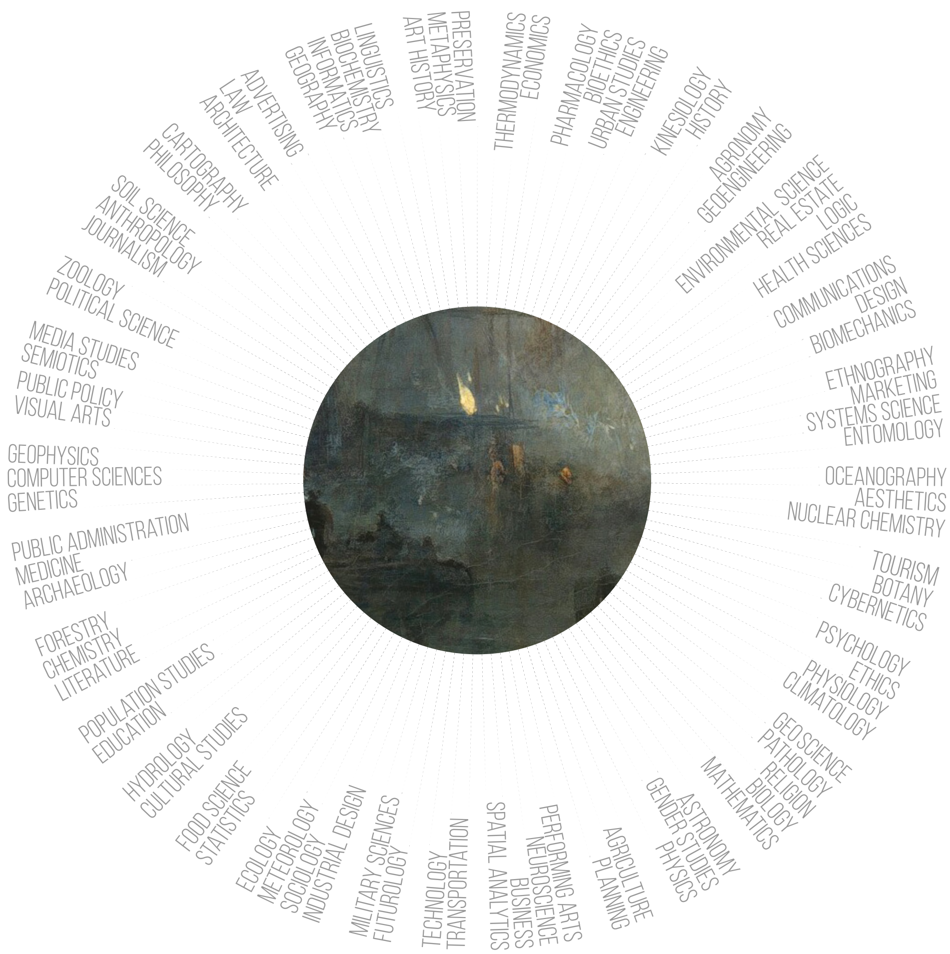
LA+
INTERDISCIPLINARY JOURNAL
OF LANDSCAPE ARCHITECTURE



LA+ INTERDISCIPLINARY JOURNAL OF LANDSCAPE ARCHITECTURE
UNIVERSITY OF PENNSYLVANIA STUART WEITZMAN SCHOOL OF DESIGN

www.laplusjournal.com
laplus@design.upenn.edu

Library of Congress data available upon request.
World Rights: Available

ISSN: 2376-4173
ISBN: 978-1-966515-06-7

Color Separations and Printing: ORO Group Ltd.
Printed in China

Published and distributed by ORO Editions
www.oroeditions.com

Proofreading by Jake Anderson

Back cover illustration by Laurie Olin

Recommended citation: *LA+ Interdisciplinary Journal of Landscape Architecture*, no. 22 (2025).

environment /ənˈvaɪrə(n)m(ə)nt/

noun

• the area surrounding a place or thing; the environs, surroundings, or physical context: *Bairuth, with its kind picturesque environment.*

• the physical surroundings or conditions in which a person or other organism lives, develops, etc., or in which a thing exists; the external conditions in general affecting the life, existence, or properties of an organism or object: *the organism is continually adapted to its environment*.

• the natural world or physical surroundings in general, either as a whole or within a particular geographical area, esp. as affected by human activity: *the situation is clouded by a widespread confidence that this impact of man upon environment can continue indefinitely.*

Oxford English Dictionary, 3rd Edition

IN THIS ISSUE

JIP VAN BESOUW + LINO CAMPRUBÍ

MAKING THE SEASCAPE

Jip van Besouw is a historian and philosopher of science who works mainly on the physical sciences of the early modern period. He is currently a postdoctoral fellow at the University of Sevilla, in the project DEEPMED. Jip is interested in how environments were talked about and intervened in, historically. His most recent research focuses on conceptualizations and representations of rivers and seas in the 17th and 18th centuries.

Lino Camprubí is professor of History and Philosophy of Science at Universidad de Sevilla and PI of the ERC-CoG DEEPMED. He is the author of *Engineers and the Making of the Francoist Regime* (MIT, 2014), co-author of *Science and Apocalypse in Bertrand Russell* (Lexington Books, 2022), and author of "A Brave Deep World: Technologies in the Territorialization of Seas and Oceans" in the *Cambridge History of Technology* (Cambridge UP, 2025).

+ PHILOSOPHY OF SCIENCE, HISTORY

Amid rampantly rising temperatures and CO2 levels of our oceans, acidification of marine environments, and expanding offshore energy infrastructure, it is worth remembering that oceans were long considered unchangeable – spaces humans could not know or use. Historically, seas were generally perceived as the opposite of lands. This opposition was set out clearly by early modern legal scholars such as Hugo Grotius (1583–1645), who described the seas as naturally free. The *mare liberum* was outside of the realm of private property and politics, a space in which people and things had no impact. In contrast to lands, seas could not be built on, worked, plundered, or given shape. In short, Grotius held, seas could not be possessed or claimed and, therefore, ships of any nation should be allowed to move over them freely. Only *terra* could become territory.[1]

In this conception, oceans were not an "environment" with which humans could properly interact. Immutability meant immunity to impact. How did this perception give way to one in which oceans became spaces for humans to transform into "built environments"? Here, we set out how cultural and technological changes enabled new conceptions of seas as continuations of lands and, later, new metaphorical, material, and political uses of the seas.

It is important to note that Grotius's views were long dominant but never universally shared. First, there was resistance to the idea that immutability took oceans outside of politics: the early modern period witnessed a long debate about whether monarchs could impose *dominion* over the seas, for instance through naval warfare.[2] Besides, even those who followed Grotius in defending the doctrine of *mare liberum*, such as the 20th-century authoritarian theorist Carl Schmitt (1888–1985), implicitly granted political meaning to the ocean.[3] Like Grotius, Schmitt wrote to legitimize the dominant political powers of his time and, in fact, defended specific maritime political rights, ranging from protecting fishing grounds and merchant fleets to sinking and plundering enemy vessels. Second, alternative voices described oceans as less-than-immutable spaces. Imaginations of underwater worlds had always existed, fueled by tales and tangible experiences of sailors and fishers. From sea gods and mermaids to shipwrecks and sunken continents, not everyone imagined the deep sea as empty. Nevertheless, the ocean remained largely inaccessible to humans in these alternative imaginations for the simple reason that–apart from the first few meters under the surface frequented by pearl and sponge divers–living humans had no business *within* the deep seas. When did this start to change?

Dikes, Coastal Defenses, and Rising Seabeds

It was through early modern investigations of rivers and shallow seas, directly related to constructing and controlling coastal landscapes, that new perceptions of deep seas arose. A first relevant case of conceptualizing how human intervention was changing the seas comes from the Dutch Republic. Dominated by the delta plain of the Rhine, Meuse, and Scheldt, the inhabitants of the Low Countries had built dikes at least since the 11th century. With these dikes, central to efforts to create and protect arable lands, the Dutch actively made their fluvial landscape.[4] In the 1720s and 1730s, one of the leading cartographers and meteorologists of the Republic, Nicolaas Cruquius (1678–1754), asserted that this reshaping of Dutch rivers impacted the seas as well. While doing so, Cruquius gave one of the first quantitative estimates in history of how fast sea levels were rising.[5]

This was not just empty speculation. Acting as a special advisor to governments, Cruquius was asked to investigate and report on water management at specific locations. His reports addressed issues ranging from coastal erosion and river sedimentation to the building of new canals. Dealing with the case of sedimentation at the mouth of the Meuse near Rotterdam, Cruquius came to the conclusion that sediment transport by the river was so significant that it would make the seabed rise locally, around the river mouth. Based on general observations on the Rhine basin, Cruquius claimed that the rate of sea rise could be calculated through an assessment of land erosion by rainfall, the amount of sediment suspended in the river, and the locations over which these sediments settled. Extrapolating from his observations of the Rhine basin, Cruquius speculated that sediments dumped into the sea by rivers worldwide could raise the global seabed by roughly one foot every two hundred years. As the water had nowhere to go but up, the sea level would rise accordingly, Cruquius suggested.[6]

This early assessment relied on a staggering overestimation of how much sediment is actually suspended in river water: present-day climate science tells us river sediments are a negligible factor in sea level rise. Notwithstanding, what is worth underlining is that Cruquius made the design of local infrastructures a fundamental part of his discourse on sea level rise. His assessment was that the changing situation of the Meuse would lead to flooding and problems with navigating the river in the short term. To prevent those problems, he called for the centralized management of rivers, dikes, and coastal defenses in the Netherlands. This plan to restructure Dutch water politics made a point specifically of standardization of the architecture of river dikes, with Cruquius pointing out that the failure of individual dikes would alter the distribution of waters, and thus sedimentation, along a large stretch of the river, including its mouth.[7] Cruquius thus saw dikes as a means of controlling the rise of seabeds, at least at a local level. Consequently, he turned the bottom of the sea into an environment that could be measured, controlled, and impacted.

The Architecture of the Earth and Sea

Two contemporaries of Cruquius investigated the seabed for entirely different reasons. Both Luigi Ferdinando Marsigli (or Marsili) (1658–1730) and Philippe Buache (1700–1773) were primarily interested in the underwater world to make claims about how the seas fitted into the making of our planet more generally. Marsigli, an aristocrat born into a leading Bolognese family, was a diplomat and former colonel of the Habsburg army, from which he was dishonorably discharged in 1704 after failing to hold a fortress on the banks of the Rhine against the French. In the years immediately afterward, Marsigli doubled down on the naturalist interests he had cultivated throughout his career.[8] Settling down in the domain of his former enemy, Marsigli made detailed investigations into the hydrology, geography, and marine life of the Languedoc coast and the Gulf of Lyons. Almost two decades later, Marsigli published his findings in his *Histoire Physique de la Mer* (1725). In its first two chapters, he presented his measurements of the waters' depths, density, and salinity. These investigations led Marsigli to claim that land-based mountain chains continue under the seas. He presented evidence for this claim in the form of profile maps showing continuous slopes from the lands into the seas, as well as by pointing out that the seabed consisted of materials similar to those of the lands bordering them. This led him to conclude "that the Basin of the Sea was formed during the Creation of the same stones which we see, in the layers of the Earth."[9] That is, Marsigli claimed that seabeds were an integral part of the planet, designed some five thousand years ago, just like the rest of the Earth.[10]

What was Marsigli's interest in bringing marine environments into the "Anatomy of the Earth"? In a diatribe against people who pursued knowledge only for practical ends such as navigation, Marsigli claimed that he had been led by his love of science. He wanted to understand how God had created nature, and particularly to show the order, works, and laws of nature thus established.[11] Illustrations of such order were that the river Rhone continued to flow over the seabed; that opposing coasts were alike in shape; and a suggestion, brought almost as a matter of fact, that the largest depths beneath the surface of the seas were similar to the highest mountain peaks above it.[12] Clearly, Marsigli saw his book as the study of the structure God gave to the Earth, what we could call the supposed divine architecture of the Earth.

This interest in the order of creation was, in more than just a metaphorical way, related to the order of politics.[13] Besides being a formerly high-ranking military officer, Marsigli was a member of some of the most elite societies of science in Europe, including the royally sponsored Academy of Sciences of Paris, to which he dedicated his book. When Marsigli asked for a "prince," a "protector of science," to fund more systematic studies into the seas, this was by no means an empty call.[14]

Links between geography and politics are even clearer in the work of Buache, who became the Royal Cartographer of France in 1730 and was paid by the same Academy of Sciences of Paris to map all parts of the globe. Buache's theory on the continuity of lands and seas went further than Marsigli's: Buache claimed that the architecture of mountain ranges above and underneath the sea level was what kept the Earth's surface in place. He leveraged this view to intervene in debates on how to delimit administrative regions in a supposedly natural way, to speculate on whether a North-West passage to Asia existed, and to predict the layout of yet unmapped regions of the world.[15] Thus, in contrast to Grotius, who saw lands and seas as opposites, Marsigli and Buache presented them as being geologically similar and continuous, and used that conception of the seas to inform global politics.

Building Underwater

Early measurements of depth, as well as interest in underwater geological features and biological creatures, turned into more systematic engagements with the deep seas in the 19th century. Submarine telegraphs were among the first fixed underwater structures. These cables were technologies of imperial control. First tried out in India and pioneered between Britain and France in 1850, submarine telegraphy developed at an incredible speed.[16] By 1854, the French, supported by the authorities of the Kingdom of Sardinia, had laid a cable between La Spezia on mainland Italy and Corsica, a distance of over 100 km and at a depth much greater than that of the English Channel. In 1855, a new section of this line connected Algeria, a French colony, reaching 500 fathoms, about 1 km deep.[17] The Mediterranean Sea, like other seas and oceans around the world, was soon traversed by signal-carrying lines.

These early attempts at submarine telegraphy were fraught with technical problems. The first cable to cross the Atlantic Ocean, between Ireland and Newfoundland, broke down less than one month after the first transatlantic messages had been sent in August 1858. Broken cables had to be brought to the surface to be repaired or entirely replaced by new cables. The brittleness of this submarine infrastructure directly inspired three sustained lines of new scientific investigation. First, hydrographers developed a range of measuring instruments that took bathymetry to the next level and allowed better decisions on where to lay cables.[18] Second, to make cables send strong enough signals over long distances and under the massive pressure of the ocean, investigations of the materials involved were scaled up. Research focused on electromagnetic theory and the resistance of gutta-percha, the material used to insulate the cables, to erosion.[19] Finally, engineers reported deep marine life attached to retrieved cables, and marine biologists certified the death of the azoic hypothesis, the idea that deep seas did not support life.[20] The deep seas were geologically and biologically as rich as land-based landscapes. The *seascape* thus emerged as a new frontier of knowledge and empire.

Other permanent and mobile technologies soon joined telegraphs in the making of oceanic built environments. Submarines and underwater mines were central to naval battles in World War I, and detecting them became a strategic imperative. Military powers invested in both passive and active sonar, which could listen to sounds emitted by enemy vessels and echo-locate solid objects, including the bottom of the sea.[21] As the propagation of sound waves depends on the density of the medium—often measured through proxies such as salinity and temperature—accurate detection had to consider the properties of the different layers of seawater. Navies around the world moved toward knowledge and surveillance of the seas and seabed.[22]

Acoustic technologies also impacted conceptualizations of the geology *under* the seabed. Turning around the earlier logic of using properties of the medium to understand the propagation of sound waves, toward World War II, sound waves became central to studying sediments, thus picking out promising places for oil drilling. Offshore oil investors changed the architecture of the seas entirely, as platforms and artificial islands, supported by underwater columns of concrete, were constructed to aid oil extraction.[23] Together with the invention of the scuba bottle to transport oxygen under high pressure, the time seemed ripe for a full-scale invasion of the ocean by humans. By the 1960s, advocates of bioengineering came up with various outlandish projects for making the deep sea fit for human habitation, from sea labs in which researchers could spend long spans of time to

1 Hugo Grotius, *The Free Sea, Natural Law and Enlightenment Classics*, trans. Richard Hakluyt, ed. David Armitage (1609; repr. Liberty Fund, 2004).

2 Nieves San Emeterio Martín, "El debate sobre el dominio de los mares en el imperio español durante los siglos XVI y XVII," *Iberian Journal of the History of Economic Thought* 7, no. 2 (2020): 133–42.

3 Carl Schmitt, *Land and Sea: A World-Historical Meditation*, trans. Samuel Garrett Zeitlin, ed. Russell A. Berman & Samuel Garrett Zeitlin (1942; repr. Telos Press, 2015).

4 Petra J. E. M. van Dam, "Sinking Peat Bogs: Environmental Change in Holland, 1350–1550," *Environmental History* 6, no. 1 (2001): 32–45, https://doi.org/10.2307/3985230.

5 On sea level rise more generally, see Wilko Graf von Hardenberg, *Sea Level: A History* (Chicago University Press, 2024).

6 Nicolaas Cruquius, "Korte verhandeling, van de opkomst; verandering; tegenwoordige en toekomende staat, van 't Vaderlandt ten opzichte, van de wateren" (May 30, 1731), Bijzondere Collecties, KW 129 C 8 [4], Koninklijke Bibliotheek, The Hague, 9. This piece is discussed in Mathijs Boom & Jip van Besouw, "Rising Seas, Sinking Lands: Reckoning with Local and Global Sea Level in the Early Modern Netherlands" (ms).

7 Nicolaas Cruquius, "Eenige Aenmerkingen over de Waterstaet Van dese Landen" (ca. 1726), Archief van Hoornebeek, no. 309: [f. 1r], National Archives of the Netherlands, The Hague.

8 On Marsigli's career, see Anita McConnell, "L. F. Marsigli's Visit to London in 1721, and His Report on the Royal Society," *Notes and Records of the Royal Society of London,* 47 (1993): 179–204, https://doi.org/10.1098/rsnr.1993.0026.

9 Louis Ferdinand Marsigli, *Histoire physique de la mer* (Amsterdam, 1725), p. 14: « on peut conclure … que le Bassin de la Mer fut formé dans la Création de la même pierre que nous voyons, dans les couches de la Terre.»

10 Ibid., 39.

11 Ibid. See the two prefaces to the book.

12 Ibid., 11. As Marsigli's depth measurements did not go beyond a few hundred meters, his suggestion that depths of seas equaled heights of mountains was entirely without evidence.

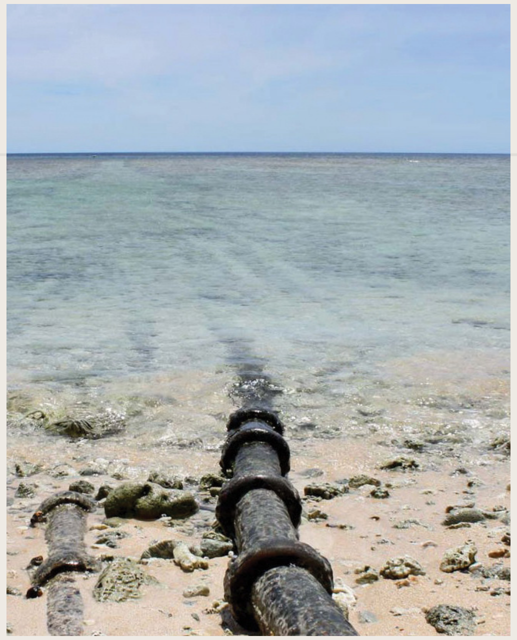
13 The importance of nature as a metaphor for social and political order should not be underestimated, especially in the early modern period. For an introduction, see Lorraine Daston & Fernando Vidal (eds), *The Moral Authority of Nature* (Chicago University Press, 2003).

14 Marsigli, *Histoire physique de la mer*, 47.

15 Michael Heffernan, "Geography and the Paris Academy of Sciences: Politics and Patronage in Early 18th-Century France" *Transactions of the Institute of British Geographers, 39* (2014): 62–75, https://doi.org/10.1111/tran.12008.

16 Daniel R. Headrick & Pascal Griset, "Submarine Telegraph Cables: Business and Politics, 1838–1939," *Business History Review* 75, no. 3 (Autumn 2001): 543–78.

17 Roberto Mantovani, "The Otranto-Valona Cable and the Origins of Submarine Telegraphy in Italy," *Advances in Historical Studies* 6, no. 1 (2017): 18–39.



oxygen-feeding "cyborgs"–humans who would be engineered so that they could live permanently on the seabed.[24]

Real and imagined infrastructures, together with legal instruments, opened the door to the territorialization of seas and oceans, thus putting an end to *terra*'s monopoly over territory.[25] Initial political moves to control the exponentially growing economic and military potential of the seas harked back to the view of seas as continuations of lands: in 1945, the United States claimed sovereignty over the seas in front of its coasts, as far as the continental shelves reached. Building on a loose geological conceptualization, other countries followed suit and claimed sovereignty over "their" continental shelves, as if they were "submerged lands."[26] Legal negotiations followed. The prospects of mineable manganese nodules on the seabed's surface, depleting fishing stocks, and submerged nuclear deterrence led to various United Nations Conferences on the Law of the Sea. A treaty signed in 1982, and still active, allows states to claim an Exclusive Economic Zone stretching to 200 nautical miles off the coast. In these zones, states have exclusive rights to exploit marine resources, or to sell these rights to large corporations.[27]

Conclusion

Seas are not lands. They are different on an ontic, or material level: seas are liquid, and they do not react physically like the solid earth or the gaseous atmosphere do. Nevertheless, through science and technology, humans have greatly transformed this underwater world to support our activities on land. The internet depends as much on a global network of underwater cables as on satellites shot into space. Pipelines flushing oil and gas continue to fuel the global economy. The global economy, in turn, continues to demand more from the underwater world. More than anything else, the importance of power–both political power and energy infrastructure–has turned the oceans into human, built environments. Although seas and lands remain distinct in many important ways, as a political space, seas have become increasingly similar to *terra*. Unfortunately, the increasing extraction of their riches by states and large corporations goes hand in hand with their destruction. The oil and gas flowing through pipes at the bottom of the seas drive the warming and acidification of the global ocean, while the pollution that can be expected from deep sea mining will surely accelerate environmental breakdown. Although not for the correct reasons, Cruquius was right: humans can and do alter the sea level and other basic features of the seascape by their action as well as by their inaction.

18 Helen Rozwadowski, *Fathoming the Ocean: The Discovery and Exploration of the Deep Sea* (Harvard University Press, 2005), 69–95.

19 Bruce J. Hunt, *Imperial Science: Cable Telegraphy and Electrical Physics in the Victorian British Empire* (Cambridge University Press, 2021).

20 Lino Camprubí, "'No Longer an American Lake': Depth and Geopolitics in the Mediterranean," *Diplomatic History*, 44, no. 3 (2020): 428–46.

21 Robert K. Massie, *Castles of Steel: Britain, Germany, and the Winning of the Great War at Sea* (Ballantine Books, 2003); Willem Hackmann, *Seek and Strike: Sonar, Anti-Submarine Warfare and the Royal Navy, 1914–54* (Her Majesty's Stationery Office, 1984), 45–71.

22 Sabine Höhler, "Depth Records and Ocean Volumes: Ocean Profiling by Sounding Technology, 1850–1930," *History and Technology* 18, no. 2 (2002): 119–54; Naomi Oreskes, *Science on a Mission: How Military Funding Shaped What We Do and Don't Know About the Ocean* (Chicago University Press, 2021); Lino Camprubí & Alix Hui, "Testing the Underwater Ear: Hearing, Standardizing, and Classifying Marine Sounds from World War I to the Cold War," in Viktoria Tkaczyk, Mara Mills & Alexandra Hui (eds), *Testing Hearing: The Making of Modern Aurality* (Oxford University Press, 2020), 301–25.

23 Jon Phillips, "Order and the Offshore: The Territories of Deep-Water Oil Production," in Kimberley Peters, Philip Steinberg & Elaine Stratford (eds), *Territory Beyond Terra* (Rowman and Littlefield, 2018), 51–68.

24 Helen M. Rozwadowski, "Engineering, Imagination, and Industry: Scripps Island and Dreams for Ocean Science in the 1960s," in Helen M. Rozwadowski & David Van Keuren (eds), *The Machine in Neptune's Garden: Historical Perspectives on Technology* (Canton, 2004), 325–52.

25 Lino Camprubí, "A Brave Deep World: Technologies in the Territorialization of Seas and Oceans," *Cambridge History of Technology, vol. 3.* (in press).

26 Donald C. Watt, "First Steps in the Enclosure of the Oceans: The Origins of Truman's Proclamation on the Resources of the Continental Shelf, 28 September 1945," *Marine Policy* 3, no. 3 (July 1979): 211–24.

27 Helen M. Rozwadowski, "Wild Blue: The Post-World War Two Ocean Frontier and Its Legacy for Law of the Sea," *Environment and History* 29, no. 3 (2023): 345–76.

Acknowledgment
Research for this paper was funded by the research grant ERC–CoG-DEEPMED–101002330.

IMAGE CREDITS

Endpapers

Keelmen Heaving in Coals by Moonlight, by J.M.W. Turner, 1835. Public domain via The National Gallery of Art.

Editorial

p. 4: Algal bloom up close, by Ian Jacobs, used under CC-BY-NC 2.0.

Environments, Environmentalisms, Envirotechniques

p. 6: Image by Shuying Rong, used with permission.

The Other Silence in *Silent Spring*

p. 12: Drawing by Megan Singleton, used with permission.

p. 15: Walter Reuther leads Farm Workers, Delano Rally, CA circa 1965–66. George Ballis / Take Stock / TopFoto.

p. 18: Drawing by Megan Singleton, used with permission.

In Conversation with Jess Conard

p. 20: Image by Shuying Rong, used with permission.

p. 25: Video stills from ABC 7 Chicago, https://www.youtube.com/watch?v=dsw4ZKkLQp8&list=WL&index=3 and NBC News https://www.youtube.com/watch?v=S1YZ7FYH-gk.

In Conversation with Maria Ivanova

p. 28: Image by Colin Curley, used with permission.

On the Road with Herbert Bayer

p. 34: Herbert Bayer, ARCO Refinery, Philadelphia, 1972, Red Pyramid, Photocollage, and Yellow Undulating Wall, Photocollage. Images © 2025 Artists Rights Society [ARS], New York / VG Bild-Kunst, Bonn.

p. 38: Herbert Bayer, ARCO Refinery, Philadelphia, 1973 sculptural screens [proposal]. Photocollage. Denver Art Museum: Gift of BP Corporation, 2001.565. Image courtesy Denver Art Museum. © 2025 Artists Rights Society [ARS], New York / VG Bild-Kunst, Bonn; Herbert Bayer, Highway Gate in Three Parts, 1971 acrylic, collage, and graphite. Images © 2025 Artists Rights Society [ARS], New York / VG Bild-Kunst, Bonn.

p. 39: Clockwise from top left: Herbert Bayer, ARCO Refinery, Philadelphia, 1972 fence and building [proposal]. Colored pencil drawing. Denver Art Museum: Gift of BP Corporation, 2001.569. Image courtesy Denver Art Museum; Herbert Bayer, Road in deep embankments, 1972 acrylic and charcoal; Herbert Bayer, Positive negative highway, 1971, wood, mat board, paint, toy automobile; Herbert Bayer, Highway landscape with four hills, 1972 pastel and collage. All images © 2025 Artists Rights Society [ARS], New York / VG Bild-Kunst, Bonn.

Sounding Extreme Environments

p. 42-43: Image by Luke Mackin, used under CC BY-NC-SA 2.0.

p. 48: Image by United States Federal Aviation Administration and Beranek Bolt. Public domain via the Library of Congress, https://www.loc.gov/item/gm69003433/.

Nuclear Weapons and the Unity of the Environment

p. 52-53: Photo courtesy of National Nuclear Security Administration / Nevada Field Office.

p. 56-57: Photos by Nick Carr, Scouting NY, used under CC BY-NC-ND 2.0.

p. 61: Manhattan Project Los Alamos main gate [cropped]. Public domain via National Park Service.

In Conversation with Michael Oppenheimer

p. 62: Image by Qiyu Wang, used with permission. Photo of Michael Oppenheimer © World Economic Forum / Sikarin Thanachaiary, used under CC BY-NC-SA 2.0.

p. 66: Image by Qiyu Wang, used with permission. Memoradum is a copy of the original document from the Nixon Library, https://www.nixonlibrary.gov/sites/default/files/virtuallibrary/documents/jul10/56.pdf.

Spiritualizing the Two Cultures, c. 1978

p. 70: Image by Shuying Rong, used with permission.

p. 74: Buckminster Fuller's Scheme, Cathedral of St. John of the Divine Environmental Program. Redrawn by Shuying Rong.

Failure to Build

p. 78: Image by Megan Singleton, used with permission.

In Conversation with Dipesh Chakrabarty

p. 84, 86, 87: Collage by Colin Curley, used with permission.

Why Environmental History Matters

p. 90-91: Photos from Batik Art Workshop for the Tiger Widows' Children at Rajat Jubilee village in West Bengal, January 2025. Photographs by Anindita Saha, used with permission.

Snow Globes: Cyclinc Drawing and Cryospheric Panoramas

p. 102: "Pack-ice in the Ross Sea. Midnight January 1911," watercolor by Edward Wilson from Apsley Cherry-Garrard, *The Worst Journey in the World* Vol. 1 (1922). Public domain.

p. 106: Image courtesy of the British Museum.

p. 107: Section of the Rotunda, Leicester Square, exhibiting a panorama of London from the River Thames by Robert Mitchell (1801). Public domain, cropped with a circular frame.

p. 108: Image by Edward Wilson from Apsley Cherry-Garrard, The Worst Journey in the World, Vol. 1 (1922), public domain.

Megafaunas of the Past and Future

p. 110: Collage by Qiyu Wang, used with permission.

Beyond Habitat

p. 118: Photograph by Tom Lynn, used with permission

22

ETIENNE BENSON
CHAD MONTRIE
JESS CONARD
JESSICA VARNER
MARIA IVANOVA
KAREN M'CLOSKEY
MELISSA S. RAGAIN
SONJA DÜMPELMANN
MARCUS OWENS
CHRISTINA ANTIPORDA
MICHAEL OPPENHEIMER
RAMI KANAFANI
HOLLY JEAN BUCK
DIPESH CHAKRABARTY
VINITA DAMODARAN
JIP VAN BESOUW
LINO CAMPRUBÍ
ANDREW WITT
DIANA GUO
LAURA J. MARTIN

ISBN 978-1-966515-06-7