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Introduction by Jacob Darwin Hamblin, Oregon State University

In *Man and Nature*, U.S. President Abraham Lincoln's envoy to Italy George Perkins Marsh warned his readers against repeating the mistakes of southern Europeans. Over centuries, he said, they had cut down too many trees and allowed their rivers to erode the best soil. The most beautiful and productive parts of the Roman Empire had come to ruin, "no longer capable of affording sustenance to civilized man." Humans were to blame for these changes, in Marsh's view, because nature, left undisturbed, "so fashions her territory as to give it almost unchanging permanence of form."¹

As Marsh and his contemporaries lamented the lost natural wealth of the land, environmental changes still were taking place in Italy. Areas like the Liri River Valley became drivers of industrialization. Some called the region the "Manchester of the Two Sicilies." In factories along the river, machines benefited from a power that neither humans nor animals could produce. The enclosures of land and water as private property during that era seemed to mark a contrast with centuries of feudal carelessness and held great promise not only in financial, but also natural, wealth. After all, if Italy was backward because of wastefulness and longstanding feudal traditions, some reasoned, wouldn't the relatively new political economy of private property restore order where there was chaos?

In *Enclosing Water*, **Stefania Barca** presents an environmental history of the Industrial Revolution, through the lens of the Liri River Valley. She takes on conventional views about environmental degradation and suggests that new instruments of controlling water in the nineteenth century reconfigured nature and exposed people to increased risk. The book won the 2011 Turku Prize from the European Society for Environmental History.

I asked **Stéphane Castonguay** to comment on *Enclosing Water* because he also has devoted scholarly attention to the causes and impacts of river flooding. In his study of the St. Francis River in Quebec, he shows how nineteenth-century rapid industrialization and intensification of agriculture modified the flow of water, and dramatically increased the risks of disasters such as floods. When floods were particularly severe, he has claimed, economic and political elites portrayed them as natural disasters. Castonguay has suggested that consciousness of vulnerability made it likely that future disasters would be perceived as natural occurrences. In other work he has shown how government sponsorship of science contributed to environmental transformation, as scientists helped to bring a large portion of Canada's rural areas into regimes of state management.²

¹ George P. Marsh, *Man and Nature; or Physical Geography as Modified by Human Action* (New York: Scribner, 1864). 5, 27.

² Stéphane Castonguay, "The Production of Flood as Natural Catastrophe: Extreme Events and the Construction of Vulnerability in the Drainage Basin of the St. Francis River (Quebec), Mid-Nineteenth to Mid-Twentieth Century," *Environmental History* 12 (2007), 820-844. Stéphane Castonguay, *Protections*

Charles-François Mathis is a specialist on the emergence of environmental thought in nineteenth-century England, and has written on the links between land practices and broader intellectual trends. In his study of the 1894 creation of the National Trust, he explores how the forces of industrialization evolved alongside renewed appreciation for natural landscapes. His work reveals how influential figures such as the poet William Wordsworth (1770-1850) blended patriotism with aesthetic and spiritual themes, creating a sentimental conception about the natural world that would inform nature protection well into the late nineteenth and early twentieth centuries. His book on the English countryside amidst industrialization explores this further, showing how land enclosures threatened urbanites' access to the countryside.³

Marcus Hall has written on environmental rehabilitation and impacts in a variety of contexts, especially North America and Europe. In *Earth Repair*, Hall showcases the Piedmont region of Italy, and he notes how cultural perspectives shaped responses to challenges, even in the nineteenth century. For example, while Americans were blaming damage on human activities such as mining and logging, Italians tended to see natural events such as floods and avalanches as the crucial agents of change. Hall's essay "Environmental Imperialism in Sardinia" analyzes the twentieth-century pressures on the Italian people and countryside from those who hoped to solve their problems, such as the Rockefeller Foundation, a philanthropic organization whose International Health Division supported widespread spraying of DDT to control malaria.⁴

Before turning to the first set of comments, I would like to pause here and thank all the roundtable participants for taking part. In addition, I would like to remind readers that as an open-access forum, *H-Environment Roundtable Reviews* is available to scholars and non-scholars alike, around the world, free of charge. Please circulate.

des Cultures, Construction de la Nature: Agriculture, Foresterie et Entomologie au Canada, 1884-1959 (Sillery, Quebec: Septentrion, 2004).

³ Charles-François Mathis, "De Wordsworth au National Trust: La Naissance d'une Conception Sentimentale de l'Environnement," *Histoire, Économie et Société* 28:4 (2009), 51-68. Charles-François Mathis, *In Nature We Trust: Les Paysages Anglais à l'Ère Industrielle* (Paris: Presses de l'Université Paris-Sorbonne, 2010).

⁴ Marcus Hall, *Earth Repair: A Transatlantic History of Environmental Restoration* (Charlottesville: University of Virginia Press, 2005). Marcus Hall, "Environmental Imperialism in Sardinia: Pesticides and Politics in the Struggle Against Malaria," in Marco Armerio and Marcus Hall, eds., *Nature and History in Modern Italy* (Athens: Ohio University Press, 2010), 70-88.

Comments by Stéphane Castonguay, University of Quebec, Trois-Rivières

Enclosing Water is about the relationship between changes in social structures and environmental transformations. Barca makes this her main concern by constantly referring back to the management of natural resources under the feudal and liberal regimes, and the social and environmental consequences of abandoning the communal mode of resource allocation when land and water were appropriated by individuals during industrialization. An ongoing struggle between public and private interests emerges, especially when the satisfaction of the latter, which depended on the appropriation of water, was the source of socio-environmental damage, and when some actors attempted to have the owners of riparian structures and infrastructure held legally liable for this. While we can see a certain familiarity with Hardin's *Tragedy of the Commons*, Polanyi's *Great Transformation* and Steinberg's *Nature Incorporated* in this account, Barca's *Enclosing Water* reveals particular aspects relating both to the topography of Mediterranean Italy and the specific activities that occurred there, with their equally specific social and legal arrangements, and that depended on the region's institutions and its history. The use of approaches and concepts from the fields of political ecology, economic history and legal studies enables Barca to open several avenues of thought on issues that we shall look at in turn: the commodification of the riverine space and water-river relationships, the production of vulnerability and the socialization of risk, and the nature of the state and definition of communal property.

Because of the mobilization of energy needed for its machines and the specific role water played in this, the Industrial Revolution made ownership of this resource a crucial issue. The book clearly demonstrates the struggles engaged in by the entrepreneurs, among themselves and with local and national governments, to access and use the water power, but also to ensure that it was shared, albeit unequally, and used, if possible, in a non-detrimental fashion. More often than not, the issue in such struggles was spaces, as access to the water – especially in this study – means access to the river and its transformation through the installation of infrastructure to channel water power. Is it legitimate then to equate water with the river? Barca's analysis makes no distinction between the two, which can be warranted from the perspective of a legal analysis. Beyond the judicial, however, relationships between water and soil, or river and land, are fertile ground for considering inequality of access and distribution, particularly when the commodification of the waterfront is anticipated – as is essentially the case in the Liri Valley study – along with the commodification of water in urban infrastructure and other technical systems.

How can the analysis proposed here be extended to an analysis of the privatization and commodification of water, which, when divorced from its riverine environment, raises just as many issues of access, distribution, production and governance for a phenomenon just as fundamental as industrialization was to that era: urbanization?

Indeed, water is more than just a factor of production as a source of energy for private industry; it also is a central element of many public utilities for urban populations, to quench thirst, clean surroundings and fight fires. It is the very substance that new corporate entities will attempt to privatize when they seek to exert control over a developing urban territory, without necessarily controlling the riverine space at the source of the technical systems – aqueducts and sewers – that connect the urban population to the river.

Given the many environmental histories that have made river biography a genre in itself, there is good reason to ponder relationships to water as a resource and relationships to the river as a space, and the usefulness of such analytical distinctions, especially as water is an essential part of many industries that predate the "Industrial Revolution" such as brewing and textile production. The reference to Polanyi (and to a lesser extent, Marx) is relevant here, broadening the notion of land to encompass resources in general, with "water" emerging as one of these. Conflicts over water arising from its privatization and commodification, as they relate to the resulting inequalities and the disappearance of a communal property, go beyond the strict confines of the river environment; the extension of the analytical framework to this sphere of production sheds light on the continuity of water as space and water as an element. This is particularly true of the acceleration of the urbanization process that usually accompanies industrialization and that eventually necessitates the establishment of technical systems for the distribution of water for industrial and domestic purposes and for its disposal. Here, the water space extends beyond the riverine environment. Otherwise, the river space shrinks to mere sites of utilization, reducing the potential for global management and the perception of the mutual dependence of users of the resource. Finally, it should be noted that in such a scenario that would emphasize urban infrastructure, water is plucked from the public domain for the enrichment of the few who can deliver this commodity to the marketplace, with the resulting losses of communal use and high environmental costs.

Another issue addressed in the book is the emergence of risks and hazards following changes in the land tenure system, as well as in the water ownership and usage regime. The analysis indeed highlights the disputes among entrepreneurs claiming compensation for the damages incurred. However, we would need to know the extent to which these socio-ecological regimes caused such damage, given the precedents and hydrological instability that characterized the Apennines due to a torrential rain flow pattern. Furthermore, other factors, such as demographic growth and the emergence of agrarian capitalism since the mid-18th century, as well as the wars and political instability at the turn of the 19th century, may have contributed to the production of risk and vulnerability, and to differential exposure to hydrological risks. Before the "disorder of water" became a topic of political discourse between 1790 and 1810, flooding was apparently neither widespread nor dangerous, but rather a normal inconvenience. But with the "disorder of water," a risk was effectively discursively created, since the flooding had preceded the socio-ecological transformations that had altered the hydrological regime and some of the

flooding's characteristics, most notably its causes and consequences. Thereafter, natural disaster became another product of an environment re-shaped by man, as well as a political economy issue that the state was called upon to regulate by balancing private interests and the public good. Aside from the fact that ownership of water and the establishment of production techniques would be blamed for the creation of a new risk just in the intensity and frequency that now characterized floodings, the consequences of the new land tenure system on the construction of risk would seem more related to the inability to implement corrective measures, through reforestation or coordination of water and forest use, or the perceptions of liability and the impact of such perceptions on the establishment of mitigation and compensation measures. But as it was primarily the appropriation and use of water for manufacturing, in combination with changes in the land tenure system, that increased the risk of flooding, industrial capitalism would create its own risk, not so much through greater socio-environmental consequences as by the power of perception of the new industrial elite; the latter would be in a position to determine what constituted environmental risk or industrial hazard, ranging from the destruction of production infrastructure to an inability to produce arising from poor control over the water flow and the river. If there was socialization of risk, it was primarily because the costs associated with its mitigation would be distributed within society, while the profits of environmental transformations were privatized by the appropriation of communal property. The fact that the public suffered the consequences of natural disasters appears to be an epiphenomenon here, because the analysis focuses on the unequal battles among the entrepreneurs claiming compensation and liability, while the vulnerable communities are barely heard from, if at all, other than through their mass migration. Not only must we question here the source of the socio-ecological transformations responsible for the change in frequency and intensity of a normal, albeit extreme, natural phenomenon – flooding in the pre-industrial Apennines – but we must also consider that the representations of "new" risk originated precisely in the new factories and among manufacturers who had become vulnerable to river overflow, as the public was impoverished regardless. In this regard, it might be worthwhile considering the distinction, or equivalence, between natural and industrial risks, when the legal and technical redefinition of access to water created a hydrological risk equal in scale and intensity to the risks of mechanized production.

Whether we are talking about appropriation and distribution of the water or of the riverine environment, or accounting for the origins of risk and vulnerability to assign liability and share the costs of remediation, there remains the question of alternative ways to manage communal property and define national interest. Here, a detour through Barca's approach and the sources of her study shows us how the state's responsibilities for these issues take shape. One of the specificities of the historian's work is indeed the archive on which she bases her thinking and for which the tracking and the evaluation call for originality. For a historian of flooding, this quest is all the more frustrating as the subject of study is often the very cause of its history's destruction, a bit like the criminal who erases his tracks. Barca uses printed material from intellectuals of 18th and 19th century Italy and consequently

gives center stage to experts – statisticians, lawyers, and engineers alike – who promoted a liberal mode of land distribution. The intellectual biographies of these Italian reformers who participated in a nascent political economy and its socio-ecological consequences in the Liri Valley lead to a broader environmental history, that of physiocrats and the consequences of the application of their thinking to the landscapes of modern Europe. If an analysis of the state can be reduced to specific knowledges, the implementation of these knowledges nevertheless remains opaque, and the analysis pursues this tendency to essentialize this “cold monster.” Indeed, the author does not hesitate to resort frequently to the idiom of American political scientist James C. Scott to characterize these bearers of knowledge who embody the state and its (imperfect) comprehensive vision. Yet, the author postulates that the formation of a centralized, bureaucratized state is a prerequisite for the emergence of industrial capitalism, so that water power becomes legally and materially available for capital. How is the understanding of the environment and the natural resources translated between these bearers of knowledge and the state and its agents? Who determines how these understandings will be implemented, and then implements them effectively? Here, a series of questions arises for an understanding of the conditions of possibilities of this re-nascent state in a modern, unified Italy, whose historicization requires an understanding of its resources, in terms of manpower and finances for managing this distribution of land. These questions seem all the more relevant as an alternative to this history of land appropriation and commodification is the emergence of a state with a comprehensive understanding of the nature of the country, that, unlike owners, can anticipate the consequences of specific transformations of the riverine environment for the basin as a whole, and coordinate the actions of individuals for the common good. In fact, to argue that state ownership of the river cannot solve the socio-ecological problems of the valley, one must situate the state historically and analyze its formation and transformations, both in its ability to act – resources, organizations and purposes – and in its networks of action and its interactions.

Comments by Charles-François Mathis, University of Paris-Sorbonne

In her book *Enclosing Water*, Stefania Barca chooses to analyse the effects of the Industrial Revolution in a small valley of the realm of Naples from 1796 to 1916. Describing what features the Improvement Project took on there, she focuses on the privatisation of the river Liri, and on the social and environmental transformations and problems it created.

As indicated by the chosen chronology, which covers more than a century, one of the book's main assets is the reassessment of the importance of late 18th and 19th century transformations in matters of environment and in the understanding of our contemporary world. In spite of a number of analyses about industrial change and fossil fuels (think of Paul Crutzen's heuristic concept of "anthropocene", for instance), it seems that the current historiography, in France at least, tends to focus on the second half of the 20th century to offer clues for today's social, economic, and environmental features, often forgetting the inheritance of the 19th century. This may make sense for some specifically contemporary issues (nuclear energy, political ecology), but it deprives the 19th century of its analytical value for more general environmental challenges. The core of the question, here, is the concept of Industrial Revolution forged in the course of the century and popularised by Arnold Toynbee in his 1882 lectures. Does it still make sense? Were the turn of the 18th century and the beginning of the 19th a defining moment for our contemporary world? Coined mainly to criticise the phenomenon of industrialisation, the expression had, of course, to be qualified; it was imperative to emphasise continuity with previous times. But in so doing, the specificity of this period became somewhat lost. In Stefania Barca's work, on the contrary, it is reassessed: "the concept of Industrial Revolution is maintained [...] and reinterpreted in socio-ecological fashion" (p. 1). She indeed underlines how, even in an economically marginal area of Europe, the concepts of political economy and the industrial upheavals took place in a relatively short span of time. In that sense, *Enclosing Water* reinforces the arguments of the 19th century as a turning point in the shaping of our modern world: *something* changed then in the relationships between men and nature.⁵

Of particular interest in that perspective is the cultural approach adopted by Barca throughout the book. What is indeed striking in that period, whether in Italy, France or Great Britain, is the new developing vision of the world, and more precisely of the natural world. Barca argues for an "appropriation of a non-biological energy rent (waterpower) by private capitalists" (p. 69), therefore for a concrete but also intellectual privatisation and harnessing of nature. I would rather present it as a more general external view of nature by contemporaries, from then on cut out from it, thus enabling scientific study, artistic reappropriation (e.g. landscape painting), tourism (you do not visit a natural world that you inhabit) or, indeed, private

⁵ Charles-François Mathis, "Mobiliser pour l'Environnement en Europe et aux Etats-Unis : un État des Lieux à l'Aube du XXe Siècle," *Vingtième Siècle* 113 (2012) 17-27.

confiscation. But whatever the interpretation, what matters is that indeed the interpretation of the world does change, highlighting the singularity of the late 18th and early 19th centuries and justifying that, in some cases, the phrase “Industrial Revolution” may be used.

But of course, it does only make sense for the individuals who share this new vision of the world and of the powers of industry. In Great Britain, the complete understanding of these industrial and socio-ecological upheavals can be traced back to the 1830s, before it gathers momentum to reach a growing number of British citizens. It is maybe one of the few regrets one can have about *Enclosing Water* that it does not precisely trace the diffusion of ideas among the population of the Liri Valley. Barca analyses with great precision the thoughts of political economists like Antonio Genovesi, the vision of some engineers, and the “shaping of a new ecological consciousness, dominated by the industrial-capitalist vision of water” (p. 75). But the way these ideas spread in the country among the political elite or in the valley among the main industrialists is difficult to determine, as is the existence of opponents to this new vision. The same applies to the common people of the valley, whose voices are seldom heard – but one cannot blame Barca for the absence of sources from these layers of the population, which she mentions on p. 75.

Despite this slight limitation, the socio-ecological narrative which Barca places at the heart of the Improvement Project in this region is fascinating. It calls for a return to a pre-feudal period, since feudalism, considered as being brought by barbarians, is supposedly responsible for the disastrous management of environmental resources and for the “disorder of water”. In some of her best pages (p. 80-82), Barca convincingly argues for the invention of a tradition which enables contemporaries to unite ancient times and modernity, industry and pastoralism. Settled in an ancient palace or in a monastery, the new mills were not seen by visitors as disrupting the landscape: nature and capitalism were harmoniously blended. A comparison with the British situation could be revealing of both the typicality and the uniqueness of the Liri Valley in that regard. There, the pastoral narrative was naturally of no use to offer an aesthetic appreciation of industries, or even to make them acceptable, less disruptive to the senses and the mind. Chimneys emerging from huge buildings and pouring forth dark fumes, dirtied streets and rivers in chaotic developing cities could only belong to the sublime – and then, mainly by night, when gigantic fires could recall hell, and when night could hide the general squalor of the places. Nonetheless, if one considers some of the main industrial places (Manchester, Swansea, Coalbrookdale for instance), they were all subjected to a process of bridging the break created by the Industrial Revolution. In guidebooks, newspapers, contemporary depictions in art or literature, the main narrative is that of *continuity* between ancient and modern times. To make the changes acceptable, one had to blur their sharpest features. These attempts were obviously not always very convincing and could not apply to other towns like Middlesbrough or other regions like the Black Country. The feasibility and obvious success of pastoral narratives in the Liri Valley, is, on the contrary, striking. This is due to what Barca calls the “hybridity of the Industrial Revolution” there, i.e. its

water-based structure. This may have called for more developments. For it seems to be mainly the absence of pollution which enabled this apparently easy acceptance of industrialisation in the region, whereas in Great Britain it is, on the contrary, the industrial smokes and vapours which were denounced. The use of water and not of fossil fuels, which lessened the amount of *visible* pollution (what about the effective pollution generated by plants or factories? Paper factories do pollute rivers) induced by industry, may have reduced what happened in the valley to a “half-industrial” revolution, easier to accept as its disruption could still be seen as belonging to the order of nature - even though human responsibility was understood.

The British case is also revealing on other grounds. First, according to Stefania Barca, England was seen by political economists like Antonio Genovesi as a model to follow (p. 16): it is a good testimony of the immense influence of English thought all over Europe. The surprise also comes from the precocity of political theories and statistical studies in the realm of Naples: Genovesi’s chair of political economy was created in 1754 and he widely published in the 1750s and 1760s, whereas Galanti’s *Della descrizione geografica e politica delle Sicilie* appeared between 1786 and 1794. What Stefania Barca calls the Improvement Project is indeed mainly a European phenomenon and could not be solely attributed to one country - namely England - even though the latter was seen as a model.

The imitation was nonetheless only partial, and not for the best. Enclosures, Barca tells us, were implemented, but in a much shorter span of time than in England, heightening social tensions. One may wonder therefore why no body opposed them? After all, in England, the *Commons Preservation Society* was created in 1865 to prevent landowners to enclose too many commons: its early successes (Wimbledon Commons for instance) made it one of the founders of the environmental movement in the country. Was there no similar organisation in the Liri Valley? More generally, where are the opponents to the Improvement Project?

The English example is also only partially followed on matters of regulation of the river. Barca blames capitalists for pursuing their own interest (assimilated by the political economy of the time to the common interest) in privatising the river, leading thus to social and ecological disasters. She clearly demonstrates the inability of industrialists to cooperate in the management of the river, and gives convincing examples of trials that regularly opposed them. The same phenomenon occurred in Britain, and it would be difficult to present the country and its industrialists as good managers of British rivers. Nonetheless, from the 1860s onwards, they started to agree on the need for a - very limited - state intervention, which would equally impose restrictions on river and atmospheric pollutions. Constantly undermined by the limitation of the “best practicable means” to be implemented, the legislation which followed was weak and ineffective, at least for rivers, until the late 19th century. As in the Liri Valley, I would therefore argue that the main culprit was not so much industrialists themselves, than the state and its inability to impose its decisions. For at least, in Britain, when legislation was finally passed, measures were

taken to ensure its application, whereas in Italy, in Stefania Barca's own words, the state was "un-improving" and too weak to apply its laws. A good social and environmental management of natural resources is not, *per se*, incompatible with private enterprise, providing that state intervention be effective.

In short, Stefania Barca offers in her book many threads to follow in order to understand industrial and environmental transformations in the 19th century and beyond. For instance, when she analyses Galanti's work and its goal of reforming the State, she says: "For this purpose, the image in the mirror should be wisely composed: it should be frightening enough to move the Crown to accept the philosopher's advice and take action, but not so much so as to generate refusal and denial" (p. 25). Isn't it exactly how climate change challenges us nowadays? In his essay *Le fanatisme de l'apocalypse*, the French philosopher Pascal Bruckner points out exactly such a tension in some ecological discourses today: are we doomed, and then what's the point of being environmentally concerned?⁶ Or is there hope, and therefore why should the discourse be so apocalyptic? Whatever the limitations of Bruckner's essay, he at least recalls with Stefania Barca the need for a balanced narrative to face environmental problems, and maybe, get out of the prevalent political apathy. History does offer insights on present times.

⁶ Pascal Bruckner, *Le Fanatisme de l'Apocalypse* (Paris: Grasset, 2011). Apart from this idea, the essay is actually rather disappointing, especially in his reducing *all* ecological discourses to the most radical ones.

Comments by Marcus Hall, University of Zurich

Some claim that space is the last frontier; others insist it is the ocean's depths. I am sure that the most unexplored and inaccessible frontier is instead Italy's voluminous archives: elusive, mysterious, even perilous, hiding treasures that only the most intrepid seek to explore. The *Guide to Italian Libraries and Archives* suggests that this country houses more individual historical documents and records than any other. Wholly new windows on the human condition might be opened in those vaults and cellars, if one can just manage to arrive during opening hours, decipher dog-eared finding aides, quickly befriend archivists, and then hope against hope. I once got locked in to a warehouse filled with aisles of Italian Forestry Corps records; happily locked in, as it turned out, for I spent the whole afternoon simply browsing through boxes before, exhausted and hungry, I finally banged on the door to be let out. That afternoon saved a month under official circumstances, for Italian archives are meant to guard and protect the material past, not make it accessible to researchers. That is why Stefania Barca's *Enclosing Water* is such a gift, for she is someone who has entered that frontier and emerged with new visions for the rest of us to behold.

Barca's subject centers on the management of a single, little-known river (the Liri) that flows out of mountains midway between Rome and Naples; her organizing concept centers on "political economy," a sometimes unfamiliar term in the English-speaking world that in the Romance languages has enjoyed common usage since the eighteenth century. "Political economists" of the Neapolitan Enlightenment studied the ways by which governing bodies regulated the production of goods and services. Her book therefore traces how the many goods and services of this river (as a source of food, drinking water, irrigation, transportation, hydropower) were managed according to governing systems marked by feudalism, then imperial Spanish rule, and finally the modern nation-state. At its simplest, Barca's story is about the industrialization of a river, but it is not a simple story to tell.

In recounting how the Liri vacillated between a smooth flowing river and a purveyor of destructive floods, between a source of agricultural wealth and engine of mechanical power, Barca rethinks our assumptions about property, role of the expert, evils of common ownership, causes of degradation, and loci of blame. In many ways, *Enclosing Water* represents transatlantic (and trans-European) scholarship because Barca incorporates so much of the best thinking about other river systems and applies it to her own Italian micro-case: Worster's *Rivers of Empire*, White's *Organic Machine*, Steinberg's *Nature Incorporated*, Kelman's *A River and its City*, and Cioc's *Eco-biography* of the Rhine, all find traction in her study. This is one of those rare books that applies cutting-edge scholarship to age-old questions about resource use and economic development, and it was undoubtedly for this reason why ESEH judges awarded it their top book prize from an impressive and long list of entries. This book is also a manifestation of the maturity of

environmental history by demonstrating how far the field has come in breaking away from its initial courtship with western American history, to turn now to the southern question in Italian history. Water wars are not exclusive to the Wild West we realize; nor is abuse without reuse, reclamation without distribution, extraction without restoration, imperialism without humanism.

Page after dense page, Barca's method is to present established theses about resource management, before offering new archival evidence, counter examples, and then flipping those theses on their head. The story of the Liri River is a tragedy, not of the commons, but of enclosures; the story of a machine, not in the garden, but in the river; a saga of thinking, not like a mountain, but like a statistician and an engineer. Such juxtapositions jolt us out of our complacency, and make us realize that her counter-theses deserve further testing. I especially appreciated how the Liri's complex riparian system (natural and human) seemed to fare better in the 1810s under local governance giving wider access to water resources than in the 1870s under bureaucratic governance marked by entrenched industries, powerful owners, and private property. Maybe Garrett Hardin is indeed wrong. Maybe properties managed of, by, and for the people are better off than those given over to private self interest.

Barca also demonstrates that industrialization was occurring even in the so-called peripheries, and was not isolated to the coal-rich regions of central Europe and Britain. Just as importantly, southern Italy's industrial developments were driven as much by changing politics of production and patterns of resource ownership as by changing technologies and energy sources. In fact, this book's focus is really on the *other* industrial revolution, one happening mostly without steam boilers and fossil fuels, centered mostly on water power and fluvial networks. This case study therefore suggests that similar transformations were occurring across Europe and the neo-Europes wherever people sought to improve their lives through rivers and their products.

Another window that Barca flings open for the English-speaking world is the phenomenon and concept of *bonifica*, to show how slippery a single term can be. As the Italian answer to "betterment" or "improvement," the label of *bonifica* signified almost any activity that could enhance agricultural production, guard against natural disaster, drive away malarial pestilence, and generally benefit human civilization. *Bonifica* was thus a synonym for reforestation, drainage, damming, irrigation, rehabilitation, and restoration to name a few activities, directed by foresters or engineers or town councils, and applicable to several pursuits depending on resource and situation. Italy's scholars have written books about *bonifica*, and Barca adds to and develops those insights in exploring the Liri's experience with that term. Like "sustainability," *bonifica's* multitude of interpretations meant that not everyone would benefit by its activities: improvement for one person was destruction for another, so that technocrats, factory owners or government bodies would bend its meaning according to self-serving needs. We are shown that this word offers rich material for political

ecologists. In an age when Google Translate replaces "bonifica" with "reclamation," we rely more than ever on scholars to show the inadequacy of single-word equivalents, and the centuries of human history required to create a single term.

In my reading, a last key purpose of the book was to trace blame of environmental problems. Over the Long Nineteenth Century, downpours and floods initially emanated from natural elements or perhaps God, but by the end of that period, the "disorder of water" stemmed from human mismanagement. When Liri residents moved from passive victims of nature's fury to active despoilers of forests and rivers, we recognize our own modern ethic of locating environmental degradation in human affairs. George Perkins Marsh, and as Barca shows, key Italian thinkers before him such as Carlo Afan De Rivera, trumpeted the human role in disrupting nature's harmonies. The root of Italy's torrential floods became the "Un-improving State" and the "Disorder of Industry." Articulate Neapolitan thinkers are part of the reason why we so easily accept air pollution, species extinctions, and global warming as our own human undoing. Another age working under a different paradigm would find us preparing for nature's disasters rather than trying to limit humanity's footprint.

Certainly one of the recurring questions for readers who have never visited and who may never visit southern Italy is whether a single study about a single river in this angle of the world can help us make sense of puzzles in our own lives. As Barca shows us, political economies, industrialization, complex terms, and environmental blame (to take four examples mentioned here), are part of any place, reinforcing the value of studying single cases, even in our age that pleads for comparative studies. I remember a conference panel in which Alfred Crosby, the supreme comparativist, once declared that by method or subject, all history is comparative. In reading Barca's work, I am reminded of how comparative any single case can be.

Author's Response by Stefania Barca, University of Coimbra, Portugal

I wish to thank the reviewers for their thoughtful reading and appreciations of the book, as well as for the criticisms, and Jake Hamblin for giving me the opportunity to respond to them. When I started researching this subject I would not have guessed that the results would have reached an audience so much larger than the small group of Italian environmental historians, so I am very thankful to all who have made this happen, and especially to Sarah Johnson at the White Horse Press of Cambridge (UK). And of course I am deeply grateful to the Rachel Carson Center and the ESEH for awarding this book with the Turku prize in environmental history, an accomplishment of which I am very proud.

As Stéphane Castonguay rightly sums up, *Enclosing Water* 'is about the relationship between changes in social structures and environmental transformations'. I have been particularly influenced here by Ted Steinberg's study of the Merrimack valley, mostly for its writing style and methodology, rather than for comparative reasons. I am not particularly interested in geo-historical comparisons, for they are often based on value hierarchies and may be used to justify and reproduce present-state differences (as I argue in a recent article on the Industrial Revolution narrative).⁷ Rather, I am interested in connections, articulations, and flows. As Marc Hall rightly points out, all history is intrinsically comparative, in so far as *any place* embodies broader historical processes such as the rise of political economy, industrialization, and the search for environmental blame. I am flattered by Marc Hall's comment that *Enclosing Water* is 'one of those rare books that applies cutting-edge scholarship to age-old questions about resource use and economic development'. Age-old questions such as the Industrial Revolution (in its peripheral and water-powered version), the tragedy of the commons (or rather the tragedy of enclosure, what Spanish environmental historians call 'tragedia dos encerramientos'), and the building of the modern state are, as Hall notes, the main issues I deal with in the book. I look at these historical processes from a water perspective, namely from the river Liri and from the place which is molded by that particular river, its mid valley. And, I claim to do this from the standpoint 'of the people inhabiting and working the place' (p. 1). Unfortunately, those people – and the non-human inhabitants of the Liri Valley – did not leave written records testifying to their point of view. They have not left us journals, memoirs, letters, or any kind of publications. They were mostly illiterate, and probably little interested in leaving trace of themselves for posterity – survival being their main preoccupation, evidently. However, the existing evidence about the working-class population of the Liri Valley, which I take into the account – statistical, medical, police, and migration records – tells us a story of decline: stagnant demographic trends (sharply contrasting with the general trend of the century) and overall insecurity, due to the increased exposure to market

⁷ Stefania Barca, "Energy, Property, and the Industrial Revolution Narrative," *Ecological Economics* 70:7 (2011), 1309-1315.

fluctuations, loss of access to subsistence means and a sharp increase in environmental risk, especially floods and malaria.

Other sources – albeit less consistent – tell us about the decline and change in composition of the fish population and the disappearance of the otter population from the Liri Valley in the same period. I trace these hardened living conditions back to the ‘improvement’ of the Liri Valley by means of land and water enclosure, aiming at the mechanization of textile and paper productions by way of waterpower, to the benefit of an emerging class of industrial capitalists, actively supported by the State. And I trace the ‘improvement’ of the Liri Valley back to a larger cultural and political-economic project, an indeed European project – as Charles-François Mathis rightly remarks – which, starting from the early 19th century, comes to be physically embodied in the place and in people’s lives. Mine is in fact a place-based perspective on the Industrial Revolution, on the enclosure process and on the rise of political economy. I am glad Mathis thinks that ‘one of the book’s main assets is the reassessment of the importance of late 18th and 19th centuries transformations in matters of environment and in the understanding of our contemporary world’, because I do think that that was a ‘defining moment’ in the history of the European environment, and hope the book makes a contribution in that sense.

The Improvement project was indeed a European phenomenon, reaching the extra-European world by means of colonial rule, but we know too little about how largely it was shared among the European intellectual elites and governments and who were its opponents. I am surprised Mathis finds that I do not trace enough the diffusion of the Improvement ideas ‘in the country among the political elite or in the valley among the main industrialists’. In truth, I devote the first chapter to talk about how Neapolitan reformers, philosophers, landowners and civil servants reacted to, and actively elaborated their own version of, the Improvement project. Even though they studied in the capital city and were often employed in some government bureaucracy, those elites were highly representative of the country for they were based in some of the rural provinces and their family fortunes were attached to the local rural society. As for the Liri Valley, the very first project for harnessing the river in view of industrial transformation came from a local clergyman at the end of the 18th century, and was appropriated and put into practice by the industrialists as soon as the institutional conditions turned favourable. However, when it comes to oppositions against the improvement project, Mathis’s observation is correct. *Enclosing Water* tells about complaints against the ‘improvement’ of the river, partly coming from the industrialists themselves, partly from agriculturalists (often the same people), partly from local civil servants (in the name of public health), all invoking the return to a hardly definable ‘pristine’ state of the river. But these complaints were very partial and concerned only specific aspects of the ‘improvement’ project – such as some new fence aiming at diverting water for a new instalment. They originated from the need to secure exclusive access rights over water in a limited space, as I show in chapter 3. Besides, they were often suspect of second intentions – local family feuds or attempts at impede competition, not ‘improvement’ per se. I was myself struck by the absence of complaints against

water pollution, a big problem with paper production at the time. Apparently, Improvement was a very powerful concept, one not easily opposable – just like today's 'development', with or without the 'sustainable' adjective. However, I do think that the Improvement project overall was not a good affair for the common people of the valley, the property-less peasants and industrial laborers, especially the women, and for the non-human living world – even if their voice is generally unrepresented in the sources – and theirs is the perspective I chose to defend in the book.

In that sense, I have a more ambivalent attitude than Marc Hall's enthusiastic appreciation of Italian archival sources. It is true I could enjoy an abundance of historical materials (and sometime I also risked remaining metaphorically trapped within them...), but it is also true that this abundance hides very important limitations, such as the absence of unrequested information – those that the State was not interested to collect. One should not forget that those State archives were created within an early 19th century 'governmentality' project, and if we remain embedded within them for too long we run the risk of 'seeing like a State' – as Jim Scott would say. In Part II of the book I criticize the way in which the information concerning water use and water risk, arriving to the capital city from the provinces, was separately catalogued into two distinct archive sections, one concerning the benefits, the other the social costs of water improvements. This separation was highly revealing of how a political-economy vision of nature and society had replaced earlier moral or rural-economy visions, dis-embedding people's well-being from that of society as a whole and from the well-being of their ecosystem.

Likewise, when it comes to evaluating the state and its environmental management, I am far less optimistic than Mathis. I agree with him that 'a good social and environmental management of natural resources is not, *per se*, incompatible with private enterprise, providing that state intervention be effective', but the point is – and I agree on this with Castonguay – to specify what exactly do we mean by 'the state', what kind of state we are talking about, what are its purposes, ideology and interests – provided we can group them into a coherent whole. A modern European state coming out of Enlightened absolutism and French colonial rule, the Kingdom of Naples (and later of the Two Sicilies) featured a number of internal contradictions, e.g. between its improving aims and the persistent financial restraints that prevented it from completing the water schemes of engineer De Rivera, head of the Water and Forest administration. Overall, the state was at the same time a major 'improvement' agent and a cause of environmental disorder and devastation in itself, due to its position within international trade and military configurations, implying wars, revolutions and imperial domination. Consequently, mine is not a 'blame-it-on-the-state' narrative, as rather an attempt at accounting for the different sets of social agencies and cultures that interacted in the shaping of the Liri Valley's environmental transformation during the 19th century.

Finally, Castonguay argues that the book should have addressed the issue of urban water infrastructures and distribution system. Well, it is true I do not take that

aspect into consideration, but the criticism is somehow ill-posed because Castonguay assumes the existence of such a system and imagines an urban context, which in fact were not there. The place I am telling about was, and continued to be despite a century-long industrialization process, a mostly rural place. Despite being named ‘the Manchester of the two Sicilies’, Isola Liri was a small settlement of a few thousands people, and most of the laborers who worked in its factories continued for a long time to live in sparse rural settlements throughout the valley. Sora, the head of district and also a major industrial town, counted about 12,000 people in the 1860s. Modern water infrastructures and distribution systems only came to such places well into the 20th century. Up to that point, water use for domestic purposes was not a recorded city business. We can imagine it was mainly a task for women getting water directly from the river – as the book’s front picture seem to suggest. In that sense, I accept Castonguay’s criticism, for I could have given more relevance to the issue of how river enclosures and industrialization impacted the everyday life of those local women and the Liri Valley people in general in terms of reduced access to livelihood resources.

Overall, I think the reviewers give a fair view of what the book offers and of its limitations, but there is one last aspect that I would emphasize: I intended this book as a contribution on the environmental history of Mediterranean Europe, and Mediterranean climate, geology and hydrology play a big part in its narrative. The book interacts with a tradition of studies on river degradation and flood risk in Italy, that from G.P. Marsh to modern-day environmental historians, has constituted a major theme for scholars and policy makers alike. The point I try to make is that the production and reproduction of hydrological instability – what in the late 18th century came to be termed the ‘disorder of water’ – had much to do with shifts in land and water property: it was a general process of private appropriation of nature what mostly caused deforestation, soil erosion, river damming and obstruction, while increasing social vulnerability to environmental risk. This state of things was a product, I argue, of misleading interpretations of the relationship between private and public interest, which characterized government cultures of the 19th century. To ‘save’ the Liri Valley, I conclude, “that is to have at last a sustainable and socially equitable interaction with the river, we might need a new kind of political economy: one that helps us to see water as neither private nor public, but as belonging to the sphere of the common; and – perhaps even more challenging – to develop a more comprehensive idea of the ‘common’, aware of social inequalities and inclusive of the non-human living world.”

About the Contributors

Stefania Barca is a senior researcher at the Centre for Social Studies at the University of Coimbra in Portugal. She has taught economic and environmental history in several Italian universities, and held visiting appointments at Yale University and the University of California, Berkeley. *Enclosing Water* was awarded the European Society for Environmental History's Turku Prize for best book in 2011.

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Jacob Darwin Hamblin is Associate Professor of History at Oregon State University. His books include *Arming Mother Nature: The Birth of Catastrophic Environmentalism* (Oxford, in press); *Poison in the Well: Radioactive Waste in the Oceans at the Dawn of the Nuclear Age* (Rutgers, 2008); and *Oceanographers and the Cold War* (University of Washington Press, 2005).

Charles-François Mathis is Professeur Agrégé (PRAG) at the University of Paris-Sorbonne. He is the author of *In Nature We Trust: Les Paysages Anglas à l'ère Industrielle* (PUPS, 2009), which won several book prizes, including the 2012 History of Europe Book Prize by the Association of Historians (France).

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