

Interactive comment on “Rivers we can’t bring ourselves to clean – historical insights into the pollution of the Moselle River (France), 1850–2000” by R. J. Garcier

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First of all, I would like to thank the anonymous referee for her/his very close reading and sharp, stimulating comments. Six points have been raised, which I will try to answer in succession.

1. "For example, it would have been useful to have one or two well developed examples that illustrate the dialectical interaction between "structural" and "semiotic" factors."

In his "Something New under the Sun", J.R. McNeil argues very convincingly that the twentieth century has seen environmental changes unmatched in human history. However, the cultural "conditions of possibility" of such changes remain somewhat elusive. McNeill shows that the "big ideas" (ideologies that developed in the twentieth century)

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had a strong environmental impact, even if they were not specifically environmental per se. On a more local scale, I think that an important factor was how these environmental changes were given a meaning. That meaning was closely linked to the cultural values invested in natural objects. My hypothesis is that severe structural changes created by human action must be connected to changing cultural perspectives on natural objects. These cultural perspectives do not only derive from very wide ethical and philosophical backgrounds (as in Lynn White's celebrated article on "The Historical Roots of Our Ecological Crisis") or from McNeill's "big ideas" but also to the very pragmatic cultural values invested in forests, rivers, etc.

One such example is the Yangtse river in China. Always an essential cultural object in Chinese culture, it has undergone massive changes in the last decade. It has been dammed to prevent floods and enable irrigation, with severe consequences on sediment transit. In the process, many localities and historical sites of importance have been permanently flooded. Human pressures on the river were compounded by heavy pollution and fishing. As a consequence, in August 2007, new reports declared that the Yangtze dolphin, locally known as "baiji", had gone extinct. It used to be a symbol of the river and an auspicious sign for fishermen. Such visible modifications of the river environment express deep changes in the relationship the Chinese society entertains with the river and the risks and values connected to it.

In another example, Tim Cooper has shown how such cultural changes have affected the cultural representations of "wastelands" (paper given at the ESEH conference in Amsterdam, June 2007). Reflecting upon the notion of waste, Cooper shows that it derives from the word "wasteland", itself stemming from an old French word meaning "large, empty space". In historical times, wastelands were never useless spaces: they were put to many uses (grazing cattle, collecting reeds, etc.) The cultural requalification of such spaces (and especially marshlands) was a precondition to their subsequent physical transformation. In the eighteenth century, they began to be seen as unproductive and unhealthy by agrarian theorists and later, hygienists. This en-

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abled enclosures and for wetlands, drainage, etc. The economic transformation of wastelands was backed by discourses and cultural representations strongly imbued with moral qualifications.

I will expand these examples further in the revised article.

2. "It also would have been helpful had the author clearly stated how the case study of the Moselle illustrates the theoretical framework suggested by the model. As the case study unfolds, the model so carefully developed at the beginning of the article becomes a shadowy off-stage presence."

For the Moselle, the case is clear. The river, up to the late 1860s, was not very much impacted by industrial effluents. Fishing was plentiful, river channel and quality had undergone very few alterations (cf. response to other referee). The hydro-morphological characteristics of the river made all engineering changes difficult and costly. The river was celebrated for its landscapes. Things changed with the advent of heavy industry. Population boomed. Industrial plants began to discharge effluents in the watercourse. The river itself was recalibrated. I will expand on these matters in the revisions and introduce some quotations from archival matters showing that this was accompanied by a change in the discourses held about the river system and its functions. For example, here is the conclusion of a book on the Moselle commissioned by the Commerce and Industry Chamber of the city of Metz in 1932. The book celebrated the completion of a set of engineering works designed to allow shipping of industrial products. A canal was built, partly dug alongside the river, partly using the river bed. This is how the author ends his lengthy development:

"And now, we will go see the finished works. Some will regret the modification of a familiar landscape. [...] But the consideration of the wealth, the jobs, the affluence brought to our region by the completed works will console the poet, the fisherman and the stroller alike. And then, will the landscape be less beautiful? [...] Some landscapes are divine, some are artistic but some others are simply human. They bring

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about, more than others, work and travel; they induce, as much as others, meditation. Some have said, maybe with a little pomposity, that factories were cathedrals of labour and they have been celebrated by a poet, the poet of sprawling cities, of the great Flemish towns [the poet Emile Verhaeren]. Canals are rivers of labour; and these rivers are beautiful." (Albert Houpert, *La Moselle canalisée : des Nautae gallo-romains au Camifemo, Metz, Chambre de Commerce et d'Industrie*, 1932, p. 172)

3. "Perhaps the following might be useful additions to the sources cited"

Thank you very much for bringing these materials to my attention.

4. "On balance, however, the article would be improved if the author strengthened and sharpened the conclusions. [...]Based upon the careful stating of the analytical model and the development of the Moselle River case study, what is the contribution of this piece that adds to what we know about the historical relationship between people and rivers?"

The Moselle case study (fig. 5) shows that there is no direct connection between the objective level of pollution and the social and administrative response to it. In other words, it is not because people "become aware" of a problem that an efficient pollution control strategy will be devised. Such as strategy is directly linked to the way pollution is constructed as a problem and to other factors (most notably, the social consensus about environmental degradation). In the paper, I argue that, on the Moselle, four overlapping management strategies have been historically implemented, with varying results. This has important implications for river management, because it shows that very general ideas that describe new management modes (integrated management, stakeholder participation) can stumble upon local conditions, and more specifically, upon local consensus and local values associated with rivers and river uses.

5. "It would have been interesting, and valuable, for the author to have offered some conclusions about international similarities and differences in the pollution history of the Moselle."

To my knowledge, there exist very few historical studies that deal specifically with river pollution (one exception is Oosthoek, 2002). The literature on the Ruhr region shows, however, large similarities with the Moselle case, especially the advent of local consensus on environmental degradation. The Moselle case is singular for two reasons. First of all, the degradation of the river by industrial effluents discharge is rather recent, compared with other industrial regions in Europe especially. The pace and intensity of this degradation make it historically tractable, because the archival materials span a limited period of time. Then, the Moselle announces some of the latter developments of international river pollution law: International Commissions for the Protection of the Moselle and the Rhine against pollution were created at the beginning of the 1960s, setting the stage for further developments in Europe (the Commission for the protection of the Rhine against Pollution, and later, the Elbe, Oder Commissions, etc.). I will try to dwell on these aspects in the revised version of the paper.

6. "Unfortunately, the article does not cite those primary materials, so it is hard for a reader to assess

their impact on the author's argument and conclusions. The present article seems to be based on the author's dissertation."

The latter assumption is absolutely correct. For the purpose of writing the dissertation cited in reference, I used archival sources of many origins. However, my intention in this paper was to provide a general overview stretching from the nineteenth century to the present, making difficult the inclusion of detailed references (and most notably, of specific archive files). I fully acknowledge that such a choice diverges from the canons of historical writing. In the revised version of the paper, I will try to find a middle way between the requirements of broad perspectives and detailed citations.

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