



# Cold War Pastures: Garrett Hardin and the “Tragedy of the Commons”

**Fabien Locher**

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### Cold War Pastures: Garrett Hardin and the “Tragedy of the Commons”

Fabien LOCHER

Over the last forty years, its influence has not waned. Many studies in economics, law, history, sociology, anthropology, and political science have made use of it.<sup>1</sup> Its title – a reference to its core argument – has become a term commonly used in the social sciences and the public discourse. “The Tragedy of the Commons,” an article penned by biologist Garrett Hardin and published in 1968, has become a reference that has subsequently shaped debates on property, resource management, and the links between economic organization and environmental sustainability.<sup>2</sup>

The argument is well known. It rests on a thought experiment: a pasture, shared in common by self-interested herders, heads toward inevitable ruin because of their individual actions. Hardin’s goal is to demonstrate that common property is incompatible with a sustainable exploitation of resources. Since the publication of the article, many studies have attempted to test Hardin’s argument on the basis of facts.<sup>3</sup> Sociologists, anthropologists, and historians have studied concrete cases of management and invalidated Hardin’s conclusion: for centuries, forests, pastures, and fishery resources have been exploited in common without heading for destruction.<sup>4</sup> The volume of this empirical corpus coincides with the extraordinary success of the Hardinian argument in the economic and legal fields. In the 1970s and 1980s, the then-ascending neoliberal school of thought appropriated the argument. “New resource economics” turned the alleged “tragedy of the commons” into a symbol of its struggle to promote private individual property as the only rational tool to manage resources. Scholars made use of the argument to deal with forests,

1. In August 2012, a search in the Web of Science database returned 4,320 citations in English-language scientific articles. This does not include books and publications in languages other than English.

2. Garrett Hardin, “The Tragedy of the Commons,” *Science* 162 (December 13, 1968): 1243-1248.

3. For a recent example, see T. Chris Smout, “Garrett Hardin, the Tragedy of the Commons and the Firth of Forth,” *Environment and History* 17, no. 3 (2011): 357-378.

4. See the examples given in chapter 3 of Elinor Ostrom, *Governing the Commons: The Evolution of Institutions for Collective Action* (Cambridge: Cambridge University Press, 1990).

fisheries, and underground resources, as well as radio frequencies, parking spots, or pollution. It spread throughout legal scholarship and virtually appeared in all studies on property.<sup>5</sup>

From the very beginning, a number of economists challenged Hardin's reasoning. The publication in 1990 of *Governing the Commons* by Elinor Ostrom (recipient of the Nobel Prize in Economics in 2009) is an important milestone in the challenge to Hardin. Ostrom and the neoinstitutionalists have not been, however, the only ones to criticize the Hardinian argument and its uses. From the very beginning, supporters of ecological economics also denounced the ongoing confusion between "commons" and "free access,"<sup>6</sup> an underlying critique of Hardin's argument was also present among those who, following Michael Heller, pointed out the potentially paralyzing effect of exclusive property on economic activity and innovation, and spoke of a "tragedy of the anticcommons."<sup>7</sup> Despite all those challenges, however, the "tragedy of the commons" still haunts current debates on environmental regulation, property, and the possibility of alternative forms of appropriation of material and immaterial resources.

The present article grew out of my inquiries regarding one intriguing and surprising point: while much has been written about the "tragedy of the commons," we know very little about the historical logics that led to its elaboration. We also know very little about its author, Garrett Hardin, his trajectory, his goals, and the background against which his arguments made sense when he decided, in 1968, to articulate a line of reasoning that sent shockwaves that rippled all the way to the present and to our current environmental debates and reflections on the digital commons.<sup>8</sup> It is as though the imagined scene

5. According to R. Samuel Deese, "A Metaphor at Midlife: 'The Tragedy of the Commons' Turns 40," *Endeavour* 32, no. 4 (2008): 153, the turning point was the publication of A. Ackerman, ed., *Economic Foundations of Property Law* (Boston: Little Brown and Co, 1975).

6. Juan Martínez-Alier, *The Environmentalism of the Poor. A Study of Ecological Conflicts and Valuation* (Cheltenham: Edward Elgar, 2002), 75-77. This fundamental objection was raised as early as the 1970s in Siegfried Von Ciriacy-Wantrup and Richard C. Bishop, "Common Property as a Concept in Natural Resource Policy" *Natural Resource Journal* 15 (1975): 713-727. It began to take shape even earlier in 1971 in Siegfried Von Ciriacy-Wantrup "The Economics of Environmental Policy" *Land Economics* 47, no. 1 (1971): 43-44, based on the distinction between the legal categories of *res nullius* and *res communis*.

7. Michael Heller, "The Tragedy of the Anticcommons: Property in the Transition from Marx to Markets" *Harvard Law Review* 111 (1998): 621-688.

8. Studies of environmentalism, neo-Malthusianism, and resource economics mention Hardin only in passing. But see Bjorn Linner, *The Return of Malthus: Environmentalism and Post-War Population-Resource Crises* (Isle of Harris, UK: White Horse Press, 2003), 170, 173, 190; and Matthew Connelly, *Fatal Misconception: The Struggle to Control World Population* (Cambridge, MA: Harvard University Press, 2008), 247-248. Eric Ross, and Thomas Robertson even more so, paid greater attention to it: Eric Ross, *The Malthus Factor: Population, Poverty and Politics in Capitalist Development* (London: Zed Books, 1998), 74-78, 212-213; Thomas Robertson, *The Malthusian Moment: Global Population Growth and the Birth of American Environmentalism* (New Brunswick, NJ: Rutgers University Press, 2012), 153-155, 158-159, 187, 190-191, 197-198. A few bibliographical pieces are also available: Carl Jay Bajema, "Garrett James Hardin: Ecologist, Educator, Ethicist and Environmentalist" *Population and Environment* 12, no. 3 (1991): 193-212; "Garrett Hardin. 1915-2003," *Proceedings of the American Philosophical Society* 149, no. 3 (2005): 413-419.

of the Hardinian pasture had pushed its author into the shadows, together with the logic and the reasons that motivated him to speak about the subject.<sup>9</sup>

For a decade or so, the different facets of the “commons” issue have generated great interest among economists, historians, and political philosophers.<sup>10</sup> But if we want to be able to address the theoretical challenges it raises, we will have to free our reflections from the preformatted frameworks we have inherited from the past.<sup>11</sup> In order to do so, we will need a better historical understanding of the terms of the debate. This article seeks to contribute to it, by providing this kind of understanding on Garrett Hardin and the “tragedy of the commons”, while shedding light on some little-known aspects of twentieth-century US environmentalism.<sup>12</sup>

### POPULATION, RESOURCES, AND CONFLICT

Hardin’s intellectual and political trajectory owes much to the context in which he socialized as a biologist.<sup>13</sup> He studied in the 1930s at the University of Chicago, which, at the time, was the epicenter of scientific ecology in the United States.<sup>14</sup> His mentor was Warder C. Allee, a prominent zoologist and the leader of the so-called “organicist” ecologist approach. The logic of that school of thought was predicated on the study of animal populations,

9. Alice Ingold, however, should be praised for providing some context in an article on the posterity – and overcoming – of the Hardinian argument in debates on the management of irrigation systems: Alice Ingold, “Les Sociétés d’irrigation: bien commun et action collective” *Entreprises & Histoire* 50 (2008): 19-35.

10. In history, important works have been published in the 2000s, and among them: Marie-Danielle Demélas and Nadine Vivier, eds., *Les Propriétés collectives face aux attaques libérales (1750-1914). Europe occidentale et Amérique latine* (Rennes: Presses Universitaires de Rennes, 2003); Martina De Moor, Leigh Shaw-Taylor, and Paul Warde, eds., *The Management of Common Land in North West Europe, c. 1500-1850* (Turnhout, Belgium: Brepols, 2002); Peter Linebaugh, *Magna Carta Manifesto: Liberties and Commons for All* (Berkeley, CA: University of California Press, 2008). In the field of economics, see the work of Benjamin Coriat and that of the ANR program “PROPICE.” In the field of political philosophy, the issue of “commons” is at the core of recent reflections in Antonio Negri and Michael Hardt, *Commonwealth* (Paris: Stock, 2012) and Antonio Negri, *Inventer le commun des hommes* (Paris: Bayard, 2010).

11. This point was stressed in David Harvey, “The Future of the Commons,” *Radical History Review* 109 (2011): 101.

12. I would like to thank Caroline Douki, Marc Elie, Frédéric Graber, Dominique Pestre, and Antonin Pottier, as well as the editorial board of the *Revue d’Histoire Moderne et Contemporaine* for their suggestions and comments.

13. We know about Hardin’s training thanks to the series of interviews he gave to the Davidson Library oral history program at University of California, Santa Barbara in 1983. Using those fourteen interviews is a delicate matter: the interviewer who conducted them was not very experienced, the questions are often a bit anecdotal, and Hardin is the one who drives the exchange and turns it into a personal platform. The transcription is preserved in the archive papers Hardin donated to UCSB: Garrett Hardin papers, Davidson Library, University of California, Santa Barbara, box 1. I would like to thank the archivists David Gartrell and Amanda Demeter who gave me access to this series. On Hardin’s trajectory before 1945, see interviews #1 to #4.

14. Together with the Carnegie Institution in Washington, to which Frederic Clements, the great promoter of organicist plant ecology, was attached: Eugène Cittadino, “Ecology and the Professionalization of Botany in America,” *Studies in the History of Biology* 4 (1980): 171-198.

viewed as superorganisms whose standard behaviors and internal logic must be studied.<sup>15</sup> Organicist ecology was very influential in the United States during the interwar period, not only in biology but also in the social sciences, in the media, and among political and administrative elites. It inspired the sociologist Robert Park in his project of a science of “human ecology” – an approach that would eventually lead to the creation of the Chicago school of sociology.<sup>16</sup> In the second half of the 1930s, the analysis of population dynamics was a key issue for organicist ecologists. Their questioning focused on the existence of a law that was thought to organize animal and human populations. The law is known as the “logistic curve,” or “S curve:” after a period of unhindered growth, all populations will inevitably reach a saturation threshold and oscillate around a maximum value dictated by internal mechanisms and external conditions.<sup>17</sup>

The biologist Raymond Pearl had proposed this law in 1920 to account for the development of the US population since 1790, based on an analysis of census data.<sup>18</sup> Pearl and Lowell J. Reed, his coauthor, projected that, on that basis, a demographic saturation of the US territory would occur within a few decades. In the following years, Pearl went further when he posited – and sought to establish empirically – the validity of the S curve for all human populations.<sup>19</sup> But his attempts to generalize did not stop there: citing studies on the growth of microorganisms, and getting into the experimental study of insects populations, Pearl broadened his approach and, in 1927, ended up claiming that this law applied universally to all human and animal groups.<sup>20</sup>

In the 1920s and 1930s, a whole subfield became structured around the – controversial – reception of Pearl’s theses. Despite the critiques, and thanks to his academic position at Johns Hopkins University and the financial support of the Rockefeller Foundation, Pearl welcomed US and foreign researchers, who furthered his work on statistical analysis and the study of micropopulations. Russian biologist Georgii Gause was in consonance with that specific research when he published, in 1934, a dissertation that played a decisive role in the adoption of the S curve and its study in the lab by animal ecologists

15. Sharon E. Kingsland, *Modeling Nature. Episodes in the History of Population Biology* (Chicago: University of Chicago Press, 1985), 50-76, and Gregg Mitman, *The State of Nature. Ecology, Community, and American Social Thought, 1900-1950* (Chicago: University of Chicago Press, 1992).

16. Catherine Rhein, “L’Écologie humaine, discipline-chimère” *Sociétés Contemporaines*, 49-50 (2003): 167-190.

17. For an analysis of population-resources theories see Michel Pirouette et al., “Le Renouveau des théories population-environnement,” in *Environnement et sociétés rurales en mutation: approches alternatives*, ed. Michel Picouet et al. (Paris: IRD, 2004), 17-43 (esp. 22-26).

18. Raymond Pearl and Lowell J. Reed, “On the Rate of Growth of the Population of the United States since 1790 and its Mathematical Representation,” *Proceedings of the National Academy of Sciences of the USA* 6 (1920): 275-288. In this section, my analysis is based on the classic work Kingsland, *Modeling Nature*.

19. Raymond Pearl, *Studies in Human Biology* (Baltimore: Williams & Wilkins, 1924), 584-637.

20. Raymond Pearl, “The Growth of Populations,” *The Quarterly Review of Biology* 2 (1927): 532-548.

in the United States.<sup>21</sup> Gause focused on micropopulations to examine their overall dynamics and also, in doing so, to study how the "struggle for life" functioned in a situation of environmental constraint.

These studies opened new horizons for animal ecology. In 1936, Hardin seized the opportunity and went to Stanford to write his thesis, working on this topic under the supervision of Willis Johnson, a student of Allee and a specialist of microorganisms.<sup>22</sup> He cultivated unicellular organisms called *Oikomonas*, and studied their reaction to changes in their food resources and being exposed to other species. Under the microscope, Hardin tracked the phenomena of growth, competition, and equilibrium that affected those micropopulations.<sup>23</sup>

He defended his thesis in 1941,<sup>24</sup> just before the attack on Pearl Harbor, but because he was unfit to serve because of the effects of polio, he did not go to war. He spent the war in the plant-biology lab that the Carnegie Institution funded on the Stanford campus, working on algae culture. But his vocation for research was limited, and he turned away from it in 1946 when he accepted a teaching position at Santa Barbara College, an institution that was about to become part of the University of California system.<sup>25</sup> He spent more than forty years at UCSB. He no longer worked in the lab, but focused his energy on theoretical work, teaching, writing, and social and environmental activism.

He published his first book in 1950.<sup>26</sup> It was a biology textbook that enjoyed a certain success. It is not cited very often, which is unfortunate because it is a very informative read.<sup>27</sup> In it, Hardin mainly deals with human physiology, cellular biology, and the theory of evolution. But he also decided to tackle two issues that he deemed critical: the preservation of natural resources and population control.

Hardin lived at the time of the "dust bowl," the large-scale erosion of the US plains that began in the late 1920s and reached its peak on the eve of World War Two.<sup>28</sup> In 1950 he denounced the ill-suited agricultural practices that led

21. Georgii Gause, *The Struggle for Existence* (Baltimore: Williams & Wilkins, 1934). Gause got acquainted with Pearl's work thanks to his mentor Vladimir Alpatov, who had spent several months in Pearl's lab thanks to a grant of the Rockefeller Foundation.

22. In the 1940s, the two men collaborated to develop a committee of animal ecology with the support of the National Research Council and the Rockefeller Foundation. Their correspondence on that topic is available in the Allee Collection at the University of Chicago: Special Collections Research Center, University of Chicago, box 19, folder 4.

23. Garrett Hardin, "Physiological Observations and their Ecological Significance: A Study of the Protozoan, *Oikomonas Termo*," *Ecology* 25, no. 2 (1944): 192-201; Hardin, "Symbiosis of *Paramecium* and *Oikomonas*," *Ecology* 25, no. 3 (1944): 304-311.

24. Garrett Hardin, "The Ecology and Physiology of *Oikomonas Termo*, and the Significance of *Oikomonas* in the Nutrition of *Paramecium Multimicronucleatum*" (PhD diss., Stanford University, 1941).

25. Letter from Hardin to Allee, February 18, 1946: Allee Collection at the University of Chicago, box 18 folder 1.

26. Garrett Hardin, *Biology: Its Human Implications* (San Francisco: Freeman and Co, 1950).

27. But see Ross, *The Malthus Factor*, 76-77.

28. Donald Worster, *Dust Bowl: The Southern Plains in the 1930s* (New York: Oxford University Press, 1979); Christophe Masutti, "Le Dust bowl, la politique de conservation des ressources et les écologues aux États-Unis dans les années 1930" (doctoral diss., Université Louis Pasteur [Strasbourg 1], 2004).

to this scourge and celebrated the measures that the federal government had taken to tackle it.<sup>29</sup> There were many such measures, implemented as part of the New Deal: acquisition and rehabilitation of lands by the state, efforts to promote “good practices,” and the implementation of environmental-protection requirements for agricultural subsidies. They also included the creation of a public entity in charge of fighting erosion, the Soil Conservation Service, which acted under the authority of the USDA.<sup>30</sup> The goal was not limited to dealing with the catastrophic situation, for the action of the new service was also conceived as a part of a more general political agenda that connected economic interventionism and resource preservation. The underlying idea was that resources must be managed collectively in order to improve economic efficiency and to promote social well-being.<sup>31</sup>

In 1950, Hardin thus began supporting a model of resource management in which the state had a significant role to play.<sup>32</sup> On the topic of forestry, he stressed that companies could only adopt short-term strategies and that long-term management required a public intervention. He cautioned that the deterioration of soils had contributed, in the past, to the demise of great nations<sup>33</sup> and that this could happen again in the United States.

According to him, another threat hung over American society: the decline of its biological capital. He considered that intelligence was hereditary and that the least able individuals were also the ones who had the most children. Hence, average intelligence would decrease. The solution he proposed consisted of a deliberate policy of “improvement” of the population. Hardin was and would always remain a resolute supporter of eugenics, in its so-called “positive” version (promoting the reproduction of select individuals), but also in its negative version (preventing others from reproducing, by force if necessary). In 1950, he openly supported the sterilization of the “feeble minded” and tried to devise incentives that could help increase the fecundity of the best-educated people – that is, in his view, the most intelligent individuals.<sup>34</sup>

Eugenics became very influential in the United States from the beginning of the twentieth century.<sup>35</sup> Many scientists joined and shaped the movement by creating institutions such as the Eugenics Record Office (in 1910) and the American Eugenics Society (in 1922). Several states adopted eugenics-inspired laws that prevented the mentally ill from marrying and organized their sterilization.

29. Hardin, *Biology*, 550-559.

30. It was founded in 1935. A similar but more limited service existed from 1929 within the USDA. Masutti, “Le Dust bowl,” 33.

31. Masutti, “Le Dust bowl,” 68-70.

32. Hardin, *Biology*, 558.

33. Hardin, *Biology*, 554.

34. Hardin, *Biology*, 609-621.

35. The bibliography on the history of eugenics in the United States is massive. See in particular Alexandra Minna Stern, *Eugenic Nation: Faults and Frontiers of Better Breeding in Modern America* (Berkeley, CA: University of California Press, 2005), and Thomas C. Leonard, “Eugenics and Economics in the Progressive Era,” *Journal of Economic Perspectives* 19, no. 4 (2005): 207-224.

Eugenicist arguments also emerged in debates on immigration policies: lobbying groups, such as the Immigration Restriction League, demanded that borders be closed in order to preserve the "quality" of the American population. Those claims found a political expression at the very beginning of the twentieth century that was reflected in the increasing number of immigration laws that sought, among other things, to prevent the feeble-minded or people with hereditary diseases from entering the country. The proponents of those regulations triumphed with the passing of the Immigration Act of 1924, which further toughened the selection process and favored immigration from northern Europe.

In the 1930s, and even more so after World War Two, eugenics lost much of its influence in the United States. Some states, however – including California – kept their sterilization programs active into the 1960s. When in 1950 Hardin showed his support for that practice, he was not referring to a hypothetical measure but was defending the legitimacy of a disposition already in place. His membership of the American Eugenics Society<sup>36</sup> – where he would stay active in the long run, even assuming leadership duties in the early 1970s<sup>37</sup> – is evidence of his long-term commitment to the cause of eugenicism.

After the publication of his textbook, Hardin turned to theoretical inquiry and the popularization of the theory of evolution, the laws of heredity, and the applications of biology to the study of social phenomena. He came to a certain prominence thanks to his work that, following in Gause's footsteps, focused on the so-called "competitive exclusion principle," which posited that two species cannot be in absolute competition within a given ecosystem.<sup>38</sup> The principle was absolutely not meant as a celebration of peace between species: on the contrary, it predicted the unavoidable extermination of one species by the other.<sup>39</sup> In Hardin's view, Darwin's greatest legacy was the idea that competition between individuals, groups, and species was inherent in biological life. In his view, this "natural" state of conflict was integral to human groups. Like ecosystems, societies are battlefields where the struggle for survival rages on: "No activity of man is without competitive use," Hardin wrote in 1959.<sup>40</sup>

Human collectives, as Hardin describes them, are spaces of generalized competition, where individuals, whose capacities are dependent on genetics, confront one another. Social and cultural norms shape that competition: this is the defining feature that distinguishes human beings from animals. Because man's morals, political organizations, and economic rules always have consequences on biological selection, he has no choice but to be his own "breeder."

36. See the membership list the society published in 1956: *Eugenics Quarterly* 3 (1956): 245.

37. He was a member of the board of directors between 1971 and 1974. See *Social Biology* 18, no. 3 (1971) to 21, no. 4 (1974), "American Eugenics Society – Officers and board of directors." In the meantime, the society had adopted the more neutral name of Society for the Study of Social Biology.

38. Gause, *Struggle for Existence*; Garrett Hardin, "The Competitive Exclusion Principle," *Science* 131 (April 29, 1960): 1292-1297.

39. Hardin, "Competitive Exclusion," 1293.

40. Garrett Hardin, *Nature and Man's Fate* (New York: Rinehart and Co., 1959), 253.

These theses, as they took a more precise shape throughout the 1950s, conveyed a radical critique of the welfare state and its redistribution policies. Turning the argument on its head, Hardin asked whether supporting individuals who are condemned to be losers because of their natural inferiority is not an unconscious but inverted form of eugenics.<sup>41</sup> In his view, social welfare, and also progressive taxation, contribute to the decline of American society by eroding its genetic capital. Man must come to the realization that he is his own breeder and then discard these institutions and invent new public policies for the improvement of populations.<sup>42</sup>

### CHILDREN OF THE COLD WAR

Until the end of the 1950s, Hardinian sociobiology<sup>43</sup> mainly hinged on reflections on the “quality” of individuals. Hardin’s approach changed in the course of the following decade when he started focusing on what would be – until his death in 2003 – his greatest cause as an intellectual and an activist: neo-Malthusianism.

On that particular point, his trajectory is at the crossroads between two major intellectual and political phenomena of the Cold War era: the emergence of concerns about overpopulation and the depletion of resources on the one hand; and on the other, the intellectual revolution that came about as a result of the generalization of conceptual tools that had been originally devised for military purposes.

Let us first consider the emergence of the demographic issue. After 1945, as the USA and the USSR faced each other and new international institutions emerged, population was rethought as an object on a global scale. The growth of the global population became a generally recognized fact and the issue was conceptualized within a transnational perspective.<sup>44</sup> Most of the concerns and surveys focused on the growth of populations and their migrations in the southern hemisphere and on the evolution of poor populations in the northern hemisphere.

In the United States, debates on overpopulation lasted throughout the post-1945 decades but the issue came to particular prominence in the media and on the political stage on two occasions: in the second half of the 1940s, and in the late 1960s and early 1970s. In both cases, publishing successes served

41. Hardin, *Nature*, 338, and Hardin, *Biology*, 619-620.

42. Hardin further analyzes the effects of hereditary selection between rich and poor in: Garrett Hardin, “Genetic Consequences of Cultural Decisions in the Realm of Population,” *Social Biology* 19, no. 4 (1972): 350-361.

43. He began to claim his affiliation with that term in the 1970s. He borrowed it from the eponymous book by Edward Wilson, *Sociobiology: The New Synthesis* (Cambridge, MA: Harvard University Press, 1975) which he defended staunchly after its controversial publication: Garrett Hardin, “Sociobiology – Aesop with Teeth” *Social Theory and Practice* 4, no. 3 (1977): 303-313.

44. Connelly, *Fatal Misconception*, chapter 4.

to catalyze intense debates on demographic risks. The publication, in 1968, of Paul Ehrlich's *The Population Bomb* heralded the comeback in full force of this theme at the end of the 1960s.<sup>45</sup> But Ehrlich's argument was not new: when it came out, opinions on this topic had been published and voiced for two decades, and Ehrlich merely appropriated a phrase – "population bomb" or "P bomb" – that was already in circulation.

Another book, published in 1948, was decisive for highlighting overpopulation as a global threat.<sup>46</sup> *Road to Survival* met spectacular success as soon as it came out in print.<sup>47</sup> Its author, William Vogt, was a specialist in resource conservation who worked in South America for the Pan American Union.<sup>48</sup> His book offers a dire assessment of the depletion of global resources, and, in this respect, it can be viewed as the first best seller of US environmentalism fifteen years before Rachel Carson's *Silent Spring*.

Historians have stressed the importance of Carson's book, very often to depict the 1960s as the "crucible" of modern environmentalism.<sup>49</sup> As early as 1977, however, Donald Worster had proposed on the contrary to consider July 16, 1945 – the first nuclear explosion in history – as the starting point of "the age of ecology."<sup>50</sup> His goal in doing so was to underscore the emergence, in reaction to the atomic threat, of a new way of reflecting on the potentially tragic, global, and definitive consequences of human actions. But historians have only recently started to pay attention to the environmental thought of the period between 1945 and 1965.<sup>51</sup>

Thomas Robertson has shed light on the links between post-1945 reflections in the United States on shortages and the protection of global resources on the one hand, and the experience of World War Two and the Cold War on the other.<sup>52</sup> On a planet that has become a battlefield, the surveying, exploitation, and conservation of resources represent vital interests. Vogt's arguments address

45. Paul Ehrlich [and Anne Ehrlich, uncredited], *The Population Bomb* (New York: Sierra Club-Ballantine Books, 1968).

46. Pierre Desrochers and Christine Hoffbauer, "The Post War Intellectual Roots of the Population Bomb: Fairfield Osborn's 'Our Plundered Planet' and William Vogt's 'Road to Survival' in Retrospect," *The Electronic Journal of Sustainable Development* 1, no. 3 (2009): 37-61; Robertson, *Malthusian Moment*, 36-60.

47. David C. Duffy, "William Vogt: A Pilgrim on the Road to Survival" *American Birds* 43, no. 5 (1989): 1256-1257.

48. Duffy, "William Vogt," 38; William Vogt, *Road to Survival* (New York: Sloane Associates, 1948).

49. Ramachandra Guha, *Environmentalism: A Global History* (New York: Longman, 2000), 1; and John McNeill, *Something New Under the Sun: An Environmental History of the Twentieth-Century World* (New York: W.W. Norton & Co, 2000), 336-340.

50. Donald Worster, *Nature's Economy: The Roots of Ecology* (San Francisco: Sierra Club Books, 1977), 339-348.

51. Thomas Robertson, "This Is the American Earth: American Empire, the Cold War, and American Environmentalism" *Diplomatic History* 32, no. 4 (2008): 561-584; R. Samuel Deese, "The New Ecology of Power: Julian and Aldous Huxley in the Cold War Era," in *Environmental Histories of the Cold War*, ed. John R. McNeill and Corinna R. Unger (Washington, DC: German Historical Institute, 2010), 279-300; Yannick Mahrane et al., "De la Nature à la biosphère. L'invention politique de l'environnement global, 1945-1972," *Vingtième Siècle* 113 (January-March 2012): 127-141.

52. Robertson, "American Earth."

indirectly this specific geostrategic configuration. The other distinctive feature of the book is its unabashed Malthusianism: it primarily blames the depletion of resources on a population growth, which, in the South, is no longer kept in check by death and diseases.<sup>53</sup> Vogt's solution to contain the issue was to promote contraception, to make international aid dependent on birth-control campaigns, and to pay for "voluntary" sterilizations.<sup>54</sup> This book crystallized a particular theoretical and political configuration, a demoresourcism that fitted together a reflection on the environment, a Malthusian rationalism, and a global biopolitical project, for the purposes of US dominance. Hardin and Ehrlich became its champions in the 1960s, in the context of the emergence of new threats (pollution), new promises (the exploitation of oceans), and new fields of knowledge (Earth-system and biosphere sciences). Ehrlich acknowledged that he first discovered Malthus's theses thanks to Vogt.<sup>55</sup> Hardin read *Road to Survival* as soon as it came out, but his convictions predated his reading of the book. He formed them in the 1930s, when he was in contact with Allee, who professed the Malthusian doctrine in his classes.<sup>56</sup>

The latter, however, had an ambivalent relationship to Malthus's theories. He was mainly interested in situations of low demographic density. He discovered what would be called the "Allee effect," according to which too low a density among a given animal population is detrimental to group interactions, and thus to the survival rate of individuals.<sup>57</sup> More generally, his research was geared toward the study of situations of cooperation. His Quaker faith shaped the worldview that underlay his research, that is, a conception of the social and biological orders in stark contrast with Hardin's view of general competition.

The two men also had different opinions on demographic matters. They disagreed about the social mechanisms underlying the S curve – an object of frequent debates in the 1930s.<sup>58</sup> Allee supported a counter-Malthusian interpretation: in his view, the unavoidable transition to equilibrium population was the result of a spontaneous birth-control policy that emerges as a society approaches the material limits of its subsistence.<sup>59</sup> Hardin supported the exact contrary interpretation: in his view, the universality of the S curve marked the posthumous triumph of Malthus, for it extended his theses on the crossing

53. Vogt, *Road to Survival*, 61.

54. Vogt, *Road to Survival*, 279-283. The counterattack was quick to follow. Thus, Josué de Castro, in subsequent editions of his famous work on the "geopolitics of hunger", criticized Vogt: Josué de Castro, *Géopolitique de la faim* (Paris: Éditions ouvrières, 1952), 42-47, 378-380.

55. Andrew Jamison and Ron Eyerman, *Seeds of the Sixties* (Berkeley, CA: University of California Press, 1995), 77.

56. Interview with Garrett Hardin, Davidson Library oral history program, 1983, interview #4.

57. Philip Stephens, William Sutherland, and Robert Freckleton, "What Is the Allee Effect?" *Oikos* 87 (1999): 185-190. Allee also underscored that, at the other end of the spectrum, excessive density heightens conflicts and reduces this rate as well: Warder C. Allee, *Animal Aggregations. A Study in General Sociology* (Chicago: University of Chicago Press, 1931), 101-147.

58. On this point see: Sharon Kingsland, "The Refractory Model: The Logistic Curve and the History of Population Ecology," *The Quarterly Review of Biology* 57 (1982): 29-52.

59. Warder C. Allee, *The Social Life of Animals* (New York: W. W. Norton & Co, 1938), 209-243.

of the exponential curve of population growth with the arithmetic curve of the means of subsistence to the whole animal kingdom. The asymptotic trend announces impending catastrophes: an unleashing of famines, wars, and epidemics that strikes human populations when they overcrowd their living place.

According to him, there is only one solution: to control fecundity. This assessment echoes his conviction, which was already very strong in the 1940s, that the role of science is not so much to control the physical world but rather to empower man to control his own species.<sup>60</sup>

The intervention he made on the control of birth at a conference in the spring of 1963 caused a scandal and made him the champion of the neo-Malthusian cause.<sup>61</sup> He would eventually leverage that fame to denounce relentlessly the effects of overpopulation, on both a national and a global scale. He focused on questions relating to procreation and intervened tirelessly to promote contraception and abortion.<sup>62</sup> Matthew Connelly described the connections, which are puzzling at first sight, that were established in the wake of the antipopulationist struggles: thus Hardin the inegalitarian,<sup>63</sup> a political conservative, was an active member of the Planned Parenthood Organization of America, together with the Reverend Hugh Anwyl, an activist known for his support of the Cuban regime and his action against the intervention in Vietnam.<sup>64</sup>

The profound mutation of fields of knowledge that was catalyzed by World War Two and the Cold War gave Hardin the means to articulate and promote his biopolitical agenda. After 1945, new techno-scientific approaches, elaborated at first to support the fight against Axis forces, spread and ended up redefining the ways of "doing science" in the West.<sup>65</sup> There are three such approaches, which Peter Galison proposed to call "Manichean sciences."<sup>66</sup>

The first one is cybernetics, a byproduct of research on anti-aircraft defense.<sup>67</sup> This approach is best understood as a general grammar of systems:

60. Letter from Hardin to Allee, May 12, 1942. Allee Collection at the University of Chicago, box 18, folder 1.

61. Hardin, interview, FAIR oral history project, 1997, Garrett Hardin papers, box 1.

62. Garrett Hardin, ed., *Population, Evolution, and Birth Control: A Collage of Controversial Ideas* (San Francisco: Freeman and Co, 1964); Hardin, "The History and Future of Birth Control," *Perspectives in Biology and Medicine* 10 (1966): 1-18; Hardin, "The Ghost of Authority" *Perspectives in Biology and Medicine* 9, no. 2 (1966): 289-297.

63. Hardin almost never deals with questions of race. However, his stance in the Bell Curve controversy does not leave much doubt about his inegalitarian convictions. He signed the manifesto entitled "Mainstream Science on Intelligence" published in the *Wall Street Journal* on December 13, 1994, in defense of the book. On that episode, see Éric Fassin, "Discours sur l'inégalité des races. The Bell Curve: polémique savante, rhétorique raciale et politique publique" *Hérodote* 85 (2nd trimester 1997): 61-88. Eugenics and racism have complex relationships, and they are often, but not systematically, associated with one another among actors. See the example given in Stern, *Eugenic Nation*, 131.

64. Hardin, interview, FAIR oral history project, 1997, Garrett Hardin papers, box 1.

65. Amy Dahan and Dominique Pestre, *Les Sciences pour la guerre. 1940-1960* (Paris: Éditions de l'EHESS, 2004).

66. Peter Galison, "The Ontology of the Enemy: Norbert Wiener and the Cybernetic Vision" *Critical Inquiry* 21, no. 1 (1994): 228-266.

67. Galison, "Ontology;" and Geoff Bowker, "How to Be Universal: Some Cybernetic Strategies, 1943-1970," *Social Studies of Science* 23, no. 1 (1993): 107-127.

all objects – from organisms to machines, from biotopes to human societies – are seen as made up of discreet elements, of which cybernetics studies interactions and overall functioning. Game theory, the second approach, was formalized before the war but really took off during the conflict to help track enemy submarines and bombers.<sup>68</sup> It is a mathematics-based theory of rationality that studies all situations of social interaction by analyzing iterative choices of rational decision-makers. A very particular ontology underlies game theory: opaque individual actors populate our world; they are calculating and confrontational, and engaged in struggle to death for their survival or the triumph of their interests. The last approach, operational research, had been elaborated to help hunt down submarines. It borrows elements from the first two approaches, but seeks more specifically to create a science of the management of complex systems.<sup>69</sup>

Those approaches had a profound effect on the dynamics between the various fields of knowledge during the Cold War. Thus in the 1950s already, US ecology began to change its paradigm with a transition from organicist ecology to an approach conceived in terms of “ecosystems” that borrowed its logic from cybernetic reasoning.<sup>70</sup> The Manichean revolution inflected the course of the social sciences as well. Cybernetics influenced the work of anthropologists such as Gregory Bateson and Margaret Mead; sociologists and political scientists used game theory to analyze social deviancy, merchant oligopolies, and political coalitions;<sup>71</sup> and in economics game theory and operational research played a key role in the evolution of the neoclassical paradigm.<sup>72</sup>

Manichean sciences did not only reconfigure the various fields of knowledge, but they also thrived within transepistemic arenas where mathematicians, biologists, social scientists, and military and administration experts crossed path. In the 1950s and 1960s, Hardin was involved in one of those circles, the Society for General Systems Research, which the biologist Ludwig Von Bertalanffy, the mathematician Anatol Rapoport, and the economist Kenneth Boulding had created to promote the methodologies of “Manichean sciences” within the social sciences.<sup>73</sup>

68. Robert Leonard, *Von Neumann, Morgenstern and the Creation of Game Theory: From Chess to Social Science 1900-1960* (Cambridge: Cambridge University Press, 2010).

69. Agatha C. Hughes and Thomas P. Hughes, eds., *Systems, Experts, and Computers. The Systems Approach in Management and Engineering, World War II and after* (Cambridge, MA: MIT Press, 2000) and especially the chapter by David R. Jardini, “Out of the Blue Yonder: The Transfer of Systems Thinking from the Pentagon to the Great Society, 1961-1965,” 311-357.

70. A defining moment was the publication of Eugene Odum, *Fundamentals of Ecology* (Philadelphia: Saunders, 1953).

71. See E. Roy Weintraub, ed., *Towards a History of Game Theory* (Durham, NC: Duke University Press, 1992), 177-204, 207-223.

72. Philip Mirowski, *Machine Dreams. Economics Becomes a Cyborg Science* (Cambridge: Cambridge University Press, 2002).

73. *General Systems – Yearbook of the Society for the Advancement of General Systems Theory* (Ann Harbor: Michigan, 1958), 3, list of members on October 1, 1958 (and in subsequent volumes).

At the beginning of the 1960s, Hardin used cybernetics to reformulate his theses on general competition and the Malthusian threat, and to develop what he called the "cybernetics of competition."<sup>74</sup> He used that approach to analyze the equilibrium population that the S curve predicted as a looped system, stabilized by chains of retroaction such as diseases, famines, and wars – the classic Malthusian curbs on population growth. Influenced by Rachel Carson, Hardin also suggested that pollution should be included among those "feedbacks," thus framing it as a de facto consequence of overpopulation.<sup>75</sup> This is the model that he would eventually call the "Malthusian demostat," in reference to one of the paradigmatic devices of cybernetics, the self-regulated thermostat.<sup>76</sup> In his view, the spread of post-Pasteurian medicine had upset the systems of populations in the South by limiting the retroaction of diseases, and, as a result of a systemic effect, led to the increase in famines there. According to Hardin, a policy of birth control was the only way to bring those systems back to equilibrium and prevent subsistence crises.

Hardin's work in that area belongs to the large corpus of research on social balance and control conducted in the 1950s and 1960s. Cybernetic modelization seemed to pave the way for a rational engineering of societies that would guarantee their stability in a context that was experienced – and conceived – as profoundly agonistic. At the same time, military agencies in the United States promoted research in the social sciences that analyzed extreme socio-natural disruptions (such as earthquakes, floods, or subsistence crises) – research that would become the foundations for the development of modern "disaster studies."<sup>77</sup> This research work was a fundamental strategic issue, because the destabilization of Third World societies could lead them to fall into the Soviet camp.

### THE TRAGEDY OF FINITUDE

Garrett Hardin articulated the argument of the "tragedy of the commons" for the first time in June 1968, in the course of giving a talk<sup>78</sup> that the journal *Science* eventually published, after Hardin rewrote it and cut it by half. The timing had nothing to do with chance. In December 1967, Paul Ehrlich, who was still unknown to the public at large at that point, published his first texts on global overpopulation and the depletion of resources.<sup>79</sup> Shortly after, David

74. Garrett Hardin, "The Cybernetics of Competition: A Biologist's View of Society," *Perspectives in Biology and Medicine* 7 (1963): 58-84.

75. Hardin, "Cybernetics," 64, 77-78.

76. Garrett Hardin, "The Demostat," in *Living within Limits. Ecology, Economics and Population Taboos* (New York: Oxford University Press, 1993), 102-110.

77. Greg Bankoff, "Time Is the Essence: Disasters, Vulnerability and History," *International Journal of Mass Emergencies and Disasters* 22, no. 3 (2004): 23-42.

78. Interview with Garrett Hardin, Davidson library oral history program, 1983, interview 7.

79. First in *The New Scientist* and later in the *Washington Post*: Paul Ehrlich, "Paying the Piper," *The New Scientist* 36 (December 14, 1967): 652-655; Paul Ehrlich, "The Fight against Famine Is Already Lost," *Washington Post*, March 10, 1968.

Brower, the executive director of the Sierra Club (the largest conservationist organization in the United States), invited him to expand his approach in a book. The association oversaw the publication of *The Population Bomb* in 1968. Thus the book had focused the attention of the public on issues of overpopulation and global shortages at the very time when Hardin published his paper in *Science*.<sup>80</sup>

Ehrlich was not the only one to sound the alarm: as we have already seen, demoresourcism in the United States regained in the 1960s some of its influence that had waned in the course of the preceding decade.<sup>81</sup> This second peak of influence benefited from the support of long-standing advocates who were still active, such as Vogt<sup>82</sup> and Henry Fairfield Osborn Jr.,<sup>83</sup> and also from that of a new generation of scientists, experts, and social theorists who, like Ehrlich, denounced the demographic boom, the destruction of resources, and current and future shortages. These positions echoed an increasing concern – encouraged by organizations such as the FAO – about “world hunger.”<sup>84</sup> The famine that struck the Indian province of Bihar in 1966-1967 particularly shocked the public. The United States had then released a massive amount of food aid that was meant to help the population and recover some of its influence on a nonaligned country that was acting more and more autonomously on the global stage.<sup>85</sup> The stakes were very high because that famine was raising questions about the viability of the development model that the West advocated for India, in comparison to the model that Communist China proposed. It is in this context that in November 1967 the sociologist and demographer Kingsley Davis took to the columns of *Science* to defend coercive measures to stabilize population.<sup>86</sup> His intervention triggered an outpouring of reactions, which did not question his assessment but rather the methods recommended. Hardin’s own intervention – and his choice of *Science* as a venue – must also be understood in the context of that particular polemical episode in which he intervened to support Davis and to keep the debate going.<sup>87</sup> The final statement of the UN conference in Teheran in May

80. Even more so because of the publication in 1967 of William Paddock and Paul Paddock, *Famine, 1975!* (Boston: Little Brown and Co, 1967) that dealt with the same themes.

81. Linner, *Return of Malthus*, 151-198.

82. William Vogt, *People! Challenge to Survival* (London: Victor Gollancz, 1961).

83. Henry Fairfield Osborn Jr., *Our Crowded Planet: Essays on the Pressure of Population* (New York: Doubleday, 1962). In 1948, his book *Our Plundered Planet* (London: Faber & Faber, 1948) had met with a success comparable to that of Vogt’s *Road to Survival*.

84. Linner, *Return of Malthus*, 152.

85. Paul R. Brass, “The Political Uses of Crisis: The Bihar Famine of 1966-1967,” *Journal of Asian Studies* 45, no. 2 (1986): 245-267. This was the time when India was attempting to acquire the atomic bomb, to the great displeasure of the United States.

86. Kingsley Davis, “Population Policy: Will Current Programs Succeed?” *Science* 158 (November 10, 1967): 730-739.

87. This episode is analyzed by Élodie Vieille Blanchard in her thesis on the Club of Rome: “Les Limites à la croissance dans un monde global. Modélisations, perspectives, réfutations” (doctoral thesis, EHESS, 2011), 151-188. Garrett Hardin kept up the debate with the publication of three editorials

1968 stressing the right of families to decide of the number of children they have also increased the topicality of the question.

Until then, resource management had not been a question on which Hardin had elaborated much. He approached it mainly from the perspective of shortages, to assert the unavoidability of the "wall," which, in a finite universe, a population undergoing unbridled growth is bound to hit sooner or later.<sup>88</sup> In 1968 he put the issue at the core of his discourse, attempting to take advantage of a context that seemed open to the neo-Malthusian theses he had long been defending.

The argumentative thread of Hardin's article is fairly unstructured. It returns to previous points, wanders into digressions, and closes lines of inquiry as quickly as it opens them. Hardin derives a first argument from an analogy, which Ehrlich also used, between armed conflict and the struggle to feed humanity.<sup>89</sup> As with the arms race, Hardin argues, overpopulation is an issue that cannot be resolved with a technological escalation. New food productions would only accelerate population growth – as the advance of weaponry only increases threats.<sup>90</sup> Furthermore – and this was the key point for Hardin – humanity now lived in a closed world. A world closed spatially: a planet. And one closed physically: a space with finite material potential, the use of which can only be marginally intensified – and by resuming the "population race." Hardin challenges in particular the idea that agronomic research or the possibilities opened by the exploitation of oceans<sup>91</sup> could offer durable solutions to global food issues. By stressing the finitude of the planet, Hardin was in tune with the great intellectual and cultural movement of the 1960s that based its view of the relations between man and his environment on that particular assessment. That movement extended and intensified the globalization of environmental approaches that had begun just after the war, and it also drew arguments from the conquest of space that was then in full force. It has often been pointed out that the increase in sensitivity to global environment issues owes much to the space race of the 1960s-1970s, and in particular to the shock provoked by the pictures of Earth taken over the course

in *Science*: "Parenthood: Right or Privilege?" *Science* 169 (July 31, 1970): 427; "Nobody Ever dies of Overpopulation," *Science* 171 (February 12, 1971): 527; "The Survival of Nations and Civilization," *Science* 172 (June 25, 1971): 1297.

88. Hardin, "Cybernetics of Competition," 62.

89. Hardin, "Tragedy," 1243.

90. Hardin refers to a famous editorial authored by two experts close to the White House, which pointed out the unavoidable nature of this spiral to support their argument in favor of disarmament: Herbert York and Jerome Wiesner, "National Security and the Nuclear Test Ban" *Scientific American* 211, no. 4 (1964): 27-35.

91. Hardin, "Tragedy," 1243. This is what Ehrlich called in his *Washington Post* article "The Ocean Myth." Also see Paul Ehrlich, *La Bombe P*, revised ed. (Paris: Fayard, 1972) 100-103. The 1960s were the golden age of oceans exploitation, in particular with the SEALAB program, which was meant to prepare a permanent colonization of the submarine world (Ben Hellwarth, *Sealab: America's Forgotten Quest to Live and Work on the Ocean Floor* (New York: Simon & Schuster, 2012)).

of the Apollo missions.<sup>92</sup> Six months after the publication of the “Tragedy,” Neil Armstrong would contemplate the finitude of the globe from the Moon.

With his emphasis on limits, Hardin also revived the long ideological struggle that had pitted, since the beginning of the nineteenth century, Malthusians against the supporters of cornucopist theories, who argued that man’s inventive and productive activities would allow him to fulfill his needs indefinitely, even in a finite world.<sup>93</sup>

### BIOPOLITICS OF THE PASTURE

How can we manage men and resources on an Earth that is limited but always more populated? To extend his reflection, Hardin drew on the theoretical corpus of classic Malthusianism, with which he was very familiar. He drew on William Foster Lloyd, a nineteenth-century author.<sup>94</sup> Lloyd was a professor of political economy at Oxford in the 1830s and his courses focused on demographic issues.<sup>95</sup> Lloyd reasoned as a Malthusian when he blamed poverty on overpopulation. But he also opposed Malthus on the *causes* of demographic growth.<sup>96</sup> For Malthus, laboring populations bore responsibility: ruled by their “passions,” they did not curb their fecundity, despite the example of families who were poor due to their size. Malthus also pointed out the impact of measures such as the Poor Laws, but he primarily blamed the individual dispositions of workers, whose “reason” was dominated by their “passions.”

Lloyd rejected this reasoning. In his view, the decision to have children was inspired by reason. Indeed, in that era of industrial growth, women and children could work and thus help to meet the household’s needs. As for the overall effect of population growth, Lloyd followed Malthus and viewed it as the cause of poverty. In his view, however, because each new child only represented a minimal increase in the needs of the whole society, an individual, even when guided by reason, could not fathom the consequences of his or her procreative choices. Life becomes harder because resources are divided,

92. Denis Cosgrove, “Contested Global Visions: One-Earth, Whole-Earth, and the Apollo Space Photographs,” *Annals of the Association of American Geographers* 84, no. 2 (1994): 270-294; Sheila Jasanoff, “Image and Imagination: The Formation of Global Environmental Consciousness,” in *Changing the Atmosphere: Expert Knowledge and Environmental Governance*, ed. Paul Edwards and Clark Miller (Cambridge, MA: MIT Press, 2001), 309-337.

93. The term “cornucopism” is more recent and was coined in Julian Simon, *The Ultimate Resource* (Princeton, NJ: Princeton University Press, 1981).

94. After he had republished him: Hardin, ed., *Population, Evolution*, 28-31.

95. William Foster Lloyd, *Two Lectures on the Checks to Population* (Oxford: J. H. Parker, 1833).

96. On this point see Michael White, “Dear Prudence: W. F. Lloyd on Population Growth and the Natural Wage,” *History of Economics Review* 53, no. 1 (2011): 73-90. See also, in particular on those who influenced Lloyd, Gregory Moore and Michael White, “Placing William Forster Lloyd in Context,” *Research in the History of Economic Thought and Methodology* 28 (2010): 109-141. On Lloyd and the enclosure movement in the English context, see Peter Linebaugh, “Enclosures from the Bottom Up,” *Radical History Review* 108 (2010): 11-27.

but only the effect, not the cause, is perceived. For Lloyd, the size of society creates a structural unawareness that prevents workers from adjusting their behavior to their long-term interests.

In 1833, Lloyd used the same argument to join in one of the most heated political and intellectual controversies in modern times, that on enclosures.<sup>97</sup> To do so, he used the hypothetical situation – as Hardin later would – of the common pasture where each person adds cattle to help his own interest but where there is no incentive to ever limit the size of the herd, which turns out to be detrimental to the resource. As Joachim Radkau has stressed, this image of the devastated pasture is a recurring trope among eighteenth- and nineteenth-century agronomists who opposed collective property.<sup>98</sup> But Lloyd's argument was more specific. In his view, the process of deterioration was rooted in a double unawareness. When a peasant adds an animal on commons that are already overcrowded, he gets some satisfaction but does not realize that each one of his animals becomes slightly smaller. And when another individual follows suit, that same peasant does not realize that this has an identical (and equally small) impact on his own animals. But, with each addition, the cattle waste away and the commons are destroyed. Once again, according to Lloyd, the consequences of individual actions are diluted, thus creating a structural unawareness that leads to a catastrophic situation.

Hence the solution he recommended, of exploiting lands through a system of private property, which creates a situation in which each owner is in a position to evaluate the consequences of his own actions, and is thus more likely to act cautiously. He denounced the regime of the commons, which, in contrast, prevents owners from considering the future and locks them in the present.<sup>99</sup>

In 1968, Hardin used the main lines of this reasoning, but consolidated its two parts into a single train of thought.<sup>100</sup> This is implicit in the unfolding of the "Tragedy," but this duality underlies the whole article and Hardin's eventual uses of it. The "tragedy of the commons" operates *on two levels*. On a first level, it presents a set of individual actors who are interested in the exploitation of a finite resource. It has been mainly understood, praised, and criticized in that sense and in the context of debates on the environment. The cattle, within that perspective, are the technical mediation through which the resource is (over)exploited.

But under the surface, a second level of reasoning is at work throughout the article. As in the case of Lloyd's reflections, it has to do with population. The object of Hardin's denunciation is also the harmful dynamic that drives individuals to reproduce without restraint, until they have wasted their means

97. Foster Lloyd, *Two Lectures*, 30-32.

98. Joachim Radkau, *Nature and Power: A Global History of the Environment* (New York: Cambridge University Press, 2008), 71-73.

99. Foster Lloyd, *Two Lectures*, 20.

100. Hardin, "Tragedy," 1244.

of subsistence. In order to feed their progeny, breeders must exploit their pasture always more; because it is shared in common, there is nothing to restrain their proclivity to reproduce – until the final collapse. In the “tragedy of the commons,” the cattle do not only represent the animals that each breeder puts on the pasture. They also symbolize the children of those breeders, whose increasing numbers threaten to waste the resource.

Hardin, however, differs from Lloyd on one key point. In order to describe the behavior of actors, Hardin draws on a very particular kind of anthropology: that of the version of Manichean sciences shaped by game theory. That anthropology is predicated on what Peter Galison has called an “ontology of the enemy.” Elaborated to act in situations of extreme conflict, game theory promotes a solipsistic view of society, reduced to a space inhabited by calculating, anonymous monads who are embroiled in a merciless fight. Hardin had since 1963 emphasized the relevance of this interpretative framework, stressing the eminently conscious nature of individual strategies.<sup>101</sup> He drew on the foundational works of Von Neumann and Morgenstern and their extension by specialists of conflict theory (such as Anatol Rapoport), but not on microeconomics, the contributions of which he never mentions.<sup>102</sup> The Hardinian individual is not, like the Malthusian individual, ruled by his passions. He is not, like the Lloydian individual, blinded by differences of scales: if he keeps adding more animals – and children – to the pasture, it is because he knows what it takes to live with fellow breeders who are as committed as he is to making their interests triumph.

The logic of the pasture also displays another trait typical of the social theories inspired by Manichean sciences: it reduces problems to finite configurations, to proximal causalities, in order to formalize them through game theory or cybernetics.<sup>103</sup> Thus, modeling frameworks emerge, and are applied, downstream, to various situations, regardless of spatial scales. This is the case with the “tragedy of the commons” when its explanatory principle is applied to fishing areas,<sup>104</sup> state budgets,<sup>105</sup> or global resources. Its formidable echo owes much to the generic quality of its argumentation, structured around a sequence that can be immediately reappropriated and transposed. Moreover, because it is predicated on an anthropology that draws on the same sources as the neoclassical *homo oeconomicus*, it can easily be integrated within economic formalism in the form of ever-more complex versions of the “prisoners’ dilemma.”

101. Hardin, “Cybernetics of Competition,” 72.

102. John Von Neumann and Oskar Morgenstern, *Theory of Games and Economic Behavior* (Princeton, NJ: Princeton University Press, 1947).

103. Angela O’Rand, “Mathematizing Social Science in the 1950s: The Early Development and Diffusion of Game Theory,” in *Toward a History of Game Theory*, ed. E. Roy Weintraub (Durham, NC: Duke University Press, 1992), 194.

104. Smout, “Garrett Hardin.”

105. See the references in Ostrom, *Governing the Commons*, 3.

**GOVERNING RESOURCES, GOVERNING REPRODUCTION**

According to Hardin, the "tragedy of the commons" has an unavoidable consequence. In order to prevent environmental and demographic collapse, it is necessary to resort to severe forms of governance that proceed from – according to his now-famous phrase – "mutual coercion, mutually agreed upon."<sup>106</sup> In this sense, Hardin's discourse is deeply political. He not only challenges cornucopist theories, but also the idea that a reform of values could bring about ways of living that would be more respectful of natural equilibriums. This stance is an implicit critique of those who, like the medievalist Lynn White, promoted at the time a cultural analysis of the root causes of the environmental crisis. It was actually in the columns of the same journal, *Science*, that the latter had published his famous article in which he identified the Judeo-Christian tradition as the determining factor, in the last analysis, of the destructive attitude of the West toward nature.<sup>107</sup> With this article, Hardin also distanced himself from the agenda of countercultural environmentalism, a movement that was then on the rise on West Coast campuses, and called for a revolutionary overhaul of our intellectual and spiritual relation to the environment.<sup>108</sup>

For Hardin, natural resources must be managed in an imperative way, based on an alternative: if we want those resources to last, we must either privatize them or have a higher political and administrative organization control them.<sup>109</sup> His conclusion is not unilateral: the coercion he deems necessary is based on a choice between property rights and centralized administration (of the state-controlled kind).<sup>110</sup> This duality of Hardin's recommendations would be largely perceived and discussed in later debates – it is for instance the starting point of Ostrom's quest for a "third way" at the local level.<sup>111</sup> This point is significant in the French context, because here one finds a distortion in the perception of the Hardinian argument. This perception is often solely based on the most (economically) liberal interpretation of his writing, which presents the market as the only remedy

106. Hardin, "Tragedy," 1247.

107. Lynn T. White, "The Historical Roots of our Ecologic Crisis," *Science* 155 (March 10, 1967): 1203-1207. Some of the first research works in US environmental history were shaped by the debate that White's article initiated. See for example Carolyn Merchant, *The Death of Nature: Women, Ecology and Scientific Revolution* (San Francisco: Harper & Row, 1980).

108. The "countercultural" aspect, however, must be contextualized and qualified. Fred Turner has recently emphasized the strong connections between the environmentalist culture of the 1970s and the technological legacy of the Cold War: Fred Turner, *From Counterculture to Cyberculture: Stewart Brand, the Whole Earth Network, and the Rise of Digital Utopianism* (Chicago: University of Chicago Press, 2006). I would like to thank Sebastian Grevs mühl, who brought that point to my attention.

109. Hardin, "Tragedy," 1245.

110. Hardin presented this alternative again in 1972 (Garrett Hardin, *Exploring New Ethics for Survival* (Baltimore: Penguin Books, 1973), 109-118) and in 1998 (Garrett Hardin, "Extensions of the 'Tragedy of the Commons'" *Science* 280 (May 1, 1998): 682-683).

111. The point is clearly expressed in Thomas Dietz et al., "The Drama of the Commons," in *The Drama of the Commons*, ed. Elinor Ostrom et al. (Washington, DC: National Academy Press, 2002), 3-36 (especially 11-12).

to the “Tragedy.”<sup>112</sup> This confusion makes it impossible to understand how Hardin’s argument was historically received and reappropriated – largely on the basis of the alternative he had laid out – by authors pushing for either one or other of the two proposed options or suggesting that we should overcome the dichotomy (Ostrom).

This does not mean that Hardin’s positions are neutral vis-à-vis the role of the state. His preferences on that point are connected to his theses on general competition and the future of material and reproductive commons. Hardin focuses on two types of state intervention. First, as we saw, he is a staunch defender of public conservation policies. Within this perspective, he denounces breeders who pressure the authorities and demand to continually put more animals on federal lands, thereby threatening to turn them into new “commons.”<sup>113</sup> Conversely, Hardin did not cease to question one area of scope for intervention, namely the welfare state. This is a type of “commons” that his 1968 article targets as well. Hardin denounces the system that indexes its support to families on the number children they have, a system that encourages irresponsible procreative behavior and condemns the federal budget to ruin. His opposition to the welfare state had begun long before, but it took on new meaning during the Johnson presidency, with its great “war on poverty” (1964-1969) and the expansion of social programs.

His argument, and in particular his emphasis on coercion, is also connected in another way to his views on biopolitics. Hardin not only thought that it was unrealistic to simply plead in favor of a limitation of births, but also that this approach based exclusively on conviction was dangerous. In 1968, Paul Ehrlich, who was then omnipresent in the media, founded the Zero Population Growth (ZPG) association, which boasted a membership of almost thirty-three thousand two years later.<sup>114</sup> The goal of ZPG was to stabilize the US population: it promoted methods of voluntary limitation of fertility (voluntary birth control, sterilization) through raising public awareness and lobbying politicians. In Hardin’s view, it was absurd to count on individual conscience, for it could only convince educated individuals, thus it was not only inefficient but also counterproductive, because it threatened to further deteriorate the genetic heritage of the country.<sup>115</sup> In his view, only an

112. This view makes it very difficult to understand the logic of the intervention of the political scientist Beryl L. Crowe, who, in a rejoinder to Hardin published in *Science* in 1969, criticized his trust in the management of administrative organizations and denounced the “myth of the administrators of the commons.” Beryl L. Crowe, “The Tragedy of the Commons Revisited” *Science* 166 (November 28, 1969): 1103-1107.

113. Hardin, “Tragedy,” 1245 and Garrett Hardin, “Living on a Lifeboat,” in *Managing the Commons*, ed. Garrett Hardin (San Francisco: Freeman and Co., 1977), 265.

114. Robert Gottlieb, *Forcing the Spring. The Transformation of the American Environmental Movement* (Washington, DC: Island Press), 330-335.

115. Cathy Spencer, “Interview: Garrett Hardin” *Omni* 14, no. 9 (June, 1992): 59. This is also what explains the solid consistency between Hardin’s neo-Malthusian commitment and his seemingly paradoxical decision to have four children.

external governance could succeed in controlling both the quantity and the quality of the population.

In this case too he advocated solutions predicated on either property and the market or public intervention. In the case of the United States, he was favorable to a market of birth-right permits that would take the form of titles that could be traded for money,<sup>116</sup> and in the case of countries such as India and China he favored authoritarian state policies. In the North, the market should make it possible to control the quantity *and the quality* of individuals, favoring the best-educated people, whom he considered to be the most gifted genetically. In the South, putting an end to US food aid (a step that Hardin called for) would force governments to face their responsibilities.

### THE COMMONS, THE STATE, AND THE MARKET

From the moment of its publication, "The Tragedy of the Commons" had a great impact.<sup>117</sup> Since then, its influence has remained constant, and turned it into a reference for all social and environmental sciences. Its reception and theoretical reappropriations have been complex and multiform, and a full analysis of them would exceed the scope of this article. Even so, I would still like to shed some light on them, by focusing on the influence the article had in debates on the environment and the governance of resources. In this area there are *three* major fields of reception of the "Tragedy" – four if we want to include the systematic study of the commons conducted in the wake of Ostrom's work, which, paradoxically, has done much to ensure the posterity of the argument by using it as a point of departure before refuting it.<sup>118</sup>

Authors who crystalized the critique of global growth and of its ecological consequences in the early 1970s were among the first ones to reappropriate Hardin's article. In 1972, the Club of Rome published the report "Limits to Growth" that became emblematic of this type of political environmentalism that connected ecological concerns, critique of the Western way of life, and a demand for global justice.<sup>119</sup> In that context, the "tragedy of the commons" was applied to entities on the scale of the planet (the Earth, oceans, the atmosphere), in order to stress that their concerted management is necessary to

116. Hardin, "Living on a Lifeboat," 277. Hardin borrows this proposal from Kenneth E. Boulding, *The Meaning of the Twentieth Century: The Great Transition* (New York: Harper and Row, 1964), 135-136. Later, he would emphasize the idea of action through taxation (for instance by modulating the tax base), as Ehrlich had once proposed (Ehrlich, *La Bombe P*, 142-143).

117. The following year, eighteen academic articles had already cited it (source: Web of Science). A shorter version was also published in mainstream media: "How Freedom in a Commons Brings Tragedy" *Washington Post*, May 11, 1969.

118. Ostrom, *Governing the Commons*, 2-3; Ostrom et al., eds., *Drama of the Commons*, 1-4. On the history of the study of the commons, see Frank Van Laerhoven and Elinor Ostrom, "Traditions and Trends in the Study of the Commons," *International Journal of the Commons* 1, no. 1 (2007): 3-28.

119. Donella H. Meadows et al., *The Limits to Growth. A Report for the Club of Rome's Project on the Predicament of Mankind* (New York: Universe Books, 1972).

ensure sustainability, ease conflicts, and foster development. Thus Aurelio Peccei, cofounder of the Club of Rome, stressed in his analysis of the rationale behind his organization that action was needed because “the entire planet thus provides a typical example of what Garrett Hardin termed *the tragedy of the commons* – the hopeless fate of something belonging to the community and which everyone tries to exploit more than, or before, the others, without taking the slightest care of it in the common interest.”<sup>120</sup>

Within that field of reception, the “Tragedy” was used to promote new forms of regulation, geared toward the management of “global commons.”

Authors inspired by the Club of Rome do not downplay the Malthusian nature of the argument and use it to highlight the connection they see between ecological crisis and overpopulation crisis.<sup>121</sup> The “Tragedy” was first utilized in that sense in France. The first mention I was able to identify came from André Gorz, in his column in the September 2, 1974, issue of *Le Nouvel Observateur*.<sup>122</sup> Gorz uses the argument (described as a “classic game-theory scenario”) to address the overexploitation of global fishery resources and highlight its connection to overpopulation. In his view, for too long people have avoided considering the role of this factor in the environmental crisis. Gorz advocates a revival of the campaigns to decrease birthrates in the South, provided that the West supports at the same time political emancipation and development in those regions.

At the time when the Club of Rome raised questions about the future of the world-system, the issue of resources became a key object of study in economics. While the economics of resources had a long tradition,<sup>123</sup> it boomed at the end of the 1960s, in the wake of rising environmental concerns and the 1973 oil crisis. The field developed by combining microeconomic formalism and modeling of the material state of resources (forests, fisheries, oil fields, and so forth), in order to analyze extractive economics. The article that Canadian economist H. Scott Gordon published in 1954 is one of the references that shaped the development of that line of research.<sup>124</sup>

As has been noted time and again,<sup>125</sup> Gordon’s conclusions are very close to those of Hardin. In his article, Gordon proposed a mathematical model to describe the activity within a given fishing area. Having analyzed it and invoked a series of examples (including that of the pasture), he concluded that common

120. Aurelio Peccei, *The Human Quality* (Oxford; New York: Pergamon Press, 1977), 76.

121. They completely fail, however, to perceive its eugenicist substratum.

122. André Gorz [Michel Bosquet, pseud.], “Douze milliard d’hommes?” *Le Nouvel Observateur*, September 2, 1974.

123. See, for example, the work of William Stanley Jevons on the depletion of mineral resources: William S. Jevons, *The Coal Question* (London: Macmillan, 1865).

124. H. Scott Gordon, “The Economic Theory of a Common-Property Resource: The Fishery,” *Journal of Political Economy* 62, no. 2 (1954): 124-142. His model was completed shortly after by Anthony Scott, “The Fishery: The Objectives of Sole Ownership,” *Journal of Political Economy* 63, no. 2 (1955): 116-124.

125. For instance by Ostrom, *Governing the Commons*, 3.

property – considered the same as free access – made it impossible for economic income to last, because each actor is caught in an endless race to exploit resources before all his competitors.<sup>126</sup> While he was skeptical about the depletion of fisheries, he pointed out the relevance of this kind of effect in the case of game and pasture resources. To avoid these situations, Gordon offers the same alternative as Hardin: either the institution of exclusive property rights, or management by an authority external to the market.<sup>127</sup> He also instigated the confusion that Hardin also exhibits between common property and free access.<sup>128</sup>

Gordon's text met with increasing success over the course of the 1950s and 1960s, first among specialists of fishery management, and then within the whole community of economists. It has often been asked whether Hardin had devised the argument of the "Tragedy" independently from Gordon, or if he had borrowed his reasoning. First, it is worth noting that Hardin does not cite Gordon's article until the early 1970s. A critical analysis of Hardin's personal archive, however, allows us to go further and settle this question. All the elements point to the fact that Hardin articulated his reasoning independently. Indeed, it appears that before 1968, economics literature in general – and all the more so a relatively technical text such as Gordon's – is nowhere to be found on Hardin's reading lists.<sup>129</sup> And there is more: Hardin gives a direct explanation in a letter he wrote years later to the sociobiologist Edward O. Wilson. Hardin wrote that, after he published the "Tragedy" in 1968, several economists brought Gordon's work to his attention, and that it is only then that he read it, and actually did not think Gordon's reasoning was as profound as his own.<sup>130</sup>

In the late 1960s as well, Vernon L. Smith, a future winner of the Nobel Prize in Economics, definitively bestowed the status of a classics of environmental economics on Gordon's article when he used it as the starting point for a series of articles.<sup>131</sup> Smith expanded to a general level Gordon's microeconomic approach and reasoning on the commons, but true to his own market-only creed, he presented exclusive property as the only viable solution. Eventually, the critique of "common property" became a staple of studies in resource economics, with each author defending his or her own market-based or state-based solutions.<sup>132</sup>

126. Gordon, "Economic Theory," 134-135.

127. Gordon, "Economic Theory," 135.

128. See note 6.

129. Garrett Hardin papers, boxes 3 to 6.

130. Letter from Garrett Hardin to Edward O. Wilson, March 8, 1979, Garrett Hardin papers, box 17.

131. Vernon L. Smith, "Economics of Production from Natural Resources," *The American Economic Review* 58, no. 3 (1968): 409-431; Vernon L. Smith, "On Models of Commercial Fishing" *Journal of Political Economy* 77, no. 2 (1969): 181-198; Jim Quirk and Vernon L. Smith, "Dynamic Models of Fishing," in *Economics of Fisheries Management: A Symposium*, ed. Anthony Scott (Vancouver: University of British Columbia Press, 1970), 3-32.

132. This is the reason why in their survey of the field published in 1977, Peterson and Fisher gave an entire section to the "The Common Property Problem." Frederick M. Peterson and Anthony

The second field of reception of the “Tragedy” came about as the result of a process of convergence between two lines of argument: since the late 1960s, many studies in resource economics have used the Hardinian argument, but to articulate a reasoning developed on the basis of the microeconomic formalism rooted in the groundwork Gordon had first laid.<sup>133</sup>

The rise of the economic theories and the global social and political vision neoliberalism promoted played a decisive role in giving the “Tragedy” its place in current debates on the environment, resources, and the market. Microeconomic modeling contributed, following Vernon L. Smith, to its integration into the analytical frameworks of neoliberal thought. But this integration occurred for the most part thanks to the new property-rights paradigm that the economists Ronald Coase, Armen Alchian, and Harold Demsetz promoted in the last third of the twentieth century.<sup>134</sup> According to this paradigm, the efficiency of an economic process is dependent on the existence of clearly defined, guaranteed, and transferable property rights on all entities. A deficit of appropriation on the contrary would produce externalities – transfers of costs not accounted for – that would interfere with the normal functioning of the market.

In the 1970s, neoliberal approaches to the environment grew out of the application of this reasoning to natural resources and pollution. It would turn out to be the third major field of reception of the “Tragedy.” These approaches blame the deterioration of the environment on the insufficient expansion of private property: because entities that have not been appropriated are not monetized, their use is free and limitless, which leads to their deterioration. The proposed solution is to create new property rights in order to reach a situation where the monetization of the environment would discourage actors from deteriorating it and open the way to full economic efficiency.<sup>135</sup> Pushed to its limit, this line of reasoning has a number of consequences: environmental regulations are dismantled, and resources – for instance groundwater – are marked out for privatization.<sup>136</sup>

That is the agenda of “new resource economics” (NRE), a school of thought that developed in the United States in the 1970s, borrowing from the property

C. Fisher, “The Exploitation of Extractive Resources: A Survey,” *Economic Journal* 87, no. 348 (1977): 688-690.

133. See, for instance, the work of Colin W. Clark, in particular “The Economics of Overexploitation,” *Science* 181 (August 17, 1973): 630-634.

134. Ronald Coase, “The Problem of Social Cost,” *Journal of Law and Economics* 3 (1960): 1-44; Harold Demsetz, “Toward a Theory of Property Rights,” *American Economic Review* 57, no. 2 (1967): 347-359; and above all Armen Alchian and Harold Demsetz, “The Property Right Paradigm,” *Journal of Economic History* 33, no. 1 (1973): 16-27.

135. There are other ways of internalizing externalities (taxation, rights market): Valérie Boisvert, Armelle Caron, and Estienne Rodary, “Privatiser pour conserver? Petits arrangements de la nouvelle économie des ressources avec la réalité,” *Tiers-Monde* 45 (2004): 61-84.

136. This solution is advocated by Terry L. Anderson and Pamela S. Snyder, *Water Markets: Priming the Invisible Pump* (Washington, DC: Cato Institute, 1997).

rights paradigm, "public choice" theory, and the teaching of Austrian neoliberalism (Mises, Hayek).<sup>137</sup> The NRE benefits from private research organizations such as the Political Economy Research Center (PERC) and the Foundation for Research on Economics and the Environment (FREE), both of which are located in Montana and employ the leaders of the movement (John Baden, Bruce Yandle, Richard Stroup, and Terry L. Anderson). The NRE is close to the right wing of the Republican Party and also benefits from the support of ultraliberal think tanks such as the Pacific Research Institute for Public Policy and the libertarian Cato Institute.

"The Tragedy of the Commons" is a ubiquitous reference within NRE studies.<sup>138</sup> Indeed, they use the article to describe the causal chain – fundamental to this approach – between the absence of property rights, externalities, and the deterioration of the environment. This logic explains why pasture, as well as all other resources, and also all environments exposed to pollution, must be privatized.<sup>139</sup> Supporters of NRE are aware of the dual nature of the solution that Hardin advocates.<sup>140</sup> However, because one essential aspect of their work consists of highlighting the failures (real or alleged) of public environmental policies and to present them, with the help of public-choice theory, as the expression of special interests, they instantly reduce the alternative Hardin proposed to the sole market-based solution.<sup>141</sup>

In France, NRE found a propagandist in Max Falque, who introduced it there in 1986 in an article published in the *Futuribles* journal.<sup>142</sup> The text begins with a long elaboration on the "Tragedy," presented as the "keystone" of NRE, although it had remained relatively unknown in France. Casting the "Tragedy" in this particular light was a way of promoting a simplifying reading of Hardin's theses, at the expense of a genuine historical contextualization. Yet, despite some real convergences, (the dismantling of the welfare state), neoliberal appropriations of Hardin's thought, as we have seen, do not exhaust his theses.

137. Regarding NRE, see Boisvert, Caron, and Rodary, "Privatiser;" Natacha Lajoie and François Blais, "Une Réconciliation est-elle possible entre l'environnement et le marché? Une évaluation critique de deux tentatives," *Politique et Sociétés* 18, no. 3 (1999): 49-77; Olivier Petit, "La Nouvelle économie des ressources et les marchés de l'eau: une perspective idéologique?" *Vertigo* 5, no. 2 (2004), <http://vertigo.revues.org/3608?lang=en>; for a presentation by one of the main supporters of this approach, see Terry L. Anderson, "The New Resource Economics: Old Ideas and New Applications," *The New Political Economy of Natural Resources* 64, no. 5 (1982): 928-934.

138. Here is just one example: Robert J. Smith, "Resolving the Tragedy of the Commons by Creating Private Property Rights in Wildlife," *The Cato Journal* 1, no. 2 (1981): 439-468.

139. Hardin had anticipated this conclusion when he presented air and waters as deteriorated commons. Hardin, "The Tragedy," 1245.

140. Terry L. Anderson and Donald R. Leal, *Free Market Environmentalism Today* (New York: Palgrave, 2001): 143-144.

141. See for instance John Baden and Richard Stroup, eds., *Bureaucracy vs. Environment* (Ann Arbor, MI: University of Michigan Press, 1981).

142. Max Falque, "Libéralisme et environnement" *Futuribles* 97 (1986): 40-55. He eventually edited several volumes on the NRE and neoliberal approaches to the environment. The most recent one is: Max Falque and Henri Lamotte, eds., *Biodiversité: Droits de propriété, économie et environnement. Conférence internationale (Aix-en-Provence, 2010)* (Brussels: Bruylant, 2012).

**MIGRATORY RISK, ENVIRONMENTAL RISK**

Following the success of the “Tragedy” – which he sought to capitalize on<sup>143</sup> – Hardin primarily involved himself in activism. Following the Roe vs. Wade ruling in 1973 (which legalized abortion in the United States), he left the Planned Parenthood Organization, because he considered that once that goal had been achieved, the organization had become useless as it focused on promoting individuals’ control over their bodies, instead of demographic control.<sup>144</sup> He first joined the Environmental Fund, which campaigned against sending food aid to Third World countries, based on a Malthusian line of reasoning.<sup>145</sup> Then, his commitment shifted to a new crusade: the fight against immigration.

His 1974 text “Living on a Lifeboat” represents a turning point.<sup>146</sup> It describes Western nations as overcrowded lifeboats that can no longer take on new immigrants without sinking – that is, without depleting their resources. In 1978, the anti-immigration activist John Tanton (the former president of the ZPG from 1975 to 1977) founded the Federation for American Immigration Reform (FAIR), which campaigned to close the borders while denouncing the social, cultural, and environmental consequences of migratory movements. Until his death in 2003, Garrett Hardin was a key figure within the FAIR: he had responsibilities within the leadership,<sup>147</sup> made frequent contributions on how immigration and the environment are linked,<sup>148</sup> and published a compendium that reinterpreted the “Tragedy” in light of this connection.<sup>149</sup> Since his death, the Garrett Hardin Society, an offshoot of the FAIR, has been trying to maintain that political legacy.

This manner of linking migratory issues with environmental ones has a long history. In the first third of the twentieth century, a very reactionary current found within US conservationism and preservationism linked its claims to theses on the “invasion” of migrant populations – except those originating from northern Europe.<sup>150</sup> The current combines eugenics, nativism, and an

143. He published in particular a collection of reactions to the “Tragedy:” Hardin, ed. *Managing the Commons*. Although he coedited the volume with John Baden, one of the prominent figures of the NRE, the spectrum of contributions remained rather broad. Thus, Elinor Ostrom’s article in which, in 1969, she outlined her first criticisms of the argument, was republished (173-182).

144. Interview with Garrett Hardin, Davidson Library oral history program, 1983, interview 11.

145. On the Environmental Fund, see the (evasive) account Hardin gave in: Interview with Garrett Hardin, Davidson Library oral history program, 1983, interviews 10, 11, and 12.

146. Hardin, “Living on a Lifeboat.” On the increasing focus on migratory issues of the neo-Malthusian environmentalist agenda, see Robertson, *Malthusian Moment*, 186-190; 196-200.

147. From 1984-1985 to 1996 (according to Garrett Hardin, interview, FAIR oral history project, 1997, Garrett Hardin papers, box 1) and again at the beginning of the 2000s (*Board of advisors. FAIR Annual Report 2001*, 27-29, and 2002, 26-28).

148. See for instance Garrett Hardin, “There Is No Global Population Problem,” *The Humanist* 49 (July-August 1989): 11-13.

149. Garrett Hardin, *The Immigration Dilemma: Avoiding the Tragedy of the Commons* (Washington, DC: FAIR, 1995).

150. Garland E. Allen, “‘Culling the Herd:’ Eugenics and the Conservation Movement in the United States, 1900-1940,” *Journal of the History of Biology*, online prepublication (March 2012); Stern, *Eugenic Nation*, 115-149; Gray Brechin, “Conserving the Race: Natural Aristocracies, Eugenics and the US Conservation Movement,” *Antipode* 28, no. 3 (1996): 229-245.

environmental agenda. It denounces the deterioration of the population and the environmental destruction caused by immigration. Its rhetoric plays on the reversal of the American myth of "wilderness:" a wild natural environment which, gifted to the colonists on the path to conquer the western United States, was the source of their physical and moral virtues.<sup>151</sup> The denunciation targets the growth of cities full of migrants, who threaten the "wilderness" and the original, northern European settlers who were shaped by their contact with it. One of the iconic figures of this current was Henry Fairfield Osborn, one of the leaders of the eugenics movement in the years 1900-1930 and the cofounder of the Save The Redwoods League (a historical organization of the conservationist movement from California that campaigned for the protection of sequoias), who was also the father of the neo-Malthusian theoretician Henry Fairfield Osborn Jr.<sup>152</sup>

Hardin's late focus on migratory issues can help us interpret his trajectory, for it reveals his deep connection to this tradition that came out of the Progressive Era. Hardin extended that tradition by linking eugenics with, in his case, conservationism, in the context of post-1945 demoresourcism. The spirit of the Progressive Era is also felt in the ideal of a system of governance managed by scientists, that pervades Hardin's actions and stances throughout his life – an ideal that was further reinforced by the exacerbated scientism of the Cold War decades. A generational effect is at play here; there is indeed an almost twenty-year difference between Ehrlich and Hardin, whose intellectual development occurred in the 1930s and who was thus more exposed to the influence of the technocratic and eugenicist ideas of the first quarter of the century.

Migratory issues became nonetheless the defining feature of the late history of demoresourcism, regardless of its links to the Progressive Era. As we have seen, in the 1970s-1980s demoresourcism split into a number of subcurrents and was reincarnated in organizations such as the Environmental Fund and the FAIR. These organizations contributed to the rise of the new American Right by turning the links between environmental issues, relations with the Third World, and immigration into themes for debate.

The migratory issue also appears to be a fault line within a "historical" organization such as the Sierra Club. At the end of the 1960s, the association intervened in debates on the links between population and environment: as we saw, Ehrlich published *The Population Bomb* under its aegis.<sup>153</sup> But thereafter the club decided to stay on the sidelines: it supported the objective of demographic stabilization on the scale of the United States and the planet, but did not commit any further. Michael McCloskey, its executive director

151. On the wilderness see the classic book by Roderick Nash, *Wilderness and the American Mind* (New Haven, CT: Yale University Press, 1967).

152. Whose work, it should be noted, is free from nativist, eugenicist, or racist theses.

153. The association had already made an isolated intervention in 1959 to point out the risk that global overpopulation posed to the wilderness. Robertson, *Malthusian Moment*, 122.

from 1969 to 1985, stresses in his memoirs his desire to keep the association at a distance from migratory issues, at a time when relations with the Latino movement became increasingly close in the context of the struggle for civil rights and the rise of environmentalism.<sup>154</sup> But in the 1990s, this balanced approach was in jeopardy: a fraction of the leadership destabilized the association by promoting the objective of closing the borders in the name of the protection of the environment.<sup>155</sup>

The prevalence of the theses that linked population, immigration, and ecological deterioration within US environmentalism (and particularly in California) helps us to understand some aspects of the work of someone like Jared Diamond, who, in the conclusion of his best seller *Collapse*, blamed the environmental decline of the place he lives in, Los Angeles, on demographic growth and migratory movements.<sup>156</sup>

The debate on the “tragedy of the commons” has never stopped since 1968. While some view its line of argument as an irrefutable demonstration, others see it as absurd, and to this day, it remains a focal point in debates on the conservation of resources, forms of property, and the role of the state. As I showed in this article, it also appears to be a theoretical locus where a formidable range of intellectual and political traditions dealing with populations and their environment intersect and become muddled. From the Progressive Era to the Cold War, from Malthus to Coase, from the Club of Rome to new resource economics, from western prairies to third world countries, the “tragedy of the commons” comes to us as the face of the struggles, past and future, involving the joint governance of men and nature.

Fabien LOCHER  
Centre de Recherches Historiques (EHESS-CNRS)  
190-198, avenue de France 75013 Paris  
flocher@ehess.fr

154. J. Michael McCloskey, *In the Thick of It: My Life in the Sierra Club* (Washington, DC: Island Press, 2005), 199, 241-242, 350-351.

155. *The Planet Newsletter* (December 4-10, 1997). See also the presentation (somewhat unobtrusive) given by Alexander Cockburn, “Commentary: A Big Green Bomb Aimed At Immigration” *Los Angeles Times* (October 2, 1997). Those internal divisions would resume in the 2000s: see Felicity Barringer, “Bitter Division for Sierra Club on Immigration” *New York Times*, March 16, 2004.

156. Jared Diamond, *Collapse: How Societies Choose to Fail or Succeed* (London; New York: Penguin Books, 2006), 499-503. Diamond, however, is very far from Hardinian inegalitarianism, something that appears as obvious when one reads Hardin’s review of Jared Diamond, *Guns, Germs, and Steel: The Fates of Human Societies* (New York: W. W. Norton, 1997), in *Population and Development Review* 23, no. 4 (1997): 889-895.

## Abstract / Résumé

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Fabien LOCHER

### Cold War Pastures. Garrett Hardin and the "Tragedy of the commons"

The article "The tragedy of the commons" by Garrett Hardin is a central reference in the contemporary debates on property, environment, and the economy of material and immaterial resources. Its main thesis is the incompatibility between common property and sustainability. Although this text is one of the most influential of the last decades, we have very few elements on the historical processes that shaped its production and reception ; on its author Garrett Hardin, his biographical trajectory, his political motives, his involvement in the political and intellectual struggles of the second half of the twentieth century. This article aims at historicizing the contemporary debates on the political economy of the commons, by providing this historical perspective. We analyze, in particular, the biopolitical project underlying the Hardin's involvement in the environmental movement and the influence of the Cold War intellectual culture on the framing of his theories on resources and property. This article also aims at providing a contribution to the general history of neo-liberalism, when applied to natural resources and environment.

**KEYWORDS:** USA, Cold War, commons, environment, neoliberalism, Garrett Hardin ■

Fabien LOCHER

### Les pâturages de la Guerre froide. Garrett Hardin et la « Tragédie des communs »

*L'article de Garrett Hardin paru en 1968, « La tragédie des communs », est une référence essentielle dans les débats sur la propriété, l'environnement, l'économie des ressources matérielles et immatérielles. Sa thèse : l'incompatibilité entre propriété commune et durabilité. Or, si ce texte est sans cesse mobilisé, on sait très peu de choses des logiques historiques qui ont présidé à son élaboration, à sa réception ; très peu de choses sur son auteur Garrett Hardin, sur sa trajectoire, ses motivations, les éléments vis-à-vis desquels son propos fait sens lorsqu'il décide, fin 1968, de formuler un raisonnement dont l'onde de choc s'est propagée jusqu'à notre époque de crise environnementale, de réflexion sur les communs numériques. Ce constat a motivé notre enquête. Son ambition est de contribuer, par le détour de l'histoire, aux réflexions contemporaines sur les différentes formes du « commun ». S'y révèlent aussi certaines dimensions méconnues de l'environnementalisme américain au XX<sup>e</sup> siècle : ses liens étroits et complexes à la configuration de Guerre froide ; la place qu'y occupent des courants combinant souci de l'environnement et projet de contrôle de la « qualité » des populations. Enfin, cette histoire de la « tragédie des communs » est aussi un chapitre de l'histoire du néolibéralisme, lorsque celui-ci s'empare de la question du gouvernement des ressources et des environnements.*

**MOTS-CLÉS :** États-Unis, Guerre froide, communs, environnement, néolibéralisme, Garrett Hardin ■