, economics, and other disciplines, the British had discovered principles "unquestionably true in every country."<sup>98</sup> Engineers' craft was supposed to be universal. In the halls of the Institution of Civil Engineers they discussed the canalization of rivers in the U.S., Europe, and India all in the same breath; they believed that not only was water water and soil soil the world

over, but that social and economic outcomes from water projects would be the same the world over.<sup>99</sup> Colonial water engineers, therefore, had no reason to doubt that the application of their river control experience in London would result in technical success, economic efficiency, and social change. This is a story of colonial figures bringing colonial experiences and frameworks to bear on a metropolitan landscape, but it is also the case that some aspects of engineering culture of this period—the preference for magnitude and quick economic returns, a shared set of professional standards and techniques, and so on—are not easily deciphered as inherent to the center or periphery.

While colonial engineers and administrators were confident that they were improving the lot of colonial subjects, water control was social control through indirect means or, to use the phrase of theoretical literature, a mode of governmentality.<sup>100</sup> The colonies, dams, canals, and reservoirs changed everyday lives by changing economies, by changing settlement patterns, and by changing from whence people procured their daily water, to name just a few transformations. Water projects made certain ways of life possible and other ways of life, ways looked upon with disfavor by colonial agents, less available. But if those individuals who undertook “governmental” projects in the colonies could also be behind domestic schemes of the same kind, it should color how historians depict colonial water control. In other words, this case should make it more difficult to render any easy separation of colonial and domestic technology and culture.

What this truly suggests is that the Thames existed in a sort of quantum dual state; it was at once a landscape as domestic as could be, “a national river in a way that other rivers are not,” in Schnee’s words, but at certain moments it could slip states and become an imperial landscape.<sup>101</sup> The Thames, a *place* in Britain, was part of imperial

space. Henri Lefevre and those who have applied his spatial analysis have shown that places combine with social practices, ideas, and artifacts to create spaces that can powerfully influence societies.<sup>102</sup> Combinations of architecture, customs, technology, maps, and any number of material and ideal factors can combine to create a space that guides and limits human possibilities in ways that can be the equal of any legal or economic factor. These spaces can be centered on a small site or they can span continents. One of the contributions that the case of the proposed Thames barrage offers for thinking about the British Empire is that it shows that imperial space and domestic space could overlay one another at sites less obvious than Trafalgar Square or Cleopatra's Needle. The Thames was at once purely British and, as the heroes of colonial engineering with the Thames Barrage Association briefly made it, as imperial as the Nile at Aswan.

---

<sup>1</sup> This list is not exhaustive; for its fine survey of the literature on colonial Indian water control schemes, the student of colonial water control history should first see Rohan D'Souza, "Water in British India: The Making of a 'Colonial Hydrology,'" *History Compass* 4 (2006): 621–628. Christopher V. Hill, *River of Sorrow: Environment and Social Control in Riparian North India, 1770–1994*, (Ann Arbor, Mich.: Association For Asian Studies, 1997); Timothy Mitchell, *Rule of Experts: Egypt, Techno-Politics, Modernity* (Berkeley: University of California Press, 2002); David Gilmartin, "Imperial Rivers: Irrigation and British Visions of Empire," in Dane Kennedy and Durba Ghosh, eds., *Decentering Empire: Britain, India and the Transcolonial World* (London: Orient Longman, 2006): 76–103, see also Gilmartin's *Scientific Empire and Imperial Science: Colonialism and Irrigation Technology in the Indus Basin* *Journal of Asian Studies* 53 (Nov. 1994): 1127–1149. For its analysis of British patterns of water control in the Empire as well American imperial water control, see also Donald Worster, *Rivers of Empire: Water, Aridity, and the Growth of the American West* (Oxford: Oxford University Press, 1992).

<sup>2</sup> J.H.O. Bunge, *Tideless Thames in Future London* (London: Thames Barrage Association, 1943), 25.

<sup>3</sup> James Casey, "The proposed Barrage of the River Thames," in British Association for the Advancement of Science, *Report of the Annual Meeting of the British Association for the Advancement of Science, 1904* (London: John Murray, 1905), 687; J.H.O Bunge, "The Thames Barrage Scheme," *Journal of the Society of Arts*, 25 May 1945, 319.

<sup>4</sup> On the Earl of Dudley's support, see Bunge, *Tideless Thames*, 68; the speech in the House of Lords; *Hansard Parliamentary Debates*, House of Lords, 5<sup>th</sup> ser., vol. 105 (1937), col. 239; and numerous items in National Archives MT 48/62.

<sup>5</sup> The term comes from Daniel R. Headrick, *The tools of empire: technology and European imperialism in the nineteenth century* (Oxford: Oxford University Press, 1981).



---

<sup>6</sup> For a review of this development see Frederick Cooper and Ann Laura Stoler, "Between Metropole and Colony: Rethinking a Research Agenda," in Frederick Cooper and Ann Laura Stoler, eds., *Tensions of Empire: Colonial Cultures in a Bourgeois World* (Berkeley: University of California Press, 1997): 1-58.

<sup>7</sup> David Scott, "Colonial Governmentality," *Social Text* 43 (Autumn 1995): 191-220. U. Kalpagam, "Colonial governmentality and the public sphere in India," *Journal of Historical Sociology* 14 (2001): 418-40.

<sup>8</sup> John Broich, "Engineering the Empire: British Water Supply Systems and Colonial Societies, 1850-1900," *Journal of British Studies* 46 (2007): 346-365.

<sup>9</sup> For a review of this development in the literature on the British Empire see Durba Gosh and Dane Kennedy, "Introduction," in Gosh and Kennedy, eds. *Decentring Empire: Britain, India, and the Transcolonial World* (New Delhi: Orient Longman, 2006): 1-15.

<sup>10</sup> Tony Ballantyne, "Race and the Webs of Empire: Aryanism from India to the Pacific," *Journal of Colonialism and Colonial History* 2 (Winter 2001).

<sup>11</sup> Priya Satia, "Developing Iraq: Britain, India, and the Redemption of Empire and Technology in World War I," *Past and Present* 197 (November 2007): 211-255; Thomas Metcalf, *Imperial Connections: India in the Indian Ocean Arena, 1860-1920* (Berkeley: University of California Press, 2007).

<sup>12</sup> Laurence Brown, "Inter-colonial migration and the refashioning of indentured labour: Arthur Gordon in Trinidad, Mauritius and Fiji (1866-1880)" in Lambert and Lester, eds. *Colonial Lives*: 204-227. Catherine Hall, *Civilizing Subjects: Metropole and the Colony in the English Imagination, 1830-1867* (Chicago: University of Chicago Press, 2002).

<sup>13</sup> Timothy Mitchell, *Rule of Experts: Egypt, Techno-Politics, and Modernity* (Berkeley: University of California Press, 2002): part I; Daniel Headrick, *The Tools of Empire* (Oxford: Oxford University Press, 1981) and *Tentacles of Progress* (Oxford: Oxford University Press, 1988). The literature on the British imperial zeal for science is far more developed; Richard Drayton reviews that body of work in "Science, Medicine, and the British Empire," in Robin W. Winks, ed. *Historiography Oxford History of the British Empire V* (Oxford: Oxford University Press 1999). Arnold's work emphasizes science and medicine: David Arnold, *Science, Technology, and Medicine in Colonial India, 1760-1947* (Cambridge: Cambridge University Press, 2000). Michael Adas provides a thoughtful introduction in *Machines as the measure of men: science, technology, and ideologies of Western dominance* (Ithaca, N.Y.: Cornell University Press, 1990) and an extended study of American faith in technology's role in the "civilizing mission" in *Dominance by design: technological imperatives and America's civilizing mission* (Cambridge, Mass.: Harvard University Press, 2006).

<sup>14</sup> Over the decades its personnel changed, the barrage design slightly varied, and the Association shifted its favored dam site from Gravesend to Woolwich, closer to central London, but in its broad strokes the Association's plan remained the same. In the early years of the twentieth century, the Thames barrage pressure group was called the "Thames Barrage Committee," while from the 1930s it called itself the "Thames Barrage Association." William Grenfell, Lord Desborough, longtime chairman of the Thames Conservancy, was a group leader both when it was called the "Committee" and "Association." Shipping engineer J.H.O. Bunge was another figure who provided consistency throughout the name change. T.W. Barber's son was a member of the Barrage Association. And the Barrage Association clearly considered its campaign an ongoing forty-year effort; Letter of the Thames Barrage Association to the Ministry of War Transport, n.d. July 1942, National Archives MT 48/63. To avoid confusion, I will always refer to the group as the "Association."

<sup>15</sup> James Casey, "The proposed Barrage of the River Thames," Report of the Meeting of the British Association for the Advancement of Science, 1904 (London: British Association for the Advancement of Science, 1905), 687. Commentators drew the comparison, as well; *The Builder* 85 (Dec. 1903), 605.

<sup>16</sup> "Obituary, Sir Alexander Reid," *Proceedings of the Institution of Civil Engineers* 31 (May 1965): 127-8.

<sup>17</sup> "Obituary, Sir Thomas Ward," *Journal of the Institution of Civil Engineers* 22 (April 1944), 126. Ward had worked with president Louis Dane on water control projects in Dane's Punjab. "Discussion.

---

The Design and Construction of the Sarda Canal,” *Proceedings of the Institution of Civil Engineers* 233 (Jan. 1932): 161.

<sup>18</sup> *The Times*, 31 May 1977, 17.

<sup>19</sup> Bunge, *Tideless Thames*, 47, 55; several unnumbered items in National Archives MT 48/62.

<sup>20</sup> Murdoch Macdonald, *Nile Control: A Statement of the Necessity for Further Control of the Nile to Complete the Development of Egypt and Develop a Certain Area in the Sudan* (Cairo: Government Press, 1921); “Sir Murdoch MacDonald, The irrigation of Egypt,” *The Times*, 25 April 1957, 13.

<sup>21</sup> See Lutyens’s correspondence with barrage supporter Giles Gilbert Scott, 13 June 1941, Royal Institute of British Architects Archives, Ref. ScGG/276/3; see also, Thames Barrage Association letter to the Committee of Imperial Defence, 1 July 1941, National Archives MT 48/63, no pagination. See also, *The Countryman*, 29 (1944): 115.

<sup>22</sup> This was the message, explicit in places, implicit elsewhere, of the report that he co-authored with barrage supporter Sir Charles Bressey, *London Replanned* (London: Royal Academy, 1942), 21.

<sup>23</sup> Lutyens to Giles Gilbert Scott, 12 June 1941, Royal Institute of British Architects Archives, Ref. ScGG/276/3.

<sup>24</sup> Lutyens and Bressey, *London Replanned*, 21. *The Times*, 4 April 1944, 5

<sup>25</sup> Bunge, *Tideless Thames*, 68. The Colonial Office appointed Bonham-Carter the chief legal official in Sudan in 1899 where he was tasked with creating a legal system. From there, he was recruited to become chief legal officer of Mesopotamia. In another case of adapting the apparatus of colonization from one corner of the empire to another, Bonham-Carter took the Civil Procedure Code of India, assumed certain changes that had been applied to it in Burma, and revised it for use in the Sudan. M.W. Daly, *Empire on the Nile* (Cambridge: Cambridge University Press, 2004), 61.

<sup>26</sup> *The Near East* 13 (1917), 164; *The Times* 22 Jan. 1926, 12; Bonham-Carter also consulted with renowned river control engineer Sir Colin Scott-Moncrieff on Nile control in Sudan; Mary A. Billings, *Life of Sir Colin Scott-Moncrieff* (London: John Murray, 1917), 320.

<sup>27</sup> Letter of W.R. Bisschop to E. Leslie Burgin, 16 Feb. 1938 in National Archives MT 48/62; Lord Snell, *Men, Movements and Myself* (London: J.M. Dent and Sons, 1936): 259; *Report of the Commission on the Palestine Disturbances of August, 1929* Cmd. 3530 (1930): 176-80. Louis Dane shared Snell’s interest in using water to alleviate the Zionist-Arab crisis in Palestine; see fn. 29 below.

<sup>28</sup> Bunge, *Tideless Thames*, 85.

<sup>29</sup> This included adjunct projects to the Swat River damming scheme completed in 1885. He oversaw the construction of the Upper Jhelum, Upper Chenab, and Lower Bari Doab canals, all approved on the eve of his assumption of the Punjab governorship. He also ordered an investigation into the possibilities, never realized, of hydropower production on one of the province’s canals; *Minutes of the Proceedings of the Institution of Civil Engineers* 201 (1916), 54; A.C. Badenoch, *Punjab Industries, 1911-1917* (Lahore: Punjab Government, 1917), 46-7.

<sup>30</sup> See, for example, Dane on the damming and canalization of the Swat undertaken a decade and a half before he joined the Punjab government in Louis W. Dane, *Final Report of the Settlement of the Peshawar District* (Lahore: Punjab Government, 1898), 3-6; see also speech of Dane at the opening of a canal system quoted in Maud Diver, *The Unsung* (London: William Blackwood and Sons, 1945), 12.

<sup>31</sup> Louis Dane, et al, “Famine and Water Supply in Western Rajputana: Discussion,” *The Geographical Journal*, 93 (Jan., 1939), 50-1.

<sup>32</sup> Proposed by Dane in November 1908, construction commenced forty years later by the new government of India. Dane’s proposal, however, was scrutinized again and again by the Punjab government during Dane’s lifetime. R. Rangachari, *Bhakra-Nangal Project: Socio-economic and Environmental Impacts* (New Delhi: Oxford University Press, 2006): 18-19; Louis Dane memorandum of 8 November 1908 cited in R.R. Oberoi and S.K. Duggal, “Bhakra-Beas complex—a profile on the evolutionary history of India’s pride [sic] multipurpose river valley projects,” *Indian Journal of Power and River Valley Development* 51 (2001): 44.

<sup>33</sup> Sir Louis Dane to Secretary of State for Dominion Affairs, 10 April 1939, National Archives CO733/411/12.

<sup>34</sup> See Lord Desborough manuscript, no date, DE/Rv/F132/7, 5 Hertfordshire Archives. The names of Dane and MacDonald are held up especially frequently. See, for some examples, *Hansard*

---

*Parliamentary Debates*, House of Lords, 5<sup>th</sup> ser., 105 (1937), col. 241 and elsewhere; *The Times*, 26 April 1935, 8; *The Richmond Herald*, 24 August 1935, 8; *Dam the Thames: A Matter of Sanitation, Comfort and Economy* (London: Thames Barrage Association, 1936).

<sup>35</sup> Bunge, *Tideless Thames*, 25.

<sup>36</sup> *Hansard Parliamentary Debates*, House of Lords, 5<sup>th</sup> ser., vol. 105 (1937), col. 238; Arnold Talbot Wilson, *Thoughts and Talks, 1935-7* (London: Longmans, Green, and Co., 1938), 40-1; A.P. Herbert, *The Thames* (London: Wiedenfeld and Nicolson, 1966), 220; Memorandum circulated within the Ministry of War transport, 7 July 1942, National Archives MT 48/63.

<sup>37</sup> Earl of Dudley, *Hansard Parliamentary Debates*, House of Lords, 5<sup>th</sup> ser., vol. 105 (1937), col. 254.

<sup>38</sup> *The Countryman*, 29 (1944): 113. See also *The Observer*, 27 March 1938, 11; *The Scotsman* 28 March 1938, 10.

<sup>39</sup> Clayre Percy and Jane Ridley eds., *Letters of Edwin Lutyens to his Wife Lady Emily* (London: Collins, 1985), 282-3; Walter George, "The Roadside Planting of Lutyens' New Delhi," *Urban and Rural Planning Thought* 1 (1958), 84; *The Modern Review* 14 (Aug. 1913), 212.

<sup>40</sup> *The Near East* 13 (1917), 164; *Minutes of the Proceedings of the Institution of Civil Engineers* 222 (Jan. 1926): 100-13.

<sup>41</sup> *Journal of the Institution of Civil Engineers* 22 (April 1944), 126; *Minutes of the Proceedings of the Institution of Civil Engineers* 233 (1932), 161. *Journal of the Society of Arts* 74 (1926), 790. *The Asiatic Review* 4th ser. 18 (Oct. 1922), 587.

<sup>42</sup> *Journal of the Royal Society of Arts* 74 (1926), 790.

<sup>43</sup> *The Asiatic Review* 4th ser. 18 (Oct. 1922), 587.

<sup>44</sup> *Minutes of the Proceedings of the Institution of Civil Engineers* 216 (Jan. 1923), 221.

<sup>45</sup> Alloys Arthur Michel, *The Indus Rivers: A Study of the Effects of Partition* (New Haven: Yale University Press, 1967), 118; Lord Hailey, *An African Survey* (Oxford: Oxford University Press, 1938), 1025; *The Asiatic Review* 5th ser., 35 (Oct. 1939), 698.

<sup>46</sup> The Barrage Association put these words in the mouth of an unnamed Londoner; Barrage Association, *Dam the Thames*, 2.

<sup>47</sup> Bunge, *Tideless Thames*, 87.

<sup>48</sup> J.E. Vincent, "Thames in 'Rage of Rain,'" *Cornhill Magazine* 16 (April 1904), 522. This idea that if the Nile could be controlled the Thames should, too, was embraced by the editors of *The Builder*; *The Builder* 86 (9 April 1904), 386.

<sup>49</sup> Bunge, *Tideless Thames*, 25. While the threat of flooding was a far greater spur to the Thames barrier than barrage, the 1928 flood did help reinvigorate interest in the barrage. See W. Lionel Jenkins, "Tidal Rivers and Floods in Relation to the Flooding of the Thames and Lea," *The Surveyor and Municipal and County Engineer* 73 (9 March 1928): 307-8.

<sup>50</sup> Thames Barrage Committee, *The Port of London and the Thames Barrage: A series of expert studies and reports* (London: Swan Sonnenschein and Co., 1907), 4-5.

<sup>51</sup> The Thames was already the main source for London's water supply, but water was drawn from above Teddington Weir, above the tidal Thames. The claim that the city-side Thames would serve as a new reservoir in a dammed Thames was also based on the idea that the sewage that poured into the river at the Barking and Crossness outfalls would shut out below the barrage.

<sup>52</sup> In this instance MacDonald was arguing for the dredging and embanking of a part of the river. Murdoch MacDonald, et al, "Progress in the Study of the Hydrology of the Nile in the Last Twenty Years: Discussion," *Geographical Journal* 70 (Nov. 1927), 460. Elsewhere, he wrote of the imperative of "overcoming" the "disadvantages" of natural Nile conditions; *Nile Control Works: Note on a Series of Control Works to Regulate the Irrigation Water Supply of the Nile Valley* (Cairo: Government Press, 1920): 2.

<sup>53</sup> A.A. Musto, *The Future of Sind: The Sukkur Barrage Scheme* (Bombay: Times Press, 1923): 5, 8, 21.

<sup>54</sup> *The Times*, 3 August 1918, 8.

<sup>55</sup> Thames Barrage Association, *Dam the Thames: A Matter of Sanitation, Comfort and Economy* (London: The Association, 1936): 14; Bunge, *Tideless Thames*, 25.

<sup>56</sup> Barrage Association, *Dam the Thames*, 14. Bunge, *Tideless Thames*, 25.

- <sup>57</sup> Minutes of a Deputation of the Thames Barrage Association to the Minister of War Transport and a representative of the Ministry of Works and Planning, 6 Aug. 1942, National Archives MT 48/63, 1.
- <sup>58</sup> *Report of the Inter-Departmental Committee on Physical Deterioration*, 3 vols, Cd. 2175, 2210, 2186 (1904).
- <sup>59</sup> Dan Stone, *Breeding superman: Nietzsche, race and eugenics in Edwardian and interwar Britain* (Liverpool: Liverpool University Press, 2002), ch. 4; Paul B. Rich, *Race and Empire in British Politics* (New York: Cambridge University Press, 1986), 94-5 and elsewhere.
- <sup>60</sup> Bunge, *Tideless Thames*, 45.
- <sup>61</sup> L. Beaumont-Thomas in *The Times*, 29 Aug. 1935, 6.
- <sup>62</sup> Letter of Thomas Barber to unspecified potential donors and committee members, c. 1905. Institution of Civil Engineers Library, 'Thames Barrage (various papers, bills),' TFFV 467.; the Association also warned at the beginning of the century that "Hamburg, one of London's greatest rival ports," already enjoyed the advantages of a locked river-lake in its Alster Basin; Barrage Committee, *Port of London and Thames Barrage*, 143; competition from Germany was cited again in Bunge, *Tideless Thames*, 111. Association supporter Sir Charles Bressey made the same arguments about world competition to improve rivers, but from an aesthetic and recreational point of view; Sir Charles Bressey, "The Thames Barrage in a Replanned London," in Bunge, *Tideless Thames*, 99.
- <sup>63</sup> Thames Barrage Association, Memorandum to Ministry of Transport, 14 July 1938, 19, National Archives MT 48/62. Letter of Association member Lord Desborough to Lord Portal, Minister of Works and Planning, 11 March 1942, National Archives HLG 50/2369.
- <sup>64</sup> Association members visited the Charles River barrage in Boston and offered their begrudging admiration. Barrage Association, *Dam the Thames*, 15-16; Bunge, *Tideless Thames*, 79-80. British colonial officials, including some of those leading the Barrage Association, made the same implicit arguments about the world race in creating more productive environments. *Dam the Thames*, ii. Those opening the Sukkur Barrage, for which an Association member was superintending engineer, argued that it was the most advanced in the world; *The Times*, 14 Jan. 1932, 11. Others compared it to other great engineering works in the world; *The Times*, 26 Oct. 1923, 11. Barrage Association supporter Lord Snell was a Fabian Socialist and social Darwinist. See Lord Snell, *Men, Movements and Myself* (London: J.M. Dent and Sons, 1936): 269.
- <sup>65</sup> Association member Alexander Reid writing in *The Times*, 4 August 1934, 6.
- <sup>66</sup> See, for just a few examples, "Engineering at the British Association," *Nature* 70 (Oct. 1904), 586; Louis Dane, "Power Projects in India," *The Times*, 3 August 1918, 8; for Punjabi canal colonies as a response to demographic pressures and cause of demographic change, see also Imran Ali, *The Punjab under Imperialism, 1885-1947* (Princeton: Princeton University Press, 1988), 43-54.
- <sup>67</sup> Dane, *Settlement of the Peshawar District*, 3-6 and elsewhere; Louis Dane, *Final Report of the Revised Settlement of the Gurdaspur District in the Punjab, 1892* (Lahore: Punjab Government, 1892), 2; Dane, et al, "Famine and Water Supply," 50-1. "Discussion. The Punjab Triple Canal System," *Minutes of the Proceedings of the Institution of Civil Engineers* 201 (1916): 58.
- <sup>68</sup> W. Lionel Jenkins, "Tidal Rivers and Floods in Relation to the Flooding of the Thames and Lea," *The Surveyor and Municipal and County Engineer* 73 (March 1928), 307.
- <sup>69</sup> Barber, *Great Thames Barrage*, 15. For another, if vague, suggestion that the barrage would contribute to Londoners' health, see *The Times*, 21 January 1937, 8. In the 1940s, the Association kept the plan for new industry and housing, and evoked "new frontal buildings [that] would mask the dismal and dreary aspect of the old river-side and provide the down-river London Thames with an entirely new coat of regenerated architecture and modern accommodation." J.H.O Bunge, "The Thames Barrage Scheme," *Journal of the Society of Arts*, 25 May 1945, 319. The prospect of canal colonies seemed to be an important motivating factor for Association member Edgar Bonham-Carter, who eyed Kent as a potential site for working class satellite towns with accompanying industry; *The Times*, 17 June 1936, 12. For his and others' concern about including the barrage in a rebuilt London see letter of Thames Barrage Association to Minister of Transport, 30 May 1942, National Archives MT 48/63.

- 
- <sup>70</sup> James Casey, "The proposed Barrage of the River Thames," in British Association for the Advancement of Science, *Report of the Annual Meeting of the British Association for the Advancement of Science, 1904* (London: John Murray, 1905), 687.
- <sup>71</sup> Barrage Association, *Port of London and Thames Barrage*, 143.
- <sup>72</sup> Bunge, *Tideless Thames*, 42.
- <sup>73</sup> London and Home Counties Traffic Advisory Committee, *Report upon the Public Inquiry held in June and July 1934 in the Question of the Provision of a Regular Passenger Service on the River Thames* (London: Ministry of Transport, 1934), 14-5. Bunge, *Tideless Thames*, 46.
- <sup>74</sup> *Hansard Parliamentary Debates* 345, 29 March 1939, cols. 2056, 2059.
- <sup>75</sup> Sir Douglas Fox, a former president of the Institution of Civil Engineers, analyzed and vouched for its engineering soundness; "Expert Testimony in favor of the Proposed Dam and Locks at Gravesend," London: Thames Barrage Committee, 1905 [Institution of Civil Engineers Library, "Thames Barrage (various papers, bills)" TFFV 467]. Sir Frederick Dixon Hartland, MP and longtime president of the Thames Conservancy (the board responsible for maintaining and the navigability and upkeep of the river) was a strong supporter; Sir Frederick Dixon Hartland. *The Field*, 14 January 1905, 44. *Ibid.*, 30 April 1904, 700. The Thames Conservancy itself agreed that, "the actual engineering is well within scope of national talent and capital." Resolution of the Thames Conservancy quoted in *The Field*, *The Country Gentleman's Newspaper*, 30 April 1904, 700. The Lord Mayor of the City of London, members of the London County Council, four Borough Councils, two Urban District Boards, and two public meetings declared their support or called for a Government inquiry into the proposal; Barrage Committee, *Port of London and Thames Barrage*, 11-8. The bodies called for an inquiry through the Board of Trade.
- <sup>76</sup> Bunge, *Tideless Thames*, 53; *Dam the Thames*, 9.
- <sup>77</sup> Port of London Authority Memorandum sent to the Ministry of Transport 13 May 1937, National Archives MT 48/61, 4.
- <sup>78</sup> *Dam the Thames*, ii, 2. The technical soundness of the barrage construction itself had the support not only of the Association eminent engineers, but the president of the Institution of Civil Engineers. Sir Cyril Reginald Sutton Kirkpatrick, "Presidential Address," *Minutes of the Proceedings of the Institution of Civil Engineers* 233 (1932): 312.
- <sup>79</sup> Bunge, *Tideless Thames*, 25.
- <sup>80</sup> Pivotal was the Minister of Transport's consent for at least a hearing. Cabinet Minutes, 23 March 1938, National Archives CAB/23/93, 17.
- <sup>81</sup> *Minutes of the Proceedings of the London County Council* 15 March 1938 quoted in National archives MT 48/62, no pagination; the General Purposes Committee of the Council was, however, opposed mainly on the grounds of expense; Report of the General Purposes Committee of the London County Council, 15 March 1938 quote in National Archives MT 48/63, no pagination.
- <sup>82</sup> 18 March 1938 memo of Ministry of Transport, National Archives MT 48/62.
- <sup>83</sup> Committee of Imperial Defense Report, 3 March 1938, National Archives MT 48/62, 2; Cabinet Minutes, CAB/23/93, 17. In fact, London bridges almost entirely escaped damage from German bombing.
- <sup>84</sup> The Association elaborates how the upcoming reconstruction provides a unique opportunity in a letter of W.H. Gaunt to the Ministry of Works and Buildings, 27 May 1942, National Archives HLG 50/2369.
- <sup>85</sup> Bunge, *Tideless Thames*.
- <sup>86</sup> Memorandum circulated within the Ministry of War Transport 5 August 1942, National Archives MT 48/63; Letter of the ministry of War Transport to the Thames Barrage Association, 29 Sept. 1942, National Archives MT 48/63; still in 1945, the official government position was that there were too many other demands to hold an official inquiry on the scheme, *Hansard Parliamentary Debates* 408, 1 March 1945, col. 1575.
- <sup>87</sup> Nicholas Dirks, *The Scandal of Empire: India and the Creation of Imperial Britain* (Cambridge, Mass.: Harvard University Press, 2006), 232, 237; Kenneth O. Morgan, "Imperialists at Bay: British Labour and Decolonization," *Journal of Imperial and Commonwealth History* 27 (May 1999): 242.

---

<sup>88</sup> Barrier designer Charles Draper, who was inspired by a circular gas valve for his scheme for circular river gates, was a Britain-based engineer; Antony Milne, *London's Drowning* (London: Thames Methuen, 1982), 109-112; project manager Ray Horner was a staff civil engineer for the Greater London Council, *The Times* 15 Nov. 1982, 11.

<sup>89</sup> Plans for protecting against of flood like that of 1953 were delayed by long and fruitless discussions. Finally, the Ministry of Housing and Local Government asked Cambridge scientist Hermann Bondi, considered a fresh-eyed referee, to hold hearings on flood defense proposals. His 1966 report laid the path for the barrier ultimately commenced by the Greater London Council in 1974.

<sup>90</sup> Stuart Gilbert and Ray Horner, *The Thames Barrier* (London: Thomas Telford, 1985), 7.

<sup>91</sup> Gilbert and Horner, *Thames Barrier*, 7. Apart from the danger of silting, a barrage, of course, would have faced a shortened lifespan due to rising sea levels, just as the barrier does today.

<sup>92</sup> On social resistance, see Rohan D'Souza, *Drowned and Damned: Colonial Capitalism and Flood Control in Eastern India* (Oxford: Oxford University Press, 2006), 107 and elsewhere; and Broich, "Engineering the Empire," 357-60.

<sup>93</sup> William Cronon, *Nature's Metropolis* (New York: W. W. Norton & Co., 1991).

<sup>94</sup> Martin Melosi, *Sanitary City: Urban Infrastructure in America from Colonial Times to the Present* (Baltimore: Johns Hopkins University Press, 2000).

<sup>95</sup> Jared Orsi, *Hazardous Metropolis: Flooding and Urban Ecology in Los Angeles* (Berkeley: University of California Press, 2004).

<sup>96</sup> Jonathan Schneer, *London 1900: The Imperial Metropolis* (New Haven: Yale University Press, 2001).

<sup>97</sup> There is, for example a solid literature on popular imperialism as manifested in exhibitions and material culture. See, for some examples, J.M. MacKenzie ed., *Imperialism and Popular Culture* (Manchester: Manchester University Press, 1986); A.E. Coombes, *Reinventing Africa: Museums, Material Culture and the Popular Imagination in Late Victorian and Edwardian England* (New Haven: Yale University Press, 1994); and Anne McClintock, *Imperial Leather: Race, Gender and Sexuality in the Colonial Contest* (New York: Routledge, 1995).

<sup>98</sup> Mitchell quoting Sir Philip Francis in *Rule of Experts*, 296 and elsewhere.

<sup>99</sup> See, for example, Robert Burton Buckley, "The Navigable Waterways of India," *Journal of the Society of Arts* 54 (March 1906): 417-36. For engineers' confidence in the universal power of water supply projects to uplift any colonial society see Broich, "Engineering the Empire," 362-3.

<sup>100</sup> Foucault describes governmentality as a complex of rule "composed of men and things" in which myriad factors, often seemingly mundane, contribute to the ordering of society. Governmentality is about people governing themselves with guidance from cues all around them. Michel Foucault Foucault, "Governmentality," trans. Rosi Braidotti and revised by Colin Gordon, in Graham Burchell, Colin Gordon and Peter Miller, eds., *The Foucault Effect: Studies in Governmentality* (Chicago: University of Chicago Press, 1991), 93. For the application of the concept of governmentality to British history, see Patrick Joyce, *The Rule of Freedom: Liberalism and the Modern City* (London: Verso, 2003), 70 and elsewhere.

<sup>101</sup> Jonathan Schneer, *The Thames* (New Haven: Yale University Press, 2005), ix.

<sup>102</sup> Henri Lefebvre, *The Production of Space* Donald Nicholson-Smith, trans. (Oxford: Wiley-Blackwell, 1991).