



H-Environment

H-Environment Roundtable Reviews

Volume 10, No. 11 (2020)
<https://networks.h-net.org/h-environment>

Publication date: December 29, 2020
Roundtable Review Editor:
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**Perrin Selcer, *The Postwar Origins of the Global Environment: How the United Nations Built Spaceship Earth* (New York: Columbia University Press, 2018)
ISBN: 9780231166485**

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Introduction by Keith Makoto Woodhouse, Northwestern University

“**T**he environment,” as several scholars have recently noted, is a complicated and elusive concept. In *The Postwar Origins of the Global Environment*, a book brimming with both historical and contemporary relevance, **Perrin Selcer** considers the idea in terms at once expansive and specific. Selcer makes clear at the outset that “the environment” was never a given; it had to be created, and he tells the story of how the United Nations produced a global understanding of the environment that reached around the world even as it remained bounded by detailed maps, particular agencies and institutions, and a set of ideas stretched tight between the particularities of local conditions and the hope of an all-encompassing applicability.

Like his subjects, Selcer shifts back and forth between up-close and bird’s eye views. He explains the dynamics of UN agencies and how they sought influence and relevance early on by intertwining themselves with other institutions. Each major UN agency had a tripartite structure consisting of member states, an administrative staff, and a loose group of affiliated nongovernmental organizations and independent experts, and Selcer keeps these distinct but tentatively aligned groups always in mind as he examines the workings of UN offices and campaigns. Selcer also pulls back to consider the “epistemic communities” that UN efforts cultivated, chief among them the idea of a global environment. These communities of knowledge and understanding were one of the UN’s most important and most fraught achievements.

As UN bureaucrats and associated experts went about their work, focused at first on soil degradation and later on planetary climate, they struggled to reconcile a respect for and consideration of inclusivity and local knowledge with a synoptic perspective that achieved a broader reach at the cost of democratic participation. At the same time, they struck a precarious balance between autonomy and influence. In the end, “Spaceship Earth” ran aground on the shoals of a politically variegated 1970s. Selcer reminds us, however, that despite the failures and flaws of UN internationalists, “making the global environment an international issue” was one of their legacies, and something we can still celebrate and even build on.

Libby Robin begins the roundtable with a trenchant summary of Selcer’s book, adding her own shrewd observations about the topics Selcer covers. Robin explains the twentieth-century significance of soil science and how anxieties about soil erosion and desertification spurred a postwar investment in global agriculture. Planetary management of ecologically-minded crop production, she notes, was a key driver of “Spaceship Earth”—the ideal of an interdependent world community informed by scientific experts and led by global institutions. The potential of Spaceship Earth was for a cooperative “world-mindedness” that might benefit nations and peoples particularly as well as in the aggregate; the tensions, Robin says, lay in the distance between local knowledge and general expertise, and the

likelihood of sacrificing social and ecological context in order to achieve global reach. Robin asks whether we might achieve world-mindedness in the twenty-first century, and suggests that doing so would necessarily involve a greater appreciation for local conditions and perspectives.

Thomas Robertson praises the thoroughness of Selcer's research, and hones in on the same incongruous characteristics of Spaceship Earth that Robin highlights. Internationally-minded environmental scientists, Robertson says, claimed a universal applicability for their work, while at the same time UN agencies tried to acknowledge and draw on diverse perspectives. What Selcer describes as a tension between a "view from above" and a "view from everywhere" could be either fraught or productive or both. This tension and several others, along lines of hemisphere, region, subnational agendas, and even watersheds, ran through the UN's 1972 Conference on the Human Environment, at which the ideal of Spaceship Earth began to falter and where Selcer's book draws to a close. Robertson wants to know what happened next. In particular, he asks how the history of global knowledge and international institutions that Selcer describes shaped the contemporary politics of climate change. And he suggests that what Selcer calls the "history of objectivity" was only accelerating in the early 1970s. Finally, he wonders what role neoliberalism played in the grounding of Spaceship Earth, something that Selcer gestures towards in his final chapter and conclusion.

Sabine Höhler points to the ways in which Selcer has offered us something new: an institutional and organizational history of the idea of a global environment, one attendant to both politics and science and in particular to the problem of scale—how to reconcile local context with global policy. Selcer, she explains, tells us much about what Höhler calls "the ideal of integration versus practical exclusiveness." Even as UN agencies promoted global thought, they reinforced nationalism, colonialism, and top-down managerialism. Höhler wants to hear more, though, about Spaceship Earth as a system devised by scientists and engineers as much as a contingent product of a historical moment. Despite the rhetoric of UN bureaucrats, she suggests, Spaceship Earth was technocratic and top-down by design.

Like the other commenters, **Megan Black** celebrates the international vision of Selcer's work, as well as the attention that Selcer pays to internationalism and imperialism as two sides of the same coin. Black also points to Selcer's sophisticated analysis of bureaucratic behavior and incentives; borrowing from Daniel Carpenter's notion of "forging bureaucratic autonomy," Selcer explains how UN agencies—interdependent rather than autonomous by nature—accrued influence by mixing their own work with that of other institutions, smudging boundaries between different agencies and between governmental and nongovernmental organizations and in the process blending together science and politics. Black wonders, though, what international work shaped by imperial interests looked like on the ground. What sorts of interactions occurred between UN experts and locals, and did such interactions privilege the interests of large institutions over those of small communities? Black also asks whether Selcer could have provided a greater

sense of competing aims and interests within and among international institutions, including corporations and national governments as well as UN agencies and nongovernmental organizations. Finally, Black wonders in what ways international institutions served national agendas—whether, that is, global institutions provided “a screen onto which historical actors could project different desires,” or possibly a screen behind which national governments could pursue their own self-serving goals.

In his response Selcer addresses the rich and varied comments, explains what some of his goals were in writing *The Postwar Origins of the Global Environment*, and discusses some of the provocations his book makes against current trends in environmental history and the history of science and technology.

Many thanks to all of the roundtable participants for taking part.

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Comments by Libby Robin, Australian National University

Perrin Selcer's major book, *The Postwar Origins of the Global Environment: How the United Nations Built Spaceship Earth* analyses a moment when biology met natural resource management, when conservation went international, and when scientific expertise became a powerful tool for peace. In Selcer's own words, the book tells how "a liberal democratic world community ended up building the international knowledge infrastructure that made the global scale environment a political reality."¹ Collaborative partnerships for postwar reconstruction fostered a brief period of global-thinking—or "world-mindedness", as it was called at the time—that is newly relevant in this Covid-moment.

Our present fast-moving global pandemic has forced both "socially-distanced" national self-sufficiency and new international collaboration in the search for a vaccine, as we share ways to live with this frightening new virus. The situation is unprecedented, but not altogether unpredicted. Climate Change models have for years foreshadowed the rise of new diseases, and the re-emergence and relocation of old ones. Living in the Anthropocene demands a capacity to think with uncertainty, to meet new situations with agile tools and a lateral imagination. Above all, the Anthropocene demands that we remember what it is to be humane and fair, even as we become a planetary, geological force as a species.² History is helpful to think with in these times, particularly the history of how the environment came to be conceptualized as global.

The idea of the environment took off in the postwar years of the late 1940s, as part of a professionalizing of the management of nature.³ It was informed by the science of ecology. *The Postwar Origins of the Global Environment* includes the 1960s in the postwar years. Selcer reminds us that the 1960s were known at the time as the "Decade of Development" rather than for the beginnings of environmentalism.⁴ The postwar years were a time of integrated knowledge and agglomerative science. Ecologists like Julian Huxley, C.H. Waddington, and Paul Sears were prominent leaders. In the years when the United Nations led global thinking, agriculture and development were all part of the environment, and the expertise for "environmental science" often drew strongly on ecology. The Club of Rome's modelling in *Limits to Growth* and the philosophy of *Only One Earth*, the book of the UN Stockholm

¹ Perrin Selcer, *The Postwar Origins of the Global Environment: How the United Nations Built Spaceship Earth*, New York, Columbia, 2018, 2.

² Libby Robin, "Environmental Humanities and Climate Change: Understanding Humans Geologically and Other Life Forms Ethically," *WIREs Climate Change* Jan-Feb Vol. 9(1), (2018) 9:e499. doi: 10.1002/wcc.499.

³ Paul Warde, Libby Robin and Sverker Sörlin, *The Environment: A History of The Idea* (Baltimore: Johns Hopkins University Press, 2018).

⁴ Selcer, 25.

conference in 1972 (the endpoint of Selcer's study), built on the Spaceship Earth metaphor, as Selcer argues persuasively.⁵

"Environmentalism," the activism associated with protecting the environment, was a 1970s phenomenon associated with a different ecology, and even a spiritual sense of the planet as a world with its own organic agenda, not the subject of natural resource management.⁶ By the mid-1970s, some people came to call the environment itself "the ecology", but this was *not* the ecology that biologists recognized as their professional subject. Nor would ecologists in the 1970s include soil conservation or agriculture in their remit.⁷ Yet in the 1930s, Paul Sears had argued for "an ecologist" for every farm district, and for a Soil Conservation Service that would train such people. For him, ecology was both a "science of prophecy" and a "science of perspective."⁸ The 1930s Dust Bowls in the U.S., Australia, and Ukraine led to calls for better management and a more holistic ecological approach to agriculture. Soil conservation authorities became important state and national bodies in the 1940s in the U.S. and Australia (and had been so much earlier in Russia, as David Moon's work shows).⁹

Soil conservation became a crucial platform in "world-mindedness," a form of responsible planetary citizenry informed by Big Science and a moral drive to use "science for peace." It was a tool to "feed the world" at a time when hunger was a feature of European as well as developing nations.¹⁰ As Sears and others wrote, empires have expanded by taking over new lands for cropping.¹¹ Sometimes cropping lands were wrested from Indigenous people, sometimes from nature's own wild lands and forests, and sometimes both. Agriculture was a tool of imperial expansion as old as the Roman empire. Cropping new lands accelerated again in the

⁵ Selcer 173-205. Barbara Ward and Rene Dubos, *Only One Earth: The Care and Maintenance of a Small Planet*, (New York: Norton, 1972). Donella H Meadows et al., *The Limits to Growth: A Report on the Club of Rome's Project on the Predicament of Mankind*, (New York: Universe Books, 1972).

⁶ Best articulated in James Lovelock and Lynn Margulis's *Gaia* hypothesis. See J.E. Lovelock and L. Margulis, "Atmospheric homeostasis by and for the biosphere: the Gaia hypothesis," *Tellus*. (Series A. Stockholm: International Meteorological Institute) 26 (1-2) (1974), 2-10. doi:10.1111/j.2153-3490.1974.tb01946.x

⁷ The idea of Wilderness as "America's Best Idea" moved the environment back to the national agenda rather than the global in 1970s environmentalism, even in places outside America. See for example, Libby Robin 'Being first: why the Americans needed it, and why Royal National Park didn't stand in their way', *Australian Zoologist*: 2013, pp 321-329 <http://dx.doi.org/10.7882/AZ.2012.025>.

⁸ These terms are from the 1947 chapter added to Sears' 1935 *Deserts on the March*, and reproduced in Libby Robin, Sverker Sörlin and Paul Warde (eds.) *Future of Nature: Documents of Global Change* (New Haven: Yale University Press 2013), 182.

⁹ David Moon, "The Environmental History of the Russian Steppes," *Transactions of the Royal Historical Society*, 2005, 15, 149-174; David Moon, *The Plough that Broke the Steppes: Agriculture and Environment on Russia's Grasslands, 1700-1914*, (Oxford: Oxford University Press, 2014).

¹⁰ Cameron Muir, 'Feeding the World: Our Great Myth', *Griffith Review* 27, (2010), 59-73.

¹¹ There are striking similarities in the narratives of US ecologist, Paul Sears, *Deserts on the March* (second ed. 1947), and Australian writer Elyne Mitchell, *Soil and Civilization* 1946. Clearly both drew on ideas in the air during wartime years.

twentieth century. Feeding people, or more precisely, governing against hunger, has been a fundamental justification for organising tribes into nations, and nations into empires. By the 20th century, it became a justification for science, especially soil science, in the service of empire.

Selcer opens his chapter *Men against the Desert* with Walter Clay Lowdermilk's eleventh commandment: "thou shalt safeguard thy fields from soil erosion."¹² In 1939, when Lowdermilk made this pronouncement, he was assistant chief of the U.S. Soil Conservation Service. Later he went on to chair UNESCO's postwar Arid Lands Program. He argued that soils for agriculture were a crucial part of the bold global plan for postwar reconstruction. Soil erosion was "the ultimate consequence of modernity's sins."¹³ Rectifying the *deserts on the march* was the first moral duty of a citizen of the world.

Nationalism had torn the world apart, but a new global-scale agriculture project would assure enduring peace. The architects of the United Nations, established in 1945, conceived the whole world as a village, a single community. They argued that wars occurred where "there was a lack of consciousness in the minds of individuals that they were related to a world community."¹⁴ The UN defined itself in terms of this new global public of world citizens. As Selcer argues, "in their quest for a world community," the UN "ended up crusading for Spaceship Earth, an interdependent planetary system that required, to function optimally, the secure hand of expert-guided state planning."¹⁵ The postwar cosmopolitan scientists and international civil servants, the experts who served the UN, became the leaders of a new world-minded citizenry. Their souls were no longer national, but global.¹⁶ Practical projects—like agriculture—were established to demonstrate the value of expert guidance to ordinary "people on the ground" (including in developing countries). Together the experts and the local peoples were the polity that justified the UN's vision for the world.

In 1960, the International Congress of Soil Science chose for its theme, "Alleviate Hunger: Promote Peace through Soil Science."¹⁷ This led to the *Soil Map of the World*, produced in partnership between UNESCO another major international institution, the Food and Agricultural Organization (FAO), based in Rome. UNESCO had brought together education, culture and science and became one of the UN's most successful institutions. Where most of the UN struggled to pull together developing and developed nations (the Third and the First world, in UN language of the time), UNESCO used science, a universal form of knowledge, and a partnership with FAO to transcend cultural difference. The charismatic ecologist Julian Huxley, and the

¹² Selcer, 97.

¹³ Selcer, 84.

¹⁴ Selcer, 24, channelling Quincy Wright.

¹⁵ Selcer, 245.

¹⁶ Pico Iyer, *The Global Soul: Jet Lag, Shopping Malls, and the Search for Home* (New York: Knopf, 2000).

¹⁷ Selcer, 135, 137.

scientific Sinologist Joseph Needham, joined forces to build UNESCO's global projects, enrolling scientific expertise to develop regional interests that drew together new partnerships to manage ecological change. UNESCO's Advisory Council on Arid Lands Research, for example, focused on *desertification*, on restoring water and nutrients to soil damaged by overuse and war. It began with the needs of the new postwar nations, India and Israel, and in 1952 expanded to include the deserts of Australia and Peru, not so much overcropped as underutilized.¹⁸ Feeding the world guided many international initiatives, including UNESCO's 1958 *Food for Peace Plan*. A decade later UNESCO led the 1968 Biosphere Conference that led to the Man and the Biosphere Program (MAB).¹⁹ The roots of MAB were in Huxley's original vision for "a world culture rooted in scientific humanism"²⁰ and C.H. Waddington's idea of human ecology as an international interdisciplinary program.²¹

People started calling themselves "environmental scientists" by the early 1960s, and by 1968, there was a formal Scientific Committee on Problems of the Environment (SCOPE).²² International air travel for conferences had become more affordable, enabling far-flung scientists to meet and influence each other. Soil and agricultural problems became case studies to be compared internationally. The global scale demanded a common language for sharing comparisons. "Integrating more points of view produced more useful knowledge, and new communities of knowers," Selcer argues. "National and racial inclusivity rather than exclusivity became a mark of credibility. 'Action Research,' the process of producing knowledge, was an act of social reform, of community development."²³

The paradox was that the ecological principles behind Huxley's manifesto for UNESCO were often sacrificed to scaling up to create a world narrative. The universal thinking that was useful to international development programs did not reflect the complexity of natural soil profiles. Discounting the detailed natural geography of agricultural lands seriously undermined what ecologists knew best. Selcer presents the FAO Map as a real version of Jorge Luis Borges's fantasy of an empire so defined by cartography that its geographers constructed an "unconscionable" map, the size of the empire itself.²⁴ The scale of 1:5 million was infinitely too simple to convey the nuance and diversity of soils that could sustain a human or ecological community. The FAO *Soil Map* became a risk management device, a sort of agricultural weapon in a war against nature in the search for peace. The map asked simply "what can be produced, under what conditions, with what

¹⁸ Libby Robin, *How a Continent Created a Nation* (Sydney: UNSW Press, 2007), 113.

¹⁹ The full name of the conference was the Intergovernmental Conference of Experts on the Scientific Basis for Rational Use and Conservation of the Resources of the Biosphere. Selcer, 173-6.

²⁰ Selcer, 72.

²¹ Mooted at the General Assembly of the International Council of Scientific Unions (ICSU) in 1961.

²² Under the auspices of ICSU, an institution inaugurated in the interwar years (1931).

²³ Selcer, p. 22.

²⁴ Selcer, 133.

interventions and at what risk?”²⁵ As “a scientific basis for the transfer of environments,” it was an imperial blueprint.²⁶ Yet it was also fatally limited: a classic case of what Timothy Morton would describe as a *whole smaller than its component parts*.²⁷

The usually un-named soil scientists involved in the enterprise formed a community of global citizens who experimented in places “unknown to science,” worked with local people, then moved on to fresh fields once they had established “knowledge and skills, best practice and common [international] standards.”²⁸ While the locals mapped the soil, supplying the actual data for the Soil Map, the experts talked to each other through technical literature, and became purveyors of this “universal” knowledge. Like United Nations aid workers, they travelled to “hot spots,” rather than developing knowledge of how agriculture worked in any one place. While they clearly served the higher ideals of world peace in the postwar era, and even (despite their imperial style) came to assist the emerging UN program of decolonization, their aerial view of the world did not advance soil science greatly.²⁹

The FAO/UNESCO *Soil Map of the World* (1961) reshaped the science of “pedology,” from being a tool for a local agriculture department to an international science. Developing a template for talking internationally about soils was part of the postwar push to “feed the world,” with global soil scientists carrying their wisdom around the world, to developing countries with growing populations, rich and poor alike. The technical language of the FAO Map was defined as “best practice” at the time, but was not particularly helpful to local farming practices anywhere. The history of this sort of pedology, like that of globalization itself, is written in minutes rather than memoirs. Selcer’s forensic analysis of buried archival documents take us straight to the heart of how world-mindedness once guided science. His elegant and savvy prose reveals how science and society partnered to transform a crisis, to build a new world from the rubble of war.

World-mindedness might even work again, if given a chance to prioritise society, life in all its forms and the environment over vested interests, in the post-Covid era. This history suggests, though, that there needs to be a complete re-think of the agglomerative power of the global and its effects on the self-sufficiency and sustainability of the local. We can do well to start with Selcer’s unpacking of how we came to imagine a “global environment” in the first place.

²⁵ Selcer, 135.

²⁶ Selcer, 134.

²⁷ Timothy Morton, *Being Ecological* (Pelican: London, 2018).

²⁸ Selcer, 9.

²⁹ The soil map project was launch just as Algeria gained independence from France in 1961, and decolonization was moving through the rest of Africa and much of Asia and the Pacific.

Comments by Thomas Robertson

As I write, a “global pandemic” is raging around my city and in neighborhoods and countries around the world. First emerging in China, the virus spread to Europe and North America and other points around the planet. A product of social structures as well as natural forces, Covid-19 is also a complicated mix of global, national, and local dynamics. On all those levels, the disease has spurred human solidarity but also insularity and selfishness. It has prompted challenging questions for democracies: What is the right role of technical experts in decision making? Who should decide questions of health and economy, and who decides who should decide? More fundamentally, the Covid-19 health emergency asks us to think through our relationships to each other, on a local, national, and global basis. In an interconnected world, what kind of neighbors can and should we be?

Perrin Selcer’s *The Postwar Origins of the Global Environment* examines related questions during the decades after World War II through environmental issues. The book traces UN thinking and practices—particularly UNESCO thinking—on global environmental matters from the 1940s through the UN Conference on the Human Environment in Stockholm in 1972. Selcer has chapters on “one world” thinking in the 1940s, the first UN conferences on environmental matters in the late 1940s, UNESCO’s campaign against desertification in the 1950s, a UN global soil map-making project in the 1960s, ecological modeling projects such as the Man and the Biosphere in the 1960s, and then the 1972 Stockholm conference. He traces how those in the UN and its orbit built the intellectual, political, and bureaucratic infrastructure for understanding environment problems at a larger and larger scale, eventually a global scale. “The UN System,” he says, “provided a forum in which the planet’s diverse peoples negotiated the meaning of the global scale.”

Selcer provides a great deal of thorough and insightful research on the international stories that we don’t often hear much about, such as the UN conferences at Lake Success in 1948, the soil map of the world project, and the 1968 Conference on Ecology and International Development. This conference shows that many of the environmental scholars and activists that we often think of in a domestic frame, such as Barry Commoner and Russell Train, actually had a strong focus on international concerns, particularly international development programs in the developing world. That conference’s proceedings, later published as *The Careless Technology: Ecology and International Development* (1972), helped set the agenda for the Stockholm conference.

Postwar Origins offers a lot of food for thought on what Selcer calls the postwar “history of objectivity”—a particularly important topic given the role of science in climate change politics and now Covid-19 politics. He documents the growing faith in universalist thinking in the middle decades of the twentieth century. “Scientists,” he says, “claimed the authority to speak for nature, and the language of nature was universal.” He also shows a move away from this universalism with efforts to incorporate as many views and data points from around the world as possible. In these later efforts, he writes, “Truth—the legitimate knowledge necessary for world government—would emerge not from a

god's-eye view but through the collaboration of disciplined experts representing diverse perspectives.”

In his fourth chapter, “The Soil Map of the World and the Politics of Scale,” Selcer offers a fascinating close-grained analysis of how scientists balanced the need for rigorous universal frameworks with thousands of place- and culture-specific data points. He provides a kind of historical ethnography of the world soil map in the making, drawing our attention to the mix of science and pragmatic and political compromises that went into the project. He notes that the project was “an aggressively elitist endeavor by design” but concedes that this was “by necessity” and therefore not completely disqualifying. “It is easier to criticize elite cosmopolitan projects than to imagine an alternative means of constructing global knowledge,” he writes, refreshingly. Ultimately, he concludes that the soil map represented a “high modernist view from above” but also an important and at least partially successful attempt to incorporate a diversity of views and traditions from around the world. Walking back and forth between the contradictory forces of the “view from above” and the “view from everywhere,” he says, can yield a “productive tension.”

The book builds toward an informative chapter on the 1972 UN conference on the environment in Stockholm. This chapter complements Stephen Macekura's helpful recent analysis of the conference in *Of Limits and Growth: The Rise of Global Sustainable Development in the Twentieth Century* (2015). Although Selcer sees the Stockholm conference as a culmination of global thinking since the 1940s, he walks us through its more immediate origins: the transformations of 1968; the particular diplomatic interests of Canada and Sweden, the two nations that pushed for the conference; as well as the 1971 Founex Report that called for a marriage between development and environment. He also provides a useful analysis of Barbara Ward and René Dubos's 1972 book *Only One Earth: The Care and Maintenance of a Small Planet*.

Selcer helps us better understand how there is not one but rather multiple worlds. He shows the divisions between “first world” and “third world” nations at the conference but also sheds light on other “fractures” on display at the meetings: the regional rivalries, subnational agendas, and even the politics of South American watersheds that shaped Brazil's views on international environmental concerns. Despite all the divisions and tensions at the conference—divisions and tensions that belied easy ideas of “one world” global community—Selcer finds that the effort itself yielded important advances. “In the epoch of the Anthropocene,” he writes at the conclusion, “we cannot claim to inhabit a world community, but we still may appreciate the postwar generation's great accomplishment: making the global-scale environment a political problem.” He also notes that the conference spurred the development of environmental NGOs and environmental protection agencies in countries around the world.

In the book's conclusion, Selcer suggests that the history of UN thinking about global scale environmental problems can help us better understand climate change as a global problem. That makes tremendous sense to me, and I think Selcer's history of thinking about objectivity is very useful for this. But I'll admit I was left wanting more from the book (perhaps unreasonably so) in two ways. First, the book spends a lot of time

analyzing “the practices that coproduced global knowledge and international institutions,” a central part of which was looking at “what kind of communities” these practices and institutions produced. I was left wondering how these issues of coproduction and community building influence current day climate change science and politics. I suppose I could hear my students complaining that the book’s approach was interesting theoretically but less useful in the real world. The conclusion offers only a few quick thoughts in this direction. What are some of the specific lessons we might draw?

I also wish Selcer had not stopped his story of the history of objectivity in 1972. That seems just the moment when everything was getting interesting. I wanted him to follow the issues, particularly the history of scientific objectivity, forward at least another decade or so. Selcer builds toward and keeps the frame very tightly on the UN Stockholm conference, but then in the conclusion tells us that a factor he hadn’t discussed in detail may actually be more important for shaping global environmental problems—the neoliberal framework that came to prominence in the 1980s and beyond. I know there are limits to every project, but it was a bit jarring to hear this.

My own research (including a chapter similar to Selcer’s idea of “fracturing” subtitled “The Disuniting of Spaceship Earth”) traces some of this important story in the 1970s and 1980s—but only tangentially and from a mostly domestic US perspective—by looking at race, class, and gender critiques of neoMalthusian environmental science. It would be excellent to have more analysis of these 1970s questions within the more international context that *Postwar Origins* charts for us and with Selcer’s perceptive eye.

The neoliberal turn among US conservatives has a deep history, of course, but it seems that important shifts were churning in the early 1970s, the decade that saw the move from Richard Nixon’s eclectic conservatism to Ronald Reagan’s “new right.” Indeed, in exactly the years that Selcer looks at closely, from 1968 to 1972, Reagan shifted from a moderate environmentalist to the kind of politician who Selcer says increasingly “openly challenge[s] the epistemic authority of science.” In a prominent late 1971 speech, Reagan specifically attacked new environmental frameworks. “We seem to live in an age of simplistic overstatement and false propaganda. We used to have problems. Today, we have crises.”¹ (He doesn’t use the word “hoax” but he doesn’t seem far from that thinking.) How did Reagan and other conservatives react to Stockholm and UN environmental work? How did these increasingly influential political figures fit within the history of objectivity that Selcer documents for us? *Postwar Origins* offers an excellent close analysis of critiques of “one world” thinking in Los Angeles and the US more broadly in the late 1940s and early 1950s, showing how McCarthyism and other conservative views completely altered the landscape. I wonder what a similarly probing look at the new conservative communities coming into being in the 1970s could reveal. Conservative responses to Stockholm and global environmentalism from elsewhere around the world might also help us understand the current climate change landscape as well. Much easier said than done, I know.

¹ Ronald Reagan, Remarks to American Petroleum Institute, November 16, 1971, Folder “Speeches, 1970,” Box P18, Ronald Reagan Library, all quotes from 2.

On the opposite end of the political spectrum, too, there seemed to be a lot of profound and influential rethinking underway in the early 1970s about ideas of scientific objectivity. Barry Commoner attacked Paul Ehrlich and neoMalthusians not just for their understanding of environmental history but also for their unqualified faith in scientific experts. Ehrlich wanted like-minded ecologists, not sentimental and prudish humans, in charge of public policy, but Commoner had built a career going back to World War II and Hiroshima arguing for civilian control of science. Geographer David Harvey went even farther, questioning scientific objectivity itself. In a pioneering 1974 article in *Economic Geography* attacking neoMalthusians, Harvey claimed that science itself—all science—was inherently biased. “The adoption of certain kinds of scientific methods,” he wrote, “inevitably leads to certain kinds of substantive conclusions which, in turn, can have profound political implications.” He concluded, “We are...forced to concede that ‘scientific’ enquiry takes place in a social setting, expresses social ideas, and conveys social meanings.”² Harvey’s line of thinking became increasingly important in the closing decades of the twentieth century. It grew from the issues and events Selcer is interested in, and seems to have shaped debates about climate change.

No book can do everything, though, and *Postwar Origins* covers a log of underexamined ground, in thoughtful and innovative ways. It adds to and clarifies our thinking about the pivotal Stockholm conference in 1972, especially our ideas about science, institutions, and scale, and traces influential patterns of thought back to their origins in World War II and the 1940s. As environmental historians grow more interested in global politics and policy, especially in these days of global pandemics, few books can be as useful of a guide to the complicated dynamics involved.

² David Harvey, “Population, Resources, and the Ideology of Science,” *Economic Geography* 50, no. 3 (1974): 256-257.

Comments by Sabine Höhler, KTH Royal Institute of Technology

The Global Environment: A History of Paradoxes

The Postwar Politics of Scale

“Die Wüste wächst: weh dem, der Wüsten birgt! / Stein knirscht an Stein, die Wüste schlingt und würgt. / Der ungeheure Tod blickt glühend braun / und kaut,—sein Leben ist sein Kaun...”¹ Die Wüste wächst—the desert advances: Friedrich Nietzsche suspected this already in the 1880s. I heard much about growing deserts when I grew up in West Germany in the 1960s and 1970s. All over the world, and particularly in the African Sahel region, human overuse led to impoverished soils. Irresistibly and irreversibly, the arid regions encroached on arable land. Drought and erosion added to land degradation and ever lower productivity. A similar image of soil running like sand through a farmer’s fingers was associated with the hypothesis of the “nuclear winter.” A nuclear war, intentionally or accidentally unleashed by the superpowers, would release aerosols into the atmosphere and stratosphere. Those particles would block the sunlight and effect a global cooling of the climate that would grip the Earth with harvest failures and famines. Narratives of environmental degradation became real by being told and performed over and over again in various versions with invariable core elements—they were myths, not so much regarding their scientific content, but in how they demonstrated global environmental effects, advocated expert intervention and justified world environmental policy making. To the science-trusting child I was then, desertification and nuclear winter were two real expressions of the “global environment,” on spatial scales and levels of expertise far beyond me but affecting me in immediate ways.

Many scholars today agree that the global environment is a mediated entity. To state that global climate, the world water cycle, sea-level rise, biodiversity, the earth system, or planetary health are historical conceptions does not deny the effects of global environmental change on local communities. The global environment has a history. Environment was not simply global, it became, it was made global. But why, when, how, and by whom? Many studies have addressed the politics of enforcing human limits, lessening environmental impacts, organizing fair resource distribution and mitigating disasters. Political scientists and international relations scholars trace negotiations and regulations, following the jet set of international politics and transnational finance. While this literature is extremely useful to historians, it often leaves unquestioned the object of such policy-making and governance: the global environment itself.² Environmental historians and historians

¹ Friedrich Nietzsche, *Die Wüste wächst: weh dem, der Wüsten birgt...* (*Dionysos-Dithyramben*, 1888, first printed Leipzig 1891), in *Friedrich Nietzsche: Werke in drei Bänden* (München 1954), Vol. 2, 1243-1248.

² There are notable exceptions, e.g. Matthias Schmelzer, *The Hegemony of Growth: The OECD and the Making of the Economic Growth Paradigm* (Cambridge: Cambridge University Press 2016); Stephen J.

of science have addressed the environment as an emerging concept after World War II, and they have traced environments in fields beyond the environmental sciences and before the term became ubiquitous, going back to the 18th and 19th centuries.³ While this literature takes the environment seriously as a historical entity that became evident in concepts, practices and materialities, it tends to be interested more in exploring environmental science and activism and less in the institutional and organizational frameworks beyond local cases and national levels.⁴

Selcer's book combines the best of both worlds and takes them further with a remarkable study that merges the intricacies of the political history of internationalism with the history of global environmental science in the making. He argues that the global environment appeared as a researchable and governable entity in parallel with and as part of the effort of building a new world community after World War II. He pursues this claim by addressing on the one hand the conventions, reports, declarations and bureaucracies of the United Nations, founded in 1945, and its functional agencies between 1949 and 1972, and on the other the massive scientific surveying, mapping and monitoring programs that UN agencies launched and the local environments they scrutinized. Together, these two threads form a fascinating story, impressively rich and informative, well written and entertaining.

Selcer's approach requires an exercise in scaling that is still novel to historical research. The postwar "politics of scale" (154, 231) refers to the familiar historical backdrop of the After-War and Cold-War periods that were characterized by the confrontative and competitive scaling up of industries and armaments in the so-called First and Second Worlds, and their expansive political and economic influence over the Third World. Moreover, the politics of scale refers to a small cosmopolitan elite of Western origin and its ambition of scaling citizenship and community up to the whole world. To explore the scaling work pursued by this well-educated postwar generation of scientists is to "zoom in on particular scale-making projects" (5) under UN auspices, which began to study everything under the sun, from advancing deserts to degrading soils, from organisms to biomes to the biosphere. "Scale-making" must be understood literally as an approach taken by the historical actors as well as by the author. Scientists constructed not only the instruments,

Macekura, *Of Limits and Growth: The Rise of Global Sustainable Development in the Twentieth Century* (Cambridge: Cambridge University Press 2015).

³ Paul Warde, Libby Robin, and Sverker Sörlin, *The Environment: A History of the Idea* (Baltimore: Johns Hopkins University Press 2019); Paul Warde, *The Invention of Sustainability* (Cambridge: Cambridge University Press 2018); Etienne Benson, *Surroundings: A History of Environments and Environmentalisms* (Chicago: The University of Chicago Press 2020).

⁴ There are notable exceptions, e.g. Wolfram Kaiser and Jan-Henrik Meyer (eds.), *International Organizations and Environmental Protection: Conservation and Globalization in the Twentieth Century* (New York: Berghahn Books 2019); Simone Schleper, *Planning for the Planet: Environmental Expertise and the International Union for Conservation of Nature and Natural Resources, 1960-1980* (New York: Berghahn Books 2019); Iris Borowy, *Defining Sustainable Development for Our Common Future: A History of the World Commission on Environment and Development (Brundtland Commission)* (New York: Routledge 2015).

methods, and measures but also the categories and standards that enabled the relating of local observations to one another and to political and technological norms and interventions from which a global-scale environment could emerge.

The Faultlines of Scaling

Active and concerted efforts were needed to aggregate local and regional information into a format that could represent the global scale, be it world community or global environment.⁵ Things do not scale easily, nor do they scale seamlessly; scaling comes with omissions, distortions, and frictions.⁶ I was fascinated to read about the numerous contradictions these scaling efforts involved. Selcer confesses early on that his book tells “a history of paradoxes.” (8) If you ask me, this is where the book is at its best. The local-scale and global-scale environment forms the most obvious paradox. The politics of scale required constant movement between analysis and synthesis, between the isolation of individual elements and the reconstruction of the whole. The fault lines created by this movement, the fissures between the parts, never totally disappeared.

Take the example of UNESCO’s Arid Zone program of the 1950s. Selcer presents the scientific method in detail. Superimposing ecological zones over political borders redrafted the global geography. Scientists redefined a region and the globe in climatological rather than in political terms. Selcer demonstrates this in a beautiful vignette of US geographer Peveril Meigs, who, in his singlehanded compilation of a world map of arid zones, placed sites as different as “San Francisco, Salt Lake City, Chicago, New York, the central Chilean coast, and the core of the Russian steppes” (125) into the same thermal category. Meigs’s climatic classification shifted familiar boundaries and reorganized the political world into a new entity that became real through its abstractions from countless measurements and observations. I propose employing Tim Morton’s term and perceiving the global environment as a “hyperobject.”⁷ It exists, but it exists only in an aggregate form, and it cannot be grasped in total from any vantage point—apart from the vantage point of the expert scientist.

Take the FAO and UNESCO’s Soil Map of the World from the 1960s. The soil survey underlying the map was a massive endeavor that involved numerous field scientists, institutions, new techniques, and new instruments. It was a huge coordination effort to make different soils comparable. The project followed the scientific ideal of a global uniformity of soil standards for soil documentation and improvement. Global environment took shape through the “correlation” of single parts (154). And yet,

⁵ Lino Camprubí and Philipp Lehmann, “The scales of experience: Introduction to the special issue Experiencing the global environment”, *Studies in History and Philosophy of Science Part A* 70 (2018): 1-5.

⁶ Paul N. Edwards, *A Vast Machine: Computer Models, Climate Data and the Politics of Global Warming* (Cambridge, MA: The MIT Press 2010); Anna Lowenhaupt Tsing, *Friction: An Ethnography of Global Connection* (Princeton: Princeton University Press 2005).

⁷ Timothy Morton, *Hyperobjects: Philosophy and Ecology after the End of the World* (Minneapolis: University of Minnesota Press 2013).

necessarily, the soil map in the scale of 1:5 million was another “thin simplification” (134; here Selcer invokes James Scott’s classic dictum). It was devised as an *Approximation* (146), but precisely in this form it could become a useful tool for the future cultivation of the world. The map held an enormous exchange value, and as such it was highly exclusive. Its composition did not rely on local farmers’ soil knowledge, and it departed from the common practice of enlisting a workforce of lay people in large-scale field-science studies. The map was a communication and utility device that circulated between experts. “This mapping project was an aggressively elitist endeavor by design.” (154)

The ideal of integration versus practical exclusiveness is a paradox that runs through the book, both regarding the One World regime that the UN officials and experts worked towards and regarding the global environment they created. “Unity in diversity” was the mission of an international liberal democratic network of enlightened scientists and bureaucrats, of mobile intellectuals who were able to transcend local specificities such as language and culture with social and financial capital. The irony is shining. A similar contradiction regards nationalism in internationalism. Historians are well acquainted with the “mechanics of internationalism” since the formation of the nation-state and the effort of enabling and conditioning the transnational flows of science, economy, trade, media and technology in the 19th century.⁸ International norms, conventions, and standards did not weaken the nation-states; if anything, nations acquired more power. And despite the firm moral authority of a formalized international organization, the UN was too weak to act supranationally. The UN, Selcer accurately observes, did not overrule but instead affirmed and accelerated the nation state “as the only legitimate basis of sovereign power” (20). Moreover, internationalism’s colonial legacies extended into the developmental projects after World War II and after decolonization. In practice, technical expertise, promoted as local empowerment for development, supported both new international and old imperial structures. Selcer presents the myth of desertification as a good example of how old imperial power relations were resubstantiated. The declensionist narrative of local exploitation and neglect invited and justified the UN’s intervention for the resurrection of arid land.

In this conflicted political setting, science seemed conveniently unpolitical. As the agent of universal truth, science could serve as a powerful resource. Again, the desertification example proves how “useless science” (basic research) could approach a useless object (the desert) in a discreet geopolitical move (107). Or take the case of the Global Environmental Monitoring System (GEMS) in the 1970s, which ran a “big biology” (183) monitoring and modeling program over the Earth’s surface. In its aim to monitor the environmental health of particular places, GEMS located the global-scale environment in oysters and shrimps. Inconspicuous organisms became indicative species; they became organic instruments or sensors, and parts of larger sensor networks for predictive purposes. Another irony I

⁸ Martin H. Geyer and Johannes Paulmann (eds.), *The Mechanics of Internationalism: Culture, Society and Politics from the 1840s to the First World War* (Oxford: Oxford University Press 2001).

enjoyed is Selcer's reflection that cosmopolitan scientists brought forth "cosmopolitan species" (197). Cosmopolitan species populated a global environment that was emptied of humans.

The Planetary Environment: A View from Within

Selcer calls the politics of scale a "politics without people." (201) He distinguishes between the internationalist, distributed "view from everywhere" and the rigorously uniform and managerial "view from above." (22) Both perspectives provided synoptic views, but while the first embraced diversity, upholding intersubjective objectivity, the second erased diversity and the particular, situated view by creating a master perspective. Within the UN system, Selcer claims, the view from everywhere turned into the high modernist view from above. The "global environment" resulted in the move from the first to the second view, and I wonder whether they can be separated at all. Global environment in Selcer's history of paradoxes is unified and fractured at the same time. It is at once antimodern, postmodern, and high modern: free of people and full of cosmopolitan species. In this sense it was very much like Spaceship Earth, the powerful myth which framed and organized much of the UN's official and expert thinking and agency at the time.

Selcer explores and employs Spaceship Earth primarily in the spirit of Adlai Stevenson and Barbara Ward, as the appeal of politicians and political scientists to a vulnerable world community that found itself thrown back onto its limited geopolitical resources, utilizing the currency of the figure of the spaceship at the height of the Space Age. While Stevenson explicitly pointed to the vulnerable supplies of air and soil on which the passengers of Spaceship Earth depended, Ward applied the spaceship as a metaphor to invoke the balance of power and wealth in a world facing nuclear wipeout.⁹ The spaceship carried a second, more progressive vision, however, of an economic and ecological model of sustainability. Kenneth Boulding devised Spaceship Earth to question postwar capitalism and economic growth. His "spaceship economy" proposed to close the material cycles of production and waste on Earth and beckoned a future economic system of sufficiency. Richard Buckminster Fuller envisioned Spaceship Earth as a technoscientific blueprint for an expansive design and engineering project, anticipating an efficiency revolution to manage the future of resources and (human) life on Earth.¹⁰ These architects crafted Spaceship Earth as a vehicle to escape global environmental limitations by building a sustainable operating system. Spaceship Earth provided the global environmental "life support system" which still sustains Earth today.

⁹ Barbara Ward and René Dubos, *Only One Earth: The Care and Maintenance of a Small Planet* (New York: Norton 1972), pp. xvii-xviii; Barbara Ward, *Spaceship Earth* (New York: Columbia University Press 1966).

¹⁰ Kenneth E Boulding, "The Economics of the Coming Spaceship Earth," in *Environmental Quality in a Growing Economy: Essays from the Sixth RFF Forum*, ed. Henry Jarrett (Baltimore: Johns Hopkins Press 1966); Richard Buckminster Fuller, *Operating Manual for Spaceship Earth* (Carbondale: Southern Illinois University Press 1969).

Spaceship Earth was the expression of a new global environmental infrastructure. The “international knowledge infrastructure,” (2) which Selcer highlights, was necessary but not sufficient to build this Spaceship with a capital S. This Spaceship profoundly relied on the (space) technosciences, systems ecology, and cybernetics. A review of the literature on this conception of Spaceship Earth beyond Peder Anker’s excellent work on space ecology and space colonization could have provided the clues.¹¹ The global environment did emerge as a single interconnected system in soil-science surveys, but it also materialized as a large technological system, an infrastructure, a planetary machine devised by systems scientists. Herein lies a paradox that I would have liked to see addressed in the book: How do the global and the planetary relate? I believe that a shift of perspective is asked for, indeed another scale shift. Spaceship Earth was not global but planetary in scope. Selcer indicates as much when he refers to Stewart Brand’s *Whole Earth Catalog*. While the *Whole Earth Catalog* shared a logo (the Blue Marble) with the UN preparatory report *Only One Earth*, “they were operating manuals for actors intervening at different scales” (222). One addressed the local counterculture, the other the world community. Spaceship Earth, however, operated on a planetary scale. The view from above became a view from within.

The view from within, the notion of all humankind inhabiting a spaceship of planetary scale, allowed dystopian and utopian futures to merge. The “survival of humankind” was the moral objective of local activists and of cosmopolitan elites, but it also presented a depressingly minimalist version of human life. It justified limiting some lives to a minimum in the name of the greater global good and it allowed human ecologists to reframe the question of a fair global resource distribution accordingly. On Spaceship Earth, the minimal became the optimal. In this functionalist view, the dynamic balance of the integrated holistic system cancelled the question of who gained and who lost in the global equilibrium. “Carrying capacity,” the Spaceship’s maximum sustainable load, which naturalized economic limitations in ecological terms, hardly appears in the book, although this concept helped to legitimate Spaceship Earth’s classist and racist selectiveness.

In the face of Spaceship Earth’s operating system, how should I understand Selcer’s statement that “Spaceship Earth was a product of history, not design”? (10) I read his statement as an implication that Spaceship Earth was the outcome of competing scale-making projects and of a longer political history of the globe fraught with friction that no individual or community controlled or mastered. While I agree with Selcer on the importance of understanding historical contingency, I am puzzled about his view on technology’s role in crafting and sustaining the Spaceship. Materialized routines and infrastructures were hard to detour, let alone dismantle. Once in place, they required maintenance and repair. A few examples of Spaceship Earth by design Selcer offers himself. The Egyptian Aswan High Dam project designed an optimal irrigation system in the “Biotechnic era” (115). The

¹¹ Peder Anker, “Buckminster Fuller as Captain of Spaceship Earth,” *Minerva* 45 (2007) 4: 417-434; Peder Anker, “The Ecological Colonization of Space,” *Environmental History* 10 (2005) 2: 239-268.

International Biological Program (IBP) and the Man and the Biosphere Program (MAB) reconfigured the biosphere as a complex, self-controlling system (187), which supported visions of global ecological engineering, for instance by optimizing the photosynthesis process (188). Spaceship Earth framed how environmental problems were perceived and which solutions seemed obvious.

Seen as a planetary life-support infrastructure, which tightly regulated who or what could be functionally integrated into the planetary machinery and who or what had to be discarded as surplus, Spaceship Earth hovers like a UFO over the UN “circus.” (220) Selcer does not explore in depth how the ideal of democratic world citizenship and governance related to the technocratic and autocratic government of Spaceship Earth. The environmental monitoring programs and their indicator systems created the “cockpit display for the captains of Spaceship Earth” (219), suggesting that its governing mechanisms were all but democratic. If we take its “impoverished conception of scientific democracy” (248) seriously, how can we reconcile Spaceship Earth with the “fight against authoritarianism” (245) that inspired the postwar cosmopolitan elite to build it? Only in his conclusion, Selcer acknowledges that Spaceship Earth was “an interdependent planetary system that required, to function optimally, the sure hand of expert-guided state planning” (245). In many regards, Spaceship Earth represented the opposite of the intellectual cosmopolitanism that the UN represented outwardly.

Lastly, I wonder why Selcer systematically devalues postmodern theory and analysis. I hardly follow his observation that postmodern approaches mistake the functionalist fantasies of a scientific or political elite for reality (12), finding what they seek all along, a hybrid world. While there may be postmodern studies that romanticize hybridity, I wouldn’t know of any historical study that celebrates the “seamless” qualities of the white male Western visions for the world and the world community that UN bureaucrats and scientists entertained—apart from the studies of the systems scientists themselves.

We do come out on the same side, however, or so I think: Everything was *not* connected to everything else (12). Everything had to be connected actively to everything else, and omissions and exclusions were many. This is how the seemingly seamless global environment took shape. I also readily join in on Selcer’s conclusion (244): “In the epoch of the Anthropocene, we cannot claim to inhabit a world community, but we still may appreciate the postwar generation’s great accomplishment: making the global-scale environment a political problem.”

Comments by Megan Black, Massachusetts Institute of Technology

As the world first grappled with the decidedly transborder problem of the novel coronavirus COVID-19, commentators turned to the individuals and institutions capable of coordinating responses between and across nations. This included Tedros Adhanom Ghebreyesus, an Ethiopian doctor and the head of the World Health Organization (WHO). Dr. Tedros and WHO drew praise for their efforts but also scrutiny, for example, when applauding the Chinese government's attempts to contain the virus even as reports surfaced of its suppression of health care whistleblowers who called attention to the novel disease in the first place. Such actions led some to wonder, given WHO's coziness with dubious political leaders, whether the organization could continue to "speak truth to power."¹

Perrin Selcer's *The Postwar Origins of the Global Environment: How the United Nations Built Spaceship Earth* provides a history that helps make sense of such global-scale problems, international expertise networks, and faith in the line between science and politics. Focusing on climate rather than on disease, Selcer asks how historical actors came to discern the multiscalar, multicausal, and multifaceted crisis of human-induced climate change—a necessary precondition to attempting to address it. In taking on this important question, the book marks a significant contribution to environmental history and the histories of science and global thought. Where some works have analyzed the knowledge producers behind climate science and others the national conservationist leaders who spurred international debates and standards, Selcer's study foregrounds the architects of a global armature that helped to know environment on a planetary scale. For Selcer, the international organizations struck of an intensely global, multilateral postwar moment with the founding of the United Nations laid key foundations for the environmental politics encapsulated in the 1972 UN Conference on the Human Environment in Stockholm, Sweden. Ultimately, the book chronicles a pivotal quarter-century in which Spaceship Earth, the ultimate symbol of a deeply interconnected and interdependent ecosystem, became thinkable.

In this detailed study of that twenty-five-year period, Selcer launches several arguments. The first, put simply, is that science was and remains political, despite the functionalist arguments of many scientific organization leaders that there was a firm boundary between the two. The work justly implicates knowledge producers—including from the fields of social psychology, resource conservation, drylands science, soil standardization, and systems analysis—in a highly unequal postwar international order shaped by but not reducible to the Cold War. It shows how the vast scale of the "cosmopolitan" knowledge production in institutions like the UN Educational, Scientific, and Cultural Organization (UNESCO), the World Health Organization (WHO), and Food and Agricultural Office (FAO), also generated a

¹ Imogen Foulkes, "Tedros Adhanom Ghebreyesus: The Ethiopian at the Heart of the Coronavirus Fight," *BBC News*, March 3, 2020.

nagging problem: universalizing internationalism expanded community but obscured particularity (and more specifically inequality) within it. The complex dynamic is one Selcer neatly summarizes with an early discussion of “blue marble,” the photo of Earth taken from outer space that became a key signifier of the global 1970s. Encompassing all the people of Earth in one frame, the image also had a dark side: it erased those same people. It manifested “the technocrat’s dream of a politics without people” (3). Technocrats sought to sidestep the friction generated by a diverse people through apertures that allowed some nonhuman elements to come into view and humans to fall from view, achieving an elusive and problematic “unity.” Throughout the different chapters, Selcer focuses especially on those looking through the microscope, but he also makes an admirable attempt to fix attention on people who challenged the gaze of various elites. The latter group included those leaders working through the United Nations, including especially the Group of 77, to challenge highly unequal social, political, and economic structures buttressing the postwar international order—a critique that included an indictment against the environmentalism of rich countries that had already achieved certain benefits of development through environmentally degrading industrialization. The unacknowledged political work of science thus leaves us wondering: what might an actual acknowledgement of the politics within the expressly scientific project have yielded? Would that acknowledgement have provided a political basis for demanding different hiring practices, distributing educational resources differently, and developing oversight protocols for transparency that might in turn ensure a more meaningful diversity in the sought-after unity?

Another provocative claim engages the agency debates in environmental history and the history of science. Selcer offers an impassioned defense of human agency, an approach he frames as being in contrast to work that foregrounds nonhuman agency in the study of the complex environment. He maintains that attention to the interconnectedness between human and nonhuman assemblages has unintentionally made it more difficult to see the highly contested, contingent, and painstaking processes by which human actors constructed the international scaffolding necessary to facilitate planetary ecological thinking in the first place. Put differently, “the assumption of a hybrid world, then, obscures the strategies through which cosmopolitan elites attempted to create a world community” (12). While the key concern of this point is well-taken (the international organizations and historical actors shaping a global environmental politics within them have not been sufficiently analyzed), the explanation offered is less convincing. First, it seems that scholars who have pushed for a more networked approach to the study of agency would not doubt that many if not most historical actors eschewed interconnection and globalism in favor of boundaries of many different varieties—and that seeing interconnection in spite of such boundary work was indeed an arduous and historical process taken on by different human actors (at times in response to nonhuman stimuli). As Selcer acknowledges, the agency debates in these subfields simply pursue a different inquiry from that point: an epistemological project to show already existing, often invisibilized, conditions of interconnection in service of

patterning new thoughts, orientations, and structures, including those that would underpin the system of international governance.

In short, I question the extent to which the key mechanism obscuring this scale-making project is the scholarly investment in hybridity. Are scholars interested in hybridity really the ones most responsible for pushing international actors—such as biologist Julian Huxley, neo-Malthusian William Vogt, and conservationist Gifford Pinchot—to the margins? It seems rather that the greater offenders in eliding this history of internationalism have been historians constrained by a rigidly *national* framing (at times, work on hybridity accepts such boundaries, but they are hardly the only ones to do so), as well as scholars writing across historical subfields without an interest in ecological thinking at all—a disinterest that permeates other massive literatures in international relations, political science, and economics, to say nothing of mainstream political debates about national and international priorities. Selcer’s “unapologetically anthropocentric history” or “antiecological history” thus at times seems an overcorrection and a misattribution of the blame for the scholarly myopia around the international organizations making environment thinkable. In this sense, his contribution seems less about pushing against ecological thinking, *per se*, than about insisting that historiographical disconnect along spatial and thematic axes has produced blind spots that can only be overcome by bringing those literatures in conversation. Certainly, this work gives ample evidence of why they absolutely should be.

Attending to a human history across borders, Selcer very effectively argues that the construction of a global network of expertise reveals important continuities between imperialism and internationalism. Selcer makes this case by situating historical actors crucial to forging this bureaucracy as moving easily between imperial assignments and international assistance. Programs of technical assistance sent US officials to Latin American nations such as Peru, Brazil, and Argentina that had long been targets of US hemispheric pacification, while French and British officials arrived for the same purposes in the former European colonies Senegal and Uganda (180). One such expert, Jean-Paul Harroy, moved from serving the Belgian colonial administration in Central Africa to the International Union for the Protection of Nature (17). From this evidence, Selcer concludes that the color line that historically divided global North and global South remained firmly entrenched. The G77, in the founding of the New International Economic Order, similarly argued that postwar institutions founded in cooperation nevertheless “reproduced the unjust international order” (217). However, this helpful framing also leaves blurry the actual conditions facilitating asymmetry. How did the imperial expertise manifest closer to the ground in the international order? What happened when white elite experts arrived in different national contexts in the global South in pursuit of their seemingly objective aims tied to desertification, soil, and mapping? To what extent did their efforts actually produce asymmetrical structures of racialized labor and environmental exploitation? How might these individuals, officially representing the UN, have simultaneously or even primarily represented

other institutions or communities to which they belonged, whether financial and capitalist or philanthropic and educational?

The relationship between individuals and institutions is in fact of broader interest to Selcer, who brings the organizational history of the United Nations into the center of the analysis. He draws on Daniel P. Carpenter's theory of forging bureaucratic autonomy, especially at the mezzo-level of department heads, to make a case for the greater consolidation of power among these different units. He maintains that agencies sought to amass power through building networks and becoming entangled in the interests of other actors and institutions. The dizzying array of organizational charts affirms this point, but they also left me wondering about comparisons to different typologies of organizational models, including corporations and national governments. How did the scope and tenor of this bureaucratic machinery relate to others? What differentiated the levels? In addition to characterizing those levels as "first" (member states), "second" (international secretariats), and "third" (affiliated NGOs and independent experts), what might a more thematic approach look like? I was left curious to know more about Selcer's theorization of the particular contribution or disposition of these levels.

A final question that I would be eager to hear more about is the extent to which these international institutions bore the imprint of the national interests that subtended and often divided them. Selcer concedes the great irony of international energy: that institutions like the United Nations upheld nation-states as the only legitimate unit of sovereignty. He also points to moments in which different nations had outsized influence. For example, the United States provided forty percent of the UN budget (19), while the British role in the International Biological Program that helped illuminate the "biome" was so large as to earn the label "International *British* Program" (176). The difficulty is that international visions were hardly the exclusive purview of international organizations. Those in explicitly national roles, including secretaries of the U.S. Interior Department who make a frequent appearance in the narrative, could also espouse a vision of a global shared heritage tied to nonhuman nature's borderlessness. However, these global visions, at times sincerely felt and at others simply rhetorically useful, also provided political cover for an array of intentions, including decidedly unilateral rather than multilateral ones. The global was therefore a screen onto which historical actors could project different desires, much like the desert. As Selcer shows, although experts debated desertification and the precise origins of the desert, whether the result of *underdevelopment* and lacking agriculture or the result of *overdevelopment* wrought of large-scale projects, they agreed that transborder interventions, both unilateral and multilateral, were needed to manage it. So what is so singular about the vision of international organizations in debating large-scale environment? What do we make of instances when scale-making projects allowed certain "international" actors to justify national projects of expansion in the language of international cooperation? If nation-states could so easily make or break the functioning of the institution, what is the relative weight of the international organization in the direction toward which such globalism could be put? Does this epistemic community really have an "official voice

of its own” (176) distinct from the representatives of nation states—also representatives of other communities, including corporations, universities, or religious organizations—who comprise it? In moments of crisis, did the multilateral structure reveal itself to really be an impressive gallery built almost entirely from items on loan, items that were quickly repatriated when push came to shove?

These open-ended questions about boundaries and power inevitably follow from reading such a far-reaching and comprehensive work as Selcer’s. It is a terrific contribution, one that also is poised to offer lessons about the power agencies like the United Nations have to coordinate a global response to the multiple and interwoven planetary crises playing out every day.

Response by Perrin Selcer, University of Michigan

My overriding response to these four commentaries is gratitude to the authors (and editor Keith Woodhouse) for giving so generously of their time and attention, especially amid the stress and distractions of 2020. Indeed, Libby Robin, Megan Black, and Thomas Robertson position their readings of my account of the coproduction of the global-scale environment and the international community in the context of the ongoing pandemic. The pandemic was not on my mind as I finished *The Postwar Origins of the Global Environment*, of course. (I started writing the conclusion to this history of the “world community” on January 20, 2016, the day President Trump declared “America First” at his inauguration—and had to put it aside for a month to avoid writing an editorial instead of an ending.) But I do think my arguments help make sense of elements of this current crisis. The postwar generation of internationalist experts I follow would have understood the COVID-19 pandemic as a terrible tragedy but also as a golden opportunity to demonstrate the essential role of international organizations and science in managing our inextricably interconnected world community. Surely humans would put aside their internecine battles to unite in a fight against a common viral enemy! After all, in the face of a fast-spreading infectious disease, who could deny the reality of global interdependence? Who could ignore the universal truths of aerosol droplets, acute respiratory distress, and death?

Tens-of-millions of Americans, as it turns out, some literally to their last wheezing gasps. And instead of urgently reinvesting in the World Health Organization, the Trump administration blamed it for failing to contain the virus and withdrew (as it had done a year earlier from UNSECO). Far from forging a sense of common cause across international borders, the disease exacerbated conflicts within and between nations. As in so many aspects of contemporary politics, this reactionary recklessness echoes the McCarthy era. As I show in the book’s first chapter, despite the undeniable horrors of world war, internationalists’ vision of One World proved as effective at rallying white ethnic nationalists in the United States as inspiring world citizens. This episode also presaged connections between the WHO withdrawal and the authoritarian response to Black Lives Matter protests; postwar anti-internationalism was fueled by white grievances over local citizens’ embrace of a “UNESCO curriculum” that celebrated multiculturalism in the context of fights over public housing and school desegregation. Despite the near total absence of international agencies from American daily life, as reflected in the blasé response to the country’s withdrawal from WHO, the right wing has enjoyed whipping the UN scapegoat and making paranoid rants against “global elites” since the McCarthy era.

The effective backlash against internationalism was a painful finding. Like Robin, I am attracted to the cosmopolitan ideals of world community. We do need to think about what “it is to be fair and humane” at a planetary scale and I am inspired by

postwar internationalists' slogan, "unity in diversity."¹ But in the Anthropocene, we would be unwise to ignore the historical lesson that although a global vision motivated scientists, civil servants, and activists, neither One World nor Spaceship Earth attracted winning political coalitions. Defending parochial communal values against globalism inspires passions, too. I am thus reluctantly pessimistic about the political prospects of calls for a new age of planetary loyalty. Instead, as climate activists have learned, embracing the politics of scale requires strategic analysis and tactical moves between neighborhoods and watersheds, asthma incidence and global warming. And, unfortunately, since folks will continue to deny global warming even as salt water pours through their kitchen windows, fights will continue to be against powerful interest groups and fellow citizens, as well as viruses and wildfires.

Perhaps my comments on the politics of scale begin to answer Robertson's invitation to reflect on this history's implications for current environmental politics, although I suspect his students would still object that they are too abstract and theoretical. On the other hand, they might be too busy complaining about having to read such a detailed account of the international bureaucracy! How does this style of interpretive historical sociology contribute to solving the climate crisis? Quite modestly, for sure, but my hope is that it offers 1) an analytical model and provocative analogies for making sense of today's international environmental politics and 2) connections between those politics and an important but neglected historical legacy.

Key to the first contribution is my commitment to grounding theoretical claims in particular projects and institutions. This sort of analysis of everyday practice reveals unexpected loci of power that provide both levers for and obstacles to change. As I emphasize in the book, the boundaries between international governmental organizations, member states, and nongovernmental actors (disciplinary associations, UN-affiliated NGOs, universities, independent experts) were porous, and so interactions and exchanges, cooperation and conflict between the "three UNs" determined the meaning of the global environment in the international community.² For those like Robertson who understandably feel the urgency of the current crisis demands that historical scholarship demonstrate relevance, I hope the

¹ Robin's work has been an indispensable resource, and so I was thrilled (and relieved) to discover that her masterful *The Environment: A History of the Idea* (co-authored with Paul Warde and Sverker Sörlin), beautifully complemented my book: hers a synthetic intellectual history and mine a case-based study of practice. The texts themselves, I think, engage in a sort of extended roundtable. Another monograph that came out in 2018 and has remarkable resonances with mine, especially in terms of showing the interplay of political and environmental conceptions of "unity in diversity," is Deborah Coen's *Climate in Motion: Science, Empire, and the Problem of Scale* (Chicago: University of Chicago Press, 2018). More recently, Etienne Benson's *Surroundings: A History of Environments and Environmentalisms* (Chicago: University of Chicago Press, 2020) provides a longer perspective on these themes.

² Corporations, which Black asks about, were almost completely absent from this postwar interorganizational matrix—an absence my actors almost never acknowledged but that should have signaled a critical weakness in their "functionalist" reform strategy.

book provides a model for analyzing how the machinery for legitimating global environmental knowledge (which is what the UN System turned out to do effectively) functions.

A focus on the coproduction of institutions and ideas pushes analysis of politics and policies upstream, revealing how particular values become embedded in even technical details such as the categories of soil classifications or the internal workings of ecosystem models. Ultimately, these dynamics frame what counts as a problem. Especially since today's environmental activists have moved from a sustainability to a justice framing, they have to challenge what is excluded from the frame. We can't afford to take "the science" for granted.

We understand today's environmental crisis first and foremost as a problem of global warming as much because of the politics of the international knowledge infrastructure as the functioning of the Earth System. *The Postwar Origins of the Global Environment*, however, is explicitly *not* a history of climate change. This is part of my answer to Sabine Höhler's perceptive question regarding my claim that "Spaceship Earth" was a product of history, not design. She is right that the internationalist experts and civil servants I study intended to build an international knowledge infrastructure that would reveal the interdependence of the world community, and so overemphasizing contingency would be a mistake. But so are problematically teleological histories of climate change. My key actors were motivated to engage with UN agencies by the political crisis of world war and their dominant environmental framing looked down towards the soil not up to the atmosphere. Soil evangelists preached a Biblical narrative of desertification (not the flood), warned against depleting natural capital (not pollution), performed static surveys (not dynamic models), struggled to scale up (not scale down), counted calories (not CO₂ ppm), targeted peasants and farmers (not capitalists and consumers), had confidence in state-planned conservation schemes (not market-based solutions), and hoped environmental issues could strengthen international organizations (more than international organizations could solve environmental crisis). I overstate the differences here, but I think they help illuminate the potentials and limitations of today's dominant climate framework.

The global environment emerged out of a state-centered, conservationist vision of world government, but that vision dissolved in the fractious 1970s. Postwar internationalists built the organizational machinery for legitimating global environmental knowledge, but dreams of expert management of global natural resources—as if the planet were a spaceship—remained fantasies. This gap between these technocratic fantasies and the political reality of weak international institutions manifested the failure of the world government movement. Thus, contrary to Höhler—whose parsing of my argument regarding the constant tension between the epistemologies of the "view from above" and the "view from everywhere" I otherwise fully endorse—I place the relationship between the "ideal of democratic world citizenship" and "autocratic government of Spaceship Earth" at the center of my analysis; the apparently contradictory utopias were in fact co-

dependent and so went nowhere together. Skillful negotiation of the tension between the two epistemic strategies (from above and from everywhere) succeeded in cultivating international communities of elite experts, but internationalists failed to achieve the broader social democratic goals of liberal world citizenship and robust functional agencies. Two generations later, the situation is much the same, which ought to inform expectations regarding global climate accords today. This skepticism, however, should not diminish the historic achievement of making the global environment a shared political reality.

Robertson wishes I had continued the narrative through the 1970s in order to explain how the postwar consensus fell apart. I finished the book wondering the same thing and am also unsatisfied with our explanations for the disjunctures of the '70s and '80s. In terms of Robertson's questions about the history of objectivity and the erosion of expert authority, however, I think the story is well established: expansion of the administrative state upped the stakes in contests over regulatory science; changes in intellectual property rights weakened norms of disinterest; experts' involvement in the military-industrial complex sparked an antiwar backlash; religion provided an alternative source of cultural authority that secular modernizers consistently underestimated; and intellectuals rejected the oppressively homogenizing Cold War consensus. That partial list works best for the United States, however, and doesn't help much with the sudden emergence of neoliberalism, which comes as a shock for a historian immersed in UN archives. In terms of the dissolution of the postwar consensus in the United Nations, the most significant factor was clearly the culmination of decolonization. This essentially transferred the "tensions of empire"—the gap between promises of social and economic development and liberal political ideology, on the one hand, and colonial subjects' experiences, on the other—to the UN. As I show in the final chapter, the architects of the Stockholm Conference saw the global environment as an issue that could reinvigorate a system they perceived to be already in crisis because of disappointing progress during the "Decade of Development." Suddenly, with majorities in UN general assemblies and leadership positions in secretariats, postcolonial elites were in a position to close the gap between ideals and reality, especially through their ambitious proposal for a New International Economic Order. Unfortunately, power remained concentrated in the North, and so increased marginalization accompanied democratization of international institutions. The postwar social democratic consensus fell apart because it had a chance of succeeding.

For the history of global-scale environmentalism, a key point is that the postwar consensus had deep roots in the conservation movement. The UN's major move into social and economic development began with the 1949 UN Scientific Conference on the Conservation and Utilization of Natural Resources (UNSCCUR); a generation later, the ideology of Spaceship Earth (UN style) emerged out of (not in opposition to) development programs. Reclaiming the conservationist origins of global-scale environmentalism is significant at a moment when the mainstream climate movement seeks to reforge alliances with labor and has embraced large-scale state

infrastructure projects. In short, this international history creates a bridge between the New Deal and the Green New Deal.

My emphasis on the tensions of internationalism throughout the book helps answer Black's difficult questions regarding UN agencies' contribution to "the actual conditions facilitating asymmetry" along the global color line. In fact, I do not argue that this color line remained "firmly entrenched" in the postwar international community. Just as important as the (unsurprising) presence of imperial white supremacists at the founding conference of the International Union for the Protection of Nature (later rebranded the IUCN) were outspoken anticolonial representatives from India, Egypt, and even the United States at the contemporaneous (and much bigger) UNSCCUR. Less than a quarter century after Jean-Paul Harroy was appointed the first Secretary-General of the IUPN while continuing to direct the Belgian Institute for Scientific Research in Central Africa, the UN Environment Programme became the first UN agency headquartered in a postcolonial nation (Nairobi). The coercion and dispossession that infected colonial wilderness conservation policies, however, often continued after decolonization.

I also explore how this instability manifested "closer to the ground." Admittedly, the book does move from Paris and Rome (Unesco and FAO headquarters) out. But its narrative arc is set in motion by conflict over an antiracist Unesco "Education for International Understanding" campaign in Los Angeles, which ended explicit endorsement of world citizenship and takes up the second half of the first chapter. Chapter three, "Men against the Desert," follows a Jewish French soil scientist to Alexandria, where conflicts with a resentful local counterpart escalated into a minor diplomatic incident, complete with accusations of espionage; lingers on an ecological training seminar that inspired passionate feelings of international fraternity; and analyzes the national bureaucratic politics and professional jockeying set off by a Unesco project to establish a geophysical laboratory in Quetta, Pakistan. These and other anecdotes are representative of many dozen technical assistance mission reports. Together, they show how rather than reinforcing a global color line or manifesting Cold War geopolitics, international ideas and resources refracted through local cultural patterns (to use my actors' favored term), often reinforcing but sometimes challenging established power relations.

Moreover, one of my findings was that the projects most responsible for constructing global-scale environmental knowledge (e.g. small-scale thematic mapping; biome modelling) rarely reached closer to the ground; not only did they involve a very small community of cosmopolitan elites, but also scientists and politicians from "developing" nations had little interest in such locally useless knowledge. The ungroundedness of global knowledge, as Robin elegantly explains in her comment, contributed to Spaceship Earth's failure to launch.

I do not have space to address all of Black's interesting questions, but will conclude by engaging with her most substantive disagreement, which is with my most abstract argument. She and Höhler object to my polemical rejection of "hybridity."

Against the prevailing fashion in environmental history and STS, I insist on the value of preserving the analytical distinctions between the social and natural, material and ideal, science and politics. My language in these couple of paragraphs of the book is over the top, but why should only those scholars who wave away the fundamental categories of modern social theory and delight in dismantling dichotomies get to have all the rhetorical fun? My point is not that these categories express some metaphysical truth—I'm not interested in doing metaphysics—but merely that they are analytically useful. In taking this position I am aligned with environmental scientists, who of course recognize the obvious fact that the effects of humans, plants, animals, rocks, and rain are mixed together in the world; therefore, they understand their work to be *disentangling* causal factors. This is part of the endless two-step of analysis and synthesis that is fundamental to all historical explanation.

My argument was not intended as, in Black's words, "an impassioned defense of human agency" (which, in the Anthropocene, doesn't seem to me to need any defense) and I don't think our field's commitment to hybridity marginalized international actors (nor that the actors she names—Huxley, Pinchot, Vogt—have been marginalized). I went out of my way to take this unpopular stand because understanding the "strategies through which cosmopolitan elites attempted to create a world community" demands honoring my actors' categories. The much maligned divisions of modernity were literally institutionalized in the bureaucratic structures of the international community. The book is "unapologetically anthropocentric" because the primary drivers of change in the UN System—and which determined the structure of the international knowledge infrastructure that made the global environment visible—were disciplinary, bureaucratic, and international politics.

Not that conceptual/bureaucratic boundaries were solid or stable. The functionalist strategy for developing world community depended on the porosity of the borders, on the holistic assumption that, as Barry Commoner's "first law of ecology" put it: "Everything is connected to everything else." "In this sense (and only this sense), this book is an antiecological history of the construction of the global environment," I explained: "Putting holistic theory into practice produced frictions and exposed gaps that revealed just how stubbornly the old divides resisted erasure" (12). In fact, I am really not so contrarian. I rejected the metaphor of hybridity but embraced the equally trendy metaphor of entanglement, which I think better assists in thinking and writing about connections, gaps, and frictions—and in performing the necessary work of making analytical distinctions. (I picture the entanglement of nature and culture, science and politics, the material and ideal as a bowl of spaghetti—often the cook neglects to stir the pot so that some noodles have to be pulled apart.)

Tragic evidence of the persistence of disconnection is apparent in the fatal rejection of public health responses to the pandemic and in the decades-long failure of international action proportional to the urgency of global warming. I certainly share

the dream of a global polity that would unite a greater diversity of actors (including nonhumans) and in which our institutions were more responsive to the flashing lights on the dashboard display of Spaceship Earth. But who could possibly deny that we still live in a dysfunctional world?

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