Underwater Worlds

Underwater Worlds:

Submerged Visions in Science and Culture

Edited by

Will Abberley

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PREFACE

The genesis of this essay collection was a conference on the subject of "Underwater Worlds" held at the University of Oxford in September 2015.

The event aimed to provoke fresh discussions about representations of underwater environments by bringing together researchers from different disciplines and with different approaches and knowledges, and this collection seeks to do the same.

INTRODUCTION

WILL ABBERLEY

"And now, how can I possibly record the impression made on me by this excursion under the waters? Words are inadequate to recount such marvels!"[1]

Thus comments Pierre Aronnax, the narrator in Jules Verne's *Twenty Thousand Leagues under the Sea* (1869-70), as he walks upon the bottom of the ocean in a diving apparatus. Aronnax is able to access this remote environment after joining the mysterious seafarer Captain Nemo on a submarine journey beneath the waves. Yet, despite being a professor of marine biology, Aronnax feels unable to describe this subaqueous environment as he experienced it in the moment. This failure of language points to a problem inherent in all attempts to represent the natural world: that second-hand, artificial representation can only ever conjure an illusion of immediate, unmediated nature. Timothy Morton notes that, while seeking to dissolve distinctions between nature and culture, such "ecomimesis" ends up reinscribing them, since "The more I try to evoke where I am [. . .] the more phrases and figures of speech I must employ. [. . .] My attempt to break the spell of language results in a further involvement in that very spell."[2]

This collection suggests that the ecomimetic paradox has been particularly resonant in representations of subaqueous environments. While the practical inaccessibility of such spaces has rendered them obscure and mysterious for much of human history, exploration of them has revealed physical and organic phenomena that resist incorporation into "terracentric" frames of reference.[3] Analysing narratives by early underwater explorers, Margaret Cohen argues that their descriptions often appealed to an underwater "*je ne sais quoi*," that is, a poetics of unspeakability. As these authors sought to

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[1] Jules Verne, *Twenty Thousand Leagues under the Sea*, trans. William Butcher (Oxford: Oxford University Press, 1998), 108.
[2] Timothy Morton, *Ecology without Nature: Rethinking Environmental Aesthetics* (Cambridge, MA: Harvard University Press, 2007), 30-31.
[3] On the origin of this phrase, see Marcus Rediker, "Hydrarchy and Terracentrism," in *Aquatopia: The Imaginary of the Ocean Deep*, eds. Alex Farquharson and Martin Clark (Nottingham: Nottingham Contemporary, 2014), 106-117.

convey their impressions of subaqueous environments, their supposedly denotative, documentary accounts gave way to figurative imagery and florid literary and mythic allusions.[4] Such poetics echoed the techniques of earlier coastal naturalists who had struggled to verbally depict the strange creatures that dwelt in the sea. In 1855, the Victorian author-naturalist Charles Kingsley fell back repeatedly upon metaphors of domestic and terrestrial objects, musing at piles of shells:

> What are they all? What are the long white razors? What are the delicate green-grey scimitars? What are the tapering brown spires? What the tufts of delicate yellow plants like squirrels' tails, and lobsters' horns, and tamarisks, and fir-trees, and all other finely cut animal and vegetable forms? What are the groups of grey bladders, with something like a little bud at the tip? What are the hundreds of little pink-striped pears? What those tiny babies' heads, covered with grey prickles instead of hair? [. . .] [W]hat are the red capsicums? and why are they poking, snapping, starting, crawling, tumbling wildly over each other, rattling about the huge mahogany cockles, as big as a child's two fists, out of which they are protruded?[5]

Kingsley's transfiguration of the shells into blades, buildings, terrestrial plants and animals, internal organs and human body parts frames the sea's wildlife as a succession of bizarre images arranged with the incongruity of a dream. Verne similarly envisaged underwater worlds by comparing them to terrestrial objects, notably artificial ones. Aronnax experiences the sandy sea bed under his feet as a "dazzling carpet" that reflects light "almost like a mirror." He perceives the colorful plants and sea creatures struck by the sun's rays as a "kaleidoscope," suggesting that marine nature anticipates the optical illusions produced by modern technology.[6] Underwater environments, particularly in the open sea, have often been imagined as pure wilderness, unaffected by the vagaries of history and civilization, primordial and inhuman.[7] Yet representing such spaces seems, necessarily, to lead us back to terrestrial human culture and experience.

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[4] Margaret Cohen, "Denotation in Alien Environments: The Underwater 'Je ne sais quoi,'" *Representations* 125, no. 1 (2014): 103-126. On the rhetoric of "je ne sais quoi" in the broader context of oceanic travel, see Jonathan Lamb, *Preserving the Self in the South Seas* (Chicago: Chicago University Press, 2001), 23.

[5] Charles Kingsley, *Glaucus: Wonders of the Shore* (Cambridge: Macmillan, 1859), 64-65.

[6] Verne, *Twenty Thousand Leagues*, 108-109.

[7] Alain Corbin, *The Lure of the Sea: The Discovery of the Seaside in the Western World, 1750-1840*, trans. Jocelyn Phelps (London: Penguin, 1995), 60.

The rise of the environmental humanities has emphasized the lesson that human representations never simply refer to a "real" natural world independent of cultural networks of signs, values and discourse. However, although our experiences of nature are always already socially constructed, material realities nonetheless exist apart from our social constructions and, indeed, can be deeply affected by them. Our representations of nature might be mediated and inauthentic, but their consequences for natural environments and their life-systems are all too real.[8] For example, representations of the Earth as a resource to exploit legitimize human practices that destroy habitats and endanger other species, and downplay humans' interdependence with other life-forms. As Jonathan Anderson and Kimberley Peters observe, the "long standing configuration of the ocean as an empty space" has been "established through processes of industrial and post-industrial capitalism."[9] In this way, representations of underwater worlds, like those of all natural spaces, are complex negotiations between physical facts and cultural conventions, both representational and "more-than-representational."[10]

Dan Brayton observes that, although the majority of the Earth is "blue," that is, covered by water, most research in the environmental humanities has tended to focus on "green," dry-land spaces.[11] Such a bias is unsurprising, given the mostly terrestrial nature of human life. In recent years, though, scholars have increasingly sought to challenge such terracentrism, forging a "blue ecocriticism" and "blue humanities" centered upon the sea.[12] *Underwater Worlds* aims to contribute to these emergent fields by paying special attention to the subaqueous. Cultural studies of the sea and other natural water masses have often approached these environments (like the representations they discuss) primarily as surfaces to be traversed or humanly accessible shores and shallows.[13] Yet, as Tricia Cusack observes, while "the

[8] Greg Garrard, *Ecocriticism*, 2nd ed. (London: Routledge, 2012), 189.

[9] Jonathan Mark Anderson and Kimberley Peters, " 'A Perfect and Absolute Blank': Human Geographies of Water Worlds," in *Water Worlds: Human Geographies of the Ocean*, eds. Jonathan Mark Anderson and Kimberley Peters (Farnham: Ashgate, 2014), 8.

[10] Ibid., 9. For the origin of this term, see Hayden Lorimer, "Cultural Geography: The Busyness of being 'More-than-Representational,' " *Progress in Human Geography* 29, no. 1 (2005): 83-94.

[11] Dan Brayton, *Shakespeare's Ocean: An Ecocritical Exploration* (Charlottesville: University of Virginia Press, 2012), 11-13, 7.

[12] Steve Mentz and Martha Elena Rojas, "Introduction: 'The Hungry Ocean,' " in *The Sea and Nineteenth-Century Anglophone Literary Culture*, eds. Steve Mentz and Martha Elena Rojas (London: Routledge, 2017), 3-4.

[13] See, for example, John Peck, *Maritime Fiction: Sailors and the Sea in British and American Novels, 1719-1917* (New York: Palgrave, 2001); Prudence J. Jones,

vast ocean surface can be imagined as a social space," this social space can also be traced beneath the surface in terms of "what grows there, what lurks below, or might sink there and then perhaps be regurgitated, or thrown back on land."[14] At the time of writing, an essay collection is forthcoming on undersea aesthetics.[15] *Underwater Worlds* similarly probes beneath the surface, arguing that representations of submarine environments can reveal a great deal about cultures and their collective mindsets.[16] Representations of the subaqueous not only express ideas about aquatic nature: they also indirectly reflect and engage with all manner of political, philosophical and aesthetic concerns. Indeed, as some of the essays here show, physical engagements with and representations of underwater spaces have sometimes influenced the development of narrative and creative forms from poetry and fiction to cinema and television. The apparent separation of such environments from human life has rendered them screens onto which various fears, desires and taboos could be projected. Simultaneously, the challenges and compromises involved in representing underwater worlds have highlighted

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Reading Rivers in Roman Literature and Culture (Lanham, MD: Lexington Books, 2005); Christiana Payne, *Where the Sea Meets the Land: Artists on the Coast in Nineteenth-Century Britain* (Bristol: Sansom & Company, 2007); Cohen, *The Novel and the Sea* (Princeton: Princeton University Press, 2012); Peter Coates, *A Story of Six Rivers: History, Culture and Ecology* (London: Reaktion Books, 2013); Ursula Kluwick and Virginia Richter (eds.), *The Beach in Anglophone Literatures and Cultures: Reading Littoral Space* (Farnham: Ashgate, 2015); Charlotte Mathieson (ed.), *Sea Narratives: Cultural Responses to the Sea, 1600-Present* (London: Palgrave Macmillan, 2016); Tricia Cusack (ed.), *Art and Identity at the Water's Edge* (New York: Routledge, 2016); David Worthington (ed.), *The New Coastal History: Cultural and Environmental Perspectives from Scotland and Beyond* (London: Palgrave Macmillan, 2017); Nicholas Allen, Nick Groom and Jos Smith (eds.), *Coastal Works: Cultures of the Atlantic Edge* (Oxford: Oxford University Press, 2017); Matthew Ingleby and Matthew P. M. Kerr (eds.), *Coastal Cultures of the Long Nineteenth Century* (Edinburgh: Edinburgh University Press, 2018).
[14] Cusack, "Introduction," in *Framing the Ocean, 1700 to the Present: Envisaging the Sea as Social Space*, ed. Cusack (New York: Routledge, 2016), 2.
[15] Cohen and Killian Quigley, *Aesthetics of the Undersea* (New York: Routledge, 2019).
[16] Other research that has foregrounded cultures of the subaqueous includes Helen M. Rozwadowsky, *Fathoming the Ocean: The Discovery and Exploration of the Deep Sea* (Cambridge, MA: Belknap Press, 2005); Natascha Adamowsky, *The Mysterious Science of the Sea, 1775-1943* (London: Pickering & Chatto, 2015); Shin Yamashiro, *American Sea Literature: Seascapes, Beach Narratives, and Underwater Explorations* (New York: Palgrave Macmillan, 2014); Farquharson and Clark, *Aquatopia*; Cohen, "Denotation in Alien Environments;" and parts of Mentz and Rojas, *The Sea*.

with unique force the artifice of mimesis and its alienation from the realities it claims to imitate.

The theme of the representation of underwater environments extends infinitely across media, cultures and history. This collection therefore aims only to offer a selection of case studies that explore some ways in which subaqueous spaces have been mediated, and imbricated with aesthetic and ideological issues and practices. The essays mostly focus on Western contexts within a timeframe that might be loosely classified as modern, in the sense of the technological modernity linked with global, transoceanic travel, trade, imperialism and industrialism. These developments laid the conditions for increasingly extensive underwater exploration at unprecedented depths and more physical interaction with subaqueous environments, from mineral extraction and whaling to the salvaging of sunken ships. Through the nineteenth century, the evolution of diving suits enabled prolonged immersion in spaces deep underwater while early examples of underwater photography conjured lifelike images of these spaces.[17] These visual representations prefigured the development of underwater film and video and immersive virtual reality simulations in the twentieth and twenty-first centuries.

Such advancements might seem to fit with Max Weber's model of modern "disenchantment" by which scientific knowledge robs the world of wonder and mystery.[18] Marine, fluvial and lacustrine studies seem to literalize the rhetoric of science as the enlightenment of dark and obscure places, replacing imaginative myths of aquatic gods, monsters and nymphs with technical descriptions or reconstructions of prosaic facts.[19] However, science generates as many mysteries as it dispels, and new knowledge of the subaqueous has continually prompted new questions about the nature of these environments, their contents and history. This enchantment effect can be seen in popular science writing on the sea since the emergence of the genre in the nineteenth century, which has consistently depicted submarine spaces as realms of mystery and wonder.[20] At the same time, representations of

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[17] Alejandro Martinez, "'A Souvenir of Undersea Landscapes': Underwater Photography and the Limits of Photographic Visibility, 1890-1910," *História, Ciências, Saúde-Manguinhos* 21, no. 3 (2014): 2.

[18] Max Weber, "Science as Vocation," *The Vocation Lectures*, trans. Rodney Livingstone, eds. David Owen and Tracy Strong (Indianapolis: Hackett Books, 2004), 13.

[19] On the cultural stakes of scientific "enlightenment," see Rolf Reichardt, "Light against Darkness: The Visual Representations of a Central Enlightenment Concept," *Representations* 61 (Winter 1998): 95-148.

[20] Adamowsky, *Mysterious*, 42.

underwater worlds informed by scientific knowledge have often reworked old myths about these environments. Gillian Beer argues that science can "substantiate metaphor" and "find a real place in the material order for older mythological expression," notably through evolutionary theory literalizing old myths of metamorphoses.[21] Similarly, as Kelly Bushnell's essay shows, the discovery of previously unknown sea species could give new meaning to old mythic creatures, suggesting that encounters with animals like the giant squid may have seeded myths such as the Kraken. Furthermore, as Kyrie Miranda's essay demonstrates, colonization by Western powers did not necessarily always involve the effacement of the sea myths of indigenous cultures. Again, such myths could assume new forms, incorporating aspects of modern, Western technology into old narratives of haunted waters.

Since classical times, underwater environments have been represented contradictorily as realms of damnation and redemption, demonic confusion and cleansing renewal. Classical and Judeo-Christian traditions have long portrayed the sea, particularly, as hostile and primitive, containing homicidal creatures such as Scylla and Charybdis, sirens or the Leviathan. *Genesis* depicts the sea as a remnant of the chaos before God gave form to the Earth, which consumes the sinful in the great Flood.[22] *Revelations* prophesies aquatic creatures rising to the surface and the sea ceasing to exist on the Day of Judgment.[23] Further, until the mid-nineteenth century, it was commonly assumed that nothing could survive under the pressure of the deep sea, framing the lower subaqueous world as a lifeless void for all creatures, not just sailors.[24] Something of this attitude can be seen to persist in the art critic John Ruskin's description in 1856 of the deep sea as a "calm grey abyss below; that has no fury and no voice, but is as a grave always open."[25] Conversely, as marine zoology progressed, the Biblical notion of the sea's primitiveness could be adapted into evolutionary visions of aquatic organisms representing primordial stages of development. Hence, Victor Hugo's narrator in *Toilers of the Sea* (1866) depicts the deep sea as a savage, amoral place, "where monstrous creatures multiply and destroy each other. [. . .] There, in the awful silence and darkness, the rude first forms of life,

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[21] Gillian Beer, *Darwin's Plots: Evolutionary Narrative in Darwin, George Eliot and Nineteenth-Century Fiction*, 3rd ed. (Cambridge: Cambridge University Press, 2009), 74.
[22] Genesis, 1:2, 7:17-24.
[23] Revelations, 20:13, 21:1.
[24] Bernd Brunner, *The Ocean at Home: An Illustrated History of the Aquarium* (London: Reaktion Books, 2011), 10-11.
[25] John Ruskin, *The Harbours of England* (London: George Allen, 1895), 41.

phantomlike, demoniacal, pursue their horrible instincts."[26] This vision is, perhaps, obliquely echoed in modern political conceptions of the ocean as a lawless, "unmanaged and unmanageable," "unclaimed and unclaimable" space where "nation-states do battle in unbridled competition for global spoils."[27] The strife of sea monsters has been replaced by military submarine standoffs. Conversely, the deep sea's resistance to terrestrial law and order might render it a realm of escape from state powers, much like the sea in general for pirates.[28] Verne's Nemo thus embodies a fantasy of stateless independence, as he tells Aronnax, although "despots" rule the supermarine world, "thirty feet below the surface their power ceases, their influence fades, their authority disappears. [. . .] Independence is possible only here! Here I recognize no master! Here I am free!"[29]

Aquatic immersion has also long been associated with baptism and purification. John Mack suggests that these contrasting attitudes reflect "a kind of cultural geography" by which underwater spaces can appear benign or malevolent depending on their relative depth or shallowness.[30] However, immersion at sea through shipwreck also figures as a source of spiritual renewal in many narratives from Daniel Defoe's *Robinson Crusoe* (1719) to William Shakespeare's *The Tempest* (1611).[31] The deep might seem demonic, but being plunged into it could equate to confronting and exorcising one's demons. Indeed, as technologies of underwater exploration have developed, immersion has sometimes been figured as a physical and spiritual transcendence. The diving pioneer Jacques-Yves Cousteau described diving with a breathing apparatus as a realization of classical myths of human-avian metamorphosis, writing: "To halt and hang attached to nothing, no lines or air pipe to the surface, was a dream. At night I had often had visions of flying by extending my arms as wings. Now I flew without wings."[32] Cousteau's vision points to a long history of science and the arts conceptualizing subaqueous spaces in aerial or celestial terms. Early oceanographers often compared their

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[26] Victor Hugo, *Toilers of the Sea*, trans. W. Moy Thomas (London: Sampson Low, Marston, Searle & Rivington, 1877), 131-132.

[27] Philip E. Steinberg, *The Social Construction of the Ocean* (Cambridge: Cambridge University Press, 2001), 17.

[28] Neil Rennie, *Treasure Neverland: Real and Imaginary Pirates* (Oxford: Oxford University Press, 2013), 148.

[29] Verne, *Twenty Thousand Leagues*, 68-69.

[30] John Mack, *The Sea: A Cultural History* (London: Reaktion Books, 2011), 93-94.

[31] Carl Thompson, "Introduction," *Shipwreck in Art and Literature: Images and Interpretations from Antiquity to the Present Day*, ed. Thompson (New York: Routledge, 2013), 5-6.

[32] Jacques-Yves Cousteau, *The Silent World* (London: Hamish Hamilton, 1953), 3.

work to astronomy as they sought to understand mostly inaccessible and, perhaps, limitless depths.[33] Conversely, as Cohen's essay here shows, representations of underwater worlds shaped many conventions in narratives and imagery of outer-space exploration.[34]

    Alongside the long-running tropes of demonic abyss and baptismal transcendence, Alain Corbin notes that a new attitude to underwater environments emerged through the eighteenth century as natural theology reconceptualized the natural world as a perfectly designed machine that revealed God's wisdom. The idea that all of nature's processes served useful ends, from tidal movements preventing putrefaction to marine organisms sustaining each other in food chains, energized more positive representations of subaqueous spaces.[35] This shift was reflected in the nineteenth-century craze for seaside studies and its accompanying literature, which tended to aestheticize underwater environments.[36] The Victorian naturalist Philip Henry Gosse rhapsodized over sea creatures, describing their shapes and colors as "beautiful" both in the visceral sense and in a "higher" intellectual sense. Aquatic organisms' adaptations, he wrote, reflected God's mind, suggesting "ideas of heavenly and unseen things."[37] The spiritual and aesthetic elevation of marine habitats was realized memorably in the invention of the aquarium, which seemed to bring the ocean and other underwater worlds into people's homes. Although aquaria admittedly contained real elements from these environments, notably organisms, they were also artificial representations, offering sanitized, curated images of underwater life. Keepers could smooth over nature's brutal realities by separating predators from prey, supplying regular food and arranging attractive scenery. Aquaria thus projected idealizations of marine nature as orderly, beautiful and even moral, or, at least, morally improvable.[38] In this way, as Silvia Granata's essay further

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[33] Rozwadowsky, *Fathoming the Ocean*, 29.

[34] See also Cohen, *Novel and the Sea*, 225-229; Stacy Alaimo, "Feminist Science Studies and Ecocriticism: Aesthetic Entanglements in the Deep Sea," in *The Oxford Handbook of Ecocriticism*, ed. Greg Garrard (Oxford: Oxford University Press, 2014), 193-195.

[35] Corbin, *Lure of the Sea*, 23-30.

[36] See Bernard Lightman, *Victorian Popularizers of Science: Designing Nature for New Audiences* (London: University of Chicago Press, 2007), 75, 83.

[37] Philip Henry Gosse, *The Aquarium: An Unveiling of the Wonders of the Deep Sea* (London: John Van Voorst, 1856), 117.

[38] See Christopher Hamlin, "Robert Warington and the Moral Economy of the Aquarium," *Journal of the History of Biology*, 19:1 (1986), 131-153; Judith Hamera, *Parlor Ponds: The Cultural Work of the American Home Aquarium, 1850-1970* (Ann Arbor: University of Michigan Press, 2012), 103-104; Brunner, *Ocean at Home*, 54, 72.

shows, by seeming to reproduce ocean life in Victorian homes, aquaria and their associated literature could also reproduce societal values and ideologies. More recently, as Michaela Castellanos's contribution explores, sea theme parks have appeared to replicate sea life on a larger scale. Such parks revolve around cetaceans performing choreographed displays of Disneyfied marine anthropomorphism. Like a landscape garden, such domesticated seascapes appear at once as authentic nature and human improvements of it, developing nature's inner potential.

The natural-theological strain has also energized depictions of underwater spaces as fresh territory to be claimed, improved and cultivated for human benefit, much like terrestrial environments designated as wildernesses. Oceanography has always been imbricated with economic activities such as salvage, hunting and mineral extraction, and its pioneers in the nineteenth and twentieth centuries often compared their work to the winning of the American West or conquest of the North and South Poles.[39] Technology and ingenuity might turn the deep sea from a threatening death trap into a Promised Land of opportunity, a sentiment perhaps expressed most strongly in relation to the laying of transatlantic telegraph cables in the nineteenth century.[40] Rudyard Kipling depicted the cables in a poem as civilization triumphantly penetrating the wild underwater world. In these silent "deserts of the deep," his speaker declares, "the words of men" miraculously "flicker and flutter," transcending the boundaries of space and time. Kipling suggests that, through this technological development, humans are also transcending their mortal bodies, joining together as spirits, united by "a Power [. . .] that has neither voice nor feet." This rarefied transmission of voices contrasts with "the waste of the ultimate slime" around it.[41] Human colonization of the deep sea converts chaotic, primitive nature into productive work.

Such representations depend on and reinforce binaries between nature and culture, humankind and the rest of the living world. Cultural critics have observed that visual media cement René Descartes' distinction of mindless animals from thinking humans by constructing the former as material objects that are looked at by humans but cannot return the human's gaze.[42] This Cartesian logic also tends to elide humans' interdependence with the wider

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[39] Gray Kroll, *America's Ocean Wilderness: A Cultural History of Twentieth-Century Exploration* (Lawrence, KS: University Press of Kansas, 2008), 10, 40.

[40] Rozwadowski, *Fathoming the Ocean*, 215.

[41] Rudyard Kipling, "The Deep-Sea Cables," *Literature and Science in the Nineteenth Century: An Anthology*, ed. Laura Otis (Oxford: Oxford University Press, 2002), 104.

[42] John Berger, *About Looking* (New York: Pantheon Books, 1980), 3-28; W. J. T. Mitchell, *Picture Theory: Essays on Verbal and Visual Representation* (London: University of Chicago Press, 1994), 323-339.

living world, as though they were not themselves embedded in complex ecological networks. Stacy Alaimo notes that this issue is particularly acute for underwater environments, which are so inaccessible most humans only know them through film, video or photography. The Cartesian othering of underwater spaces is exemplified in documentary films such as James Cameron's *Aliens of the Deep* (2004), which equates deep marine exploration with robots and cameras with the outer space of science fiction. Alaimo argues that depicting underwater environments thus "as places to encounter pure untouched otherness" erases the "histories of colonialism, climate injustice, or environmental devastation" that mark every corner of the planet in the Anthropocene.[43] Indeed, traditional imagery of the Earth's water masses as eternal and ahistorical may have contributed to anthropogenic devastation of such environments. The marine biologist Sylvia Earle comments that, in the mid-twentieth century, "The vision of a limitless ocean mesmerized policymakers, encouraging practices that have accelerated the depletion of marine wildlife and minerals; destroyed irreplaceable ocean species and ecosystems."[44]

At the same time, we might question whether sympathetic or aestheticized representations of marine life necessarily counter apathy and bad faith regarding marine environmental issues. Alaimo suggests that some such images may "spark concern for ocean environments" and encourage "an embodied sense of connection" with sea creatures.[45] Such sympathetic looking seems to be exemplified in the films discussed here by Castellanos, which aim to expose the suffering of dolphins and whales in captivity. Nonetheless, the films also suggest that representation is part of the problem, since the production of idealized images of cetaceans requires their artificial confinement. Castellanos observes that, in their efforts to elicit interspecies sympathy, these films partly reproduce the regime of marine animal visibility that they seek to deconstruct. In addition, representations that aestheticize underwater environments, such as carefully curated aquaria, risk framing these environments as valuable purely in terms of the viewing pleasure they offer to humans instead of their ecological functions.[46] Representations can both challenge and reinforce harmful relations with aquatic life.

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[43] Alaimo, "Feminist Science Studies," 190-192, 194.
[44] Sylvia Earle*, The World is Blue: How our Fate and the Ocean's are One* (Washington, DC: National Geographic, 2009), 25.
[45] Alaimo, "Feminist Science Studies," p. 198.
[46] Nola Semczyszyn, "Public Aquariums and Marine Aesthetics," *Contemporary Aesthetics*, 11 (2013). Accessed June 2018.
https://contempaesthetics.org/newvolume/pages/article.php?articleID=668.

Representations of underwater worlds and their life-forms have also often become enmeshed with ideas about the human unconscious. The obscurity of aquatic depths, and their associations with hidden monsters on the one hand and wonders (or treasures) on the other, dovetail with modern psychology's problematization of selfhood. William James, who dabbled in paranormal research, argued that individual humans were formed by and connected with a wider "mother-sea or reservoir" of "cosmic consciousness," "in which our several minds plunge." This "common reservoir of consciousness," he claimed, might explain the apparent abilities of psychic mediums, being a "bank upon which we all draw, and in which many of earth's memories must in some way be stored."[47] Sigmund Freud suggested that dreams about immersion in or emergence from water sublimated anxieties about giving birth or being born. Such unconscious symbolism, he added, might further echo humans' primordial ancestry in the sea and their first experiences as foetuses immersed in amniotic fluid.[48] The sea's opaque depths also supplied a figure for popularizers of the Freudian division of the mind, as one of Freud's acolytes wrote in 1922: "The mind is really much like an iceberg. Nine-tenths of an iceberg is below the surface of the ocean."[49] Such views of the mind as a kind of sea, composed of overt surface and hidden depths, have fed into representations of the deep sea as a sort of surrogate of human unconsciousness and its repressed or sublimated desires. The novelist John Steinbeck commented, "There is some quality in man that makes him people the ocean with monsters and one wonders whether they are there or not. In one sense they are, for we continue to see them [. . .] An ocean without its unnamed monsters would be like a completely dreamless sleep."[50] While science might banish mythical creatures from the sea in a literal sense, Steinbeck suggests that such figures will always persist in the imagination as symbolic expressions of the human condition.

The association between marine depths and psychological repression or sublimation can be traced through many cultural texts and artworks since the nineteenth century. Consider Emily Dickinson's poem "She rose to His Requirement—dropt," which describes a bride who abandoned her personal interests to fulfil her marital duties. If the wife "missed" anything in her new life, the speaker states,

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[47] William James, "Final Impressions of a Psychical Researcher," *Memories and Studies* (New York: Longmans, Green, and Co., 1911), 204-205.

[48] Sigmund Freud, *A General Introduction to Psychoanalysis* (New York: H. Liveright, 1920), 132.

[49] Donald A. Laird, "Is your Mind like an Iceberg?," *The Forum* 68 (October 1922): 893.

[50] John Steinbeck, *The Log from the* Sea of Cortez (London: Penguin, 2000), 27-28.

> It lay unmentioned—as the Sea
> Develop Pearl and Weed,
> But only to himself—be known
> The fathoms they abide—[51]

Dickinson's image of the pearl evokes something valuable being repressed, while the weed might suggest the harm of such self-repression. Conversely, the weed could connote the husband's negative view of his wife's interests, which forces her to discard them. Science and technology's ability to bring such objects into view emphasizes their usual invisibility to humans, much like hidden feelings and desires. In more recent popular culture, James Cameron's film *Titanic* (1997) used deep sea exploration of the famous sunken ship as a vehicle for dredging up buried emotional histories of fictional characters. Alex Farquharson observes that sea environments' remoteness and alterity renders them useful sites for the symbolic displacement of "unspoken and perhaps anti-social sexual longings and anxieties."[52] Nathan Timpano's chapter explores this displacement through artistic representations of sirens and other mythic, aquatic seducers in the late nineteenth and early twentieth centuries.

Fictional representations have also frequently used the sea's depths and their contents as vehicles for probing darker aspects of human life supposedly restrained by terrestrial civilization such as madness, obsession and murder. Few characters of seafaring literature are more memorable than Captain Ahab in Herman Melville's *Moby Dick* (1851), whose monomaniacal pursuit of the titular whale causes him and almost all of his crew to perish. The motif of a sea captain jeopardizing his crew's lives in an obsessive suicide mission echoes through post-War Hollywood films of submarine combat such as Robert Wise's *Run Silent, Run Deep* (1958). The film depicts a submarine commander played by Clark Gable who recklessly seeks revenge upon a Japanese destroyer that sunk his previous command, and eventually suffers a mental breakdown. Similarly, John McTiernan's *Crimson Tide* (1995) involves the crew of a nuclear submarine mutinying against their commander to prevent him starting a Third World War. Jonathan Rayner argues that the recurrence of this plot pattern in submarine films reflects their setting's "remoteness" from the military chain of command and society above water.[53]

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[51] Emily Dickinson, "She rose to His Requirement—dropt," in *The Complete Poems of Emily Dickinson*, ed. Thomas H. Johnson (London: Faber & Faber, 1970), 359.
[52] Alex Farquharson, "Aquatopia: The Imaginary of the Ocean Deep", in *Aquatopia*, 7.
[53] Jonathan Rayner, *The Naval War Film: Genre, History and National Cinema* (Manchester: Manchester University Press, 2007), 113.

Beneath the sea, rationality and authority become more fragile, similar to the imperialist fear of colonizers "going native" when isolated in "savage" environments.[54]

The figuration of deep water as a kind of heart of darkness is reinforced by its capacity to hide dead bodies. In Bram Stoker's gothic thriller *The Mystery of the Sea* (1902), one Scottish character tells the narrator: "think ye, young sir, how mony a corp, still waited for, lies in the depths o' the sea [. . .] Nay! more, to how many has Death come in a way that men think the wark o' nature when his hastening has come frae the hand of man, untold".[55] The unmarked graveyard of the sea becomes a symbol of undiscovered murders on land. Undersea space is the site of literal murder in Kevin Macdonald's film *Black Sea* (2014) in which a group of submariners try to plunder gold from a sunken Nazi U-boat. Most of the crew perish after a dispute over the division of the spoils sparks an orgy of killing. This greed-driven slaughter is self-defeating, since a minimum number of hands are required to pilot the submarine, recalling the deep sea's association with irrationality as well as primitive violence. At the same time, the isolation, confinement and often perilous conditions of life aboard submerged submarines has rendered them memorable settings for fictional depictions of psychological stress and breakdown, such as in Wolfgang Petersen's *Das Boot* (1981).

Depicting underwater spaces as morally corrupting might be analysed as a mechanism for exorcizing anxieties about evil in terrestrial society. The comment in Stoker's novel about the sea hiding skeletons resonates with Michelle Barron's discussion here of the complex heritage of the bones of slaves drowned in the Atlantic. Far from encouraging evil deeds, the deep sea is perhaps merely a convenient place to hide them. Such spaces offer opportunities not only to cleanse one of sins but also to wash one's hands in the sense of avoiding moral responsibility. Out of sight and far away from our dry-land lives, the ocean's depths bear artefacts of Western history that many would, perhaps, prefer to ignore. Indeed, we might ask whether marine depths continue to play this role in recent times as war, global inequalities and xenophobic politics have led to tens of thousands of migrants drowning in the Mediterranean since 2014.[56] Western protests at the situation have clustered around iconic images, such as photographs of the three-year-old

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[54] On "going native," see Ania Loomba, *Colonialism/Postcolonialism*, 3rd ed. (London: Routledge, 2015), 141.

[55] Bram Stoker, *The Mystery of the Sea* (London: W. Heinemann, 1902), 13.

[56] Frank Laczko, Ann Singleton and Julia Black (eds.), *Fatal Journeys, Volume 3, Part 1: Improving Data on Missing Migrants* (Geneva: International Organization for Migration, 2017), accessed June 2018, https://publications.iom.int/books/fatal-journeys-volume-3-part-1-improving-data-missing-migrants.

Syrian Alan Kurdi, whose body was washed up on a Turkish beach. However, such horrific images also point to the general invisibility of drowned migrants, concealed in watery graves with the exception of those brought ashore by the tides. The position of these bodies underwater in an international sea enables governments to deflect responsibility for them, and the deeper, structural causes behind their deaths.

Robert Stone's essay shows that through virtual reality simulations of underwater shipwrecks, information technology has the potential to visualize such hidden history. These simulations enable the public to imaginatively access sites of rich maritime heritage that were previously unseen and difficult to envisage. Nonetheless, such simulations also pose new questions about power and cultural perspectives.[57] Whose underwater history and heritages are these simulations to recover and whose to leave out or marginalize? Will such simulations reproduce the nationalist and imperialist ideologies often associated with sea exploration, or might they also challenge these ideologies? How can such technocratic heritage production be democratized to incorporate different social perspectives? Further, could its focus on human heritage reproduce anthropocentric attitudes towards marine environments? On the latter question, at least, Stone's essay suggests not necessarily, offering an example of a shipwreck simulation that also depicted sea life around the wreck and its responses to rising water temperatures. Further, such simulations exemplify possible ethical and sustainable forms of underwater tourism that avoid physically interfering with or harming aquatic ecosystems.

The contents of *Underwater Worlds* are organized under four themed sections. The first considers figurations of mythic sea creatures, beginning with the use of mermaid and sea-snail imagery in the fin-de-siècle paintings of Arnold Böcklin and Leo Putz. Timpano contends that such images frequently served as figures of sexual desires and anxieties. He traces Symbolist evocations of the mermaid or sea snail as alluring femme fatales to a tradition rooted in Romanticism. The following chapter focuses on Alfred Tennyson's "The Kraken" (1830). Bushnell argues that the poem responds to a rich discourse around sea studies in the early nineteenth century, which filled ancient myths of sea monsters with new significances. She suggests that Tennyson's monster reflected both efforts to domesticate strange life-forms of the deep and anxieties about the confusion that such organisms wrought to taxonomic knowledge.

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[57] See Quincy McCrary, "The Political Nature of Digital Cultural Heritage," *LIBER Quarterly* 20, no. 3/4 (2011): 357-368.

The second section explores examples of underwater environments resisting representation, and experience of such spaces generating new representational forms. Cohen's chapter proposes that the navigation of toxic, underwater environments with breathing apparatuses shaped a "poetics of suspense," which echoes through diverse literary and filmic texts. Cohen shows that reliance on depleting oxygen supplies shaped a dramatic formula in which protagonists race to overcome obstacles before their oxygen runs out; a formula that later extended into fictions of outer space. Emma Zuroski's chapter considers the work of researchers aboard the HMS Challenger, arguing that this Victorian expedition marked an important moment in the history of scientific representations of the deep sea. Zuroski notes that materials on undersea environments produced during the voyage largely abandoned pictorial representation in favor of charts, graphs and tables of quantitative data. Zuroski concludes that this non-pictoriality reflected a growing belief in late-nineteenth-century science that the deep sea defied direct visualization. Granata's contribution focuses on Victorian literature about aquaria, analyzing how authors used various linguistic devices to introduce readers to alien underwater spaces and their organisms. The chapter argues that aquarium literature both worked to humanize and domesticate sea life and to defamiliarize the human world by reframing it in submarine terms.

The third section considers relationships between representations of underwater worlds and imperialism. Miranda's chapter explores the Chilotean legend of a ghost ship, assessing the legend as a reworking of traditional folklore in light of European imperialism. Miranda suggests that the legend, inspired by the reality of sailors drowning in the near sea, exemplifies indigenous cultural survival and hybridization in the face of colonial hegemony. Barron's essay uses M. NourbeSe Philip's experimental poem *Zong!* (2008) to reflect on the political, legal and ideological problematics of recovering the bones of drowned slaves from the sea. Through this textual analysis, Barron shows that valuing underwater cultural heritage outside of territorial jurisdiction involves processes that are embedded in colonial discourses of commodification and exploitation.

The final section focuses on relationships between underwater exploration and screen culture, both in cinema and computer simulations. Massimilano Gaudiosi contends that nineteenth-century technologies for studying and displaying aquatic life established representational conventions which would influence cinematic forms. Gaudiosi suggests that aquaria and chronophotography, used to capture the movement of aquatic animals, might be considered as elements in the "archaeology of cinema" alongside moving panoramas, magic lantern shows and other immersive entertainments.

Castellanos's contribution considers the ethical stakes of making marine animals visible through captivity, and the exploration of these stakes in the documentary films *The Cove* (Louie Psihoyos, dir.) and *Blackfish* (Gabriela Cowperthwaite, dir.). The essay examines how these films seek to counter popular images of cetaceans that normalize and justify their captivity, exposing the suffering which the captivity industry imposes upon them. However, Castellanos also concludes that the films partly reproduce some of the idealized images that they seek to challenge. Lastly, Stone's chapter outlines recent case studies in the use of computer-based, interactive technologies to record, preserve and digitally recreate underwater shipwrecks around Britain's coasts. The essay reflects on how these digital technologies enable the general public to experience sites and artefacts which are not normally accessible to them through computer-generated subaqueous scenes and landscapes. Taken together, these essays suggest that the history of representations of underwater environments is complex, plural and often contradictory in both forms and significances. Like the aquatic god Proteus, and the tidal and fluvial movements that he embodied, the underwater worlds of human imagination seem endlessly changeable.

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