JACOB DARWIN HAMBLIN

Gods and Devils in the Details: Marine Pollution, Radioactive Waste, and an Environmental Regime circa 1972

Contentious environmental issues confronting us today, such as the ratification of a global agreement on greenhouse gas emissions, have a policy lineage through the United Nations back to the 1972 United Nations Conference on the Human Environment, held in Stockholm, Sweden. There are deeper roots of environmental consciousness in intellectual thought, political activism, and international treaties to protect natural resources,[1] but for many historians and policymakers, global environmental governance began at Stockholm. The United Nations Environment Programme, with its mantra of sustainable development, the Earth Summit of 1992, and the Framework Convention on Climate Change can be considered further stages in this history. In fitful bursts along the way, legal "regimes" were established by treaty to act as custodians of the environment on a regional or global scale.[2] One of the Stockholm meeting's tangible outcomes, the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (also called the London Dumping Convention), stands prominently among these regimes. The convention for the first time placed radioactive waste dumping under international law: it banned

1. On the intellectual roots of environmental consciousness, see Donald Worster, *Nature's Economy: A History of Ecological Ideas*, 2d ed. (Cambridge, England, 1994), and Roderick Frazier Nash, *Wilderness and the American Mind*, 4th ed. (New Haven, CT, 2001). For an analysis of earlier international treaties, see Kurkpatrick Dorsey, *The Dawn of Conservation Diplomacy: U.S.-Canadian Wildlife Protection Treaties in the Progressive Era* (Seattle, 1998). For an overview of international movements predating 1972 and extending beyond it, see John McCormick, *Reclaiming Paradise: The Global Environmental Movement* (Bloomington, IN, 1989).

2. James Gustave Speth and Peter M. Haas, *Global Environmental Governance* (Washington, DC, 2006). See especially Chapter 3, "From Stockholm to Johannesburg: First Attempt at Global Environmental Governance." For an analysis of state interests within the United Nations Environmental Programme, beginning with the Stockholm meeting, see Tony Brenton, *The Greening of Machiavelli: The Evolution of International Environmental Politics* (London, 1994). An overview of global environmental negotiations after 1972 is Lynton K. Caldwell, *International Environmental Policy* (Durham, NC, 1984). Lawrence Susskind offers an analysis drawing from treaty negotiations from a longer period, although his book is less a history than a prescriptive essay on how to restructure contemporary negotiations to ease the immense pressures on national delegations and facilitate more useful dialogue across national lines. See Lawrence Susskind, *Environmental Diplomacy: Negotiating More Effective International Agreements* (New York, 1994).

Diplomatic History, Vol. 32, No. 4 (September 2008). © 2008 The Society for Historians of American Foreign Relations (SHAFR). Published by Wiley Periodicals, Inc., 350 Main Street, Malden, MA, 02148, USA and 9600 Garsington Road, Oxford OX4 2DQ, UK.

dumping high-level waste at sea, ostensibly enjoining countries such as the United States, the Soviet Union, Britain, France, and many others.[3]

Such environmental regimes are now, and will continue to be, a fruitful nexus linking the concerns of environmental historians and historians of international relations, especially given recent trends in international history in both fields.[4] On the environmental side, we see these regimes as reflections of a maturing international consciousness—of ecological connections and human impacts. Nature, once seen as sublime, powerful, eternal, and inexhaustible, became in the twentieth century a fragile entity apparently drained of its resources and life—a vulnerable earth greatly in need of protection or control.[5] Like the ancient grazing-land conflict between rational self-interest and the good of the community, dubbed the "tragedy of the commons" by Garrett Hardin, the earth seemed woefully in need of management at the international level.[6] On the geopolitical side, we recognize a subtle reformulation of communities and the development of strong transnational bonds, not only at the United Nations but in an array of nongovernmental organizations, opening difficult questions about sovereignty and the importance of nonstate actors.[7]

---

3. Lasse Ringius has used the case of radioactive waste disposal at sea as a way to argue against Peter Haas's epistemic communities approach to regime formation. Ringius assigns greater agency to nongovernmental organizations (NGOs) and other "policy entrepreneurs." See Lasse Ringius, *Radioactive Waste Disposal at Sea: Public Ideas, Transnational Policy Entrepreneurs, and Environmental Regimes* (Cambridge, MA, 2001).

4. Diplomatic historians have emphasized the importance of complementing single-state perspectives with ones that draw upon multiple archives in different countries. Odd Arne Westad made this trend the subject of his Bernath Lecture, later published as Odd Arne Westad, "The New International History of the Cold War: Three (Possible) Paradigms," *Diplomatic History* 24, no. 4 (2000). One successful example of this approach is Fredrik Logevall's international history of the Vietnam War around 1964; see Fredrik Logevall, *Choosing War: The Lost Chance for Peace and the Escalation of War in Vietnam* (Berkeley, CA, 2001). Environmental historians are also moving away from single-nation narratives and toward international histories that synthesize issues and identify global trends. See, for example, J. R. McNeill, *Something New under the Sun: An Environmental History of the Twentieth-Century World* (New York, 2000).

5. The evolution of these ideas in the United States is traced in Nash, *Wilderness and the American Mind*, and Samuel P. Hays, *Beauty, Health, and Permanence: Environmental Politics in the United States, 1955–1985* (Cambridge, England, 1987). The place of the oceans in these ideas has received comparatively little attention, but that is changing. See W. Jeffrey Bolster, "Opportunities in Marine Environmental History," *Environmental History* 11, no. 3 (2006): 567–97. On environmental regime management, the work of Peter Haas has been the most influential on political scientists because he poses an alternative to interest-based realism as a theoretical concept. He proposes instead "epistemic communities"—knowledge experts who facilitate negotiations when uncertainty prevails. See Peter M. Haas, ed., *Knowledge, Power, and International Policy Coordination* (Columbia, SC, 1997); Peter M. Haas, Robert O. Keohane, and Marc A. Levy, eds., *Institutions for the Earth: Sources of Effective International Environmental Protection* (Cambridge, MA, 1993).

6. Garrett Hardin, "The Tragedy of the Commons," *Science*, new series 162, no. 3859 (December 1968): 1243–48.

7. Christy Jo Snider, "The Influence of Transnational Peace Groups on U.S. Foreign Policy Decision-Makers during the 1930s: Incorporating NGOs into the UN," *Diplomatic History* 27, no. 3 (2003): 377–404; Akira Iriye, "A Century of NGOs," *Diplomatic History* 23, no. 3 (1999): 421–35. A review of several recent works on the role of NGOs is Mark H. Lytle,

Some argue that the emergent transnational communities that so marked the era after World War II exercised far more influence in world events than historians have acknowledged.[8] Already there have been some attempts to integrate "environment" and "diplomacy," but historical scholarship on it remains in its adolescence.[9]

A theme we must confront is what historian J. R. McNeill calls the ideological side of environmentalism. Environmentalism is in part a politically motivated "package of ideas" not always backed by conviction, requiring only the creation of "green" identities with easily employed tropes about ecology and sustainability.[10] To be sure, the environmental movement of the late 1960s had genuine impacts on how people thought about nature and the earth, and activists and politicians all over the world clamored for international meetings to discuss and resolve the problems facing them all. The Stockholm Conference was a response to these. In the United States, even Richard Nixon fathered a brood of environmental laws and executive orders. But as J. Brooks Flippen reminds us, this was partly a strategy to win back the voters who detested his policies in Vietnam; the degree of Nixon's genuine commitment to environmental policies remains an open question for historians.[11] In the United States and Europe, environmentalism became deeply embedded in political consciousness as a platform issue; politicians could call themselves pro-environment whether they

---

"NGOs and the New Transnational Politics," *Diplomatic History* 25, no. 1 (2001): 121–28. Of particular relevance to the ocean is Ralph B. Levering and Miriam L. Levering, *Citizen Action for Global Change: The Neptune Group and the Law of the Sea* (Syracuse, NY, 1999).

8. This argument has been made most forcefully in Akira Iriye, *Cultural Internationalism and World Order* (Baltimore, 1997). Particular attention is paid to the influence of NGOs in Akira Iriye, *Global Community: The Role of International Organizations in the Making of the Contemporary World* (Berkeley, CA, 2002). Sheila Jasanoff has analyzed the role of NGOs in environmental regimes; she points out that nowhere are the roles of NGOs more established than in environmental issues. See Sheila Jasanoff, "NGOs and the Environment: From Knowledge to Action," *Third World Quarterly* 18 (1997): 579–94.

9. There is a growing literature that blends these approaches; one successful book revealing the ecological consequences of American foreign policy is Richard P. Tucker, *Insatiable Appetite: The United States and the Ecological Degradation of the Tropical World* (Berkeley, CA, 2000). Historians of science have begun to connect their subject to internationalism and environmental issues as well. See Gregory T. Cushman, " 'The Most Valuable Birds in the World': International Conservation Science and the Revival of Peru's Guano Industry, 1909–1965," *Environmental History* 10, no. 3 (2005): 477–509; Helen M. Rozwadowski, *The Sea Knows No Boundaries: A Century of Marine Science under ICES* (Seattle, 2002); Virginia M. Walsh, *Global Institutions and Social Knowledge: Generating Research at the Scripps Institution and the Inter-American Tropical Tuna Commission, 1900s–1990s* (Cambridge, MA, 2004). For scholarly discussions of the connections between the two fields, see Kurk Dorsey, "Dealing with the Dinosaur (and Its Swamps): Putting the Environment in Diplomatic History," *Diplomatic History* 29, no. 4 (2005): 573–87; and John G. Clark's review essay, "Making Environmental Diplomacy an Integral Part of Diplomatic History," *Diplomatic History* 21, no. 3 (1997): 453–60.

10. McNeill, *Something New under the Sun*, 340. Some scholars go further and criticize the widespread use and abuse of ecological concepts as tools of control; ecological principles, they argue, can be used to justify oppressive economic policies toward developing countries. See Wolfgang Sachs, ed., *Global Ecology: A New Arena of Political Conflict* (London, 1993).

11. J. Brooks Flippen, *Nixon and the Environment* (Albuquerque, 2000).

understood ecology or not.[12] Thus arose the likelihood of many disingenuous *prima facie* "environmental" acts that primarily placated activists, swayed voters, or satisfied meetings of diplomats, without discernible change in policy. One of the most difficult tasks for historians of global environmental regimes is to look past this smoke. When doing so, we face the uncomfortable notion that despite Stockholm and the many initiatives it spawned, there was much more continuity in attitudes and policies after 1972 than we have believed.

Consider by way of example the global ocean dumping regime and its impact on radioactive waste disposal. With the United States taking a strong stand against marine pollution by the late 1960s, and with increasingly pro-environment agendas in international meetings, pro-dumping countries faced tough decisions about how to handle their own policies and public reactions to them. Scientists and politicians in Europe, particularly Britain, struggled to find ways to continue their existing practices while encouraging the belief that these were banned, thus neutralizing the power of environmental political activism. In the United States, new legislation controlling radioactive waste disposal was almost entirely symbolic, because it regulated activities no longer practiced. European governments implemented "environmental monitoring" to create the illusion that dumping grounds would be observed. Ultimately, the creation of the environmental regime itself exerted a placebo effect upon public opinion while negotiators decided the real meaning of the law. This essay makes no moral judgment on whether radioactive waste should have been more strictly or sincerely regulated. Regardless of whether those who protected dumping were gods or devils, they wielded their power and influence in the details—in the definitions, in the exemptions, in the complicated black and gray lists—rather than in the publicly acclaimed convention "banning" the disposal of waste at sea.

THE AMERICAN RETREAT FROM DUMPING

Regulation of ocean pollution was perhaps a natural choice for an international environmental regime by the late 1960s. Major oil spills in Europe and the United States focused attention on the pollution in the marine environment and the disastrous effects on sea life. In March 1967, the supertanker *Torrey Canyon* crashed into rocks off of Land's End, England, slowly releasing approximately 120,000 tons of oil into the sea. British airplanes scrambled to the site and bombed the ship, hoping to prevent the oil's spread by burning it. Although the explosions sparked an inferno that was visible a hundred miles away, oil slicks spread out across the whole sea between England and France. The financial toll amounted to some $14,850,000, the largest single ship loss in history. The environmental damage was compounded by the use of chemical detergents in the sea and on the beaches; they succeeded in ridding the area of wildlife as well

12. For a comparison of environmental politics in the United States and Europe, see Norman J. Vig and Michael G. Faure, eds., *Green Giants? Environmental Policies of the United States and the European Union* (Cambridge, MA, 2004).

as oil.[13] In the United States, in January 1969, an offshore drilling platform operated by Union Oil had a major blowout, and for eleven days the rupture released some 200,000 gallons of crude oil into the ocean. As crude covered the beaches and killed wildlife from Santa Barbara to San Diego, Americans discovered the meaning of ecological catastrophe. President Nixon observed that the Santa Barbara oil spill touched the conscience of the American people.[14] Together, the *Torrey Canyon* and Santa Barbara oil spills catalyzed environmental consciousness about marine pollution, providing ominous signs that even the ocean was vulnerable to human interference.

The ocean soon became a focal point for an array of American environmental foreign-policy initiatives. When President Nixon addressed the United Nations General Assembly in September 1969, he favored international action on environmental issues and pledged his strongest support for the proposed United Nations Conference on the Human Environment, scheduled for 1972. In the months that followed, Nixon's acting secretary of the interior, Russell Train, suspected that this was just talk; when he heard rumors that the administration had balked at the cost of the conference, he urged government officials to seize the moment and to assert a positive, leading role in the international environmental movement. "Quality of the environment is attracting world-wide interest and attention," he wrote to the Department of State. "The opportunity is ripe for U.S. initiatives."[15] But Train need not have bothered, because Nixon already had several initiatives in play. He appointed the cabinet-level Committee on the Environment, and set up a standing committee within it to deal with international issues. In addition, he created a new environmental group within the North Atlantic Treaty Organization (NATO), the Committee on Challenges of Modern Society. And in general, the Department of State used its Office of Environmental Affairs to forge cooperative relationships with other countries, to keep in line with Nixon's stated commitment to address international environmental challenges.[16] In October 1970 the Department of State made this commitment an official policy, cabling all American embassies in Europe, directing them to "exercise affirmative leadership" in the major organizations devoted to the environment—the United Nations, the Organization for Economic

13. Richard Petrow, *In the Wake of Torrey Canyon* (New York, 1968).

14. Carol E. Steinhart and John S. Steinhart, *Blowout: A Case Study of the Santa Barbara Oil Spill* (Belmont, CA, 1972). See also Robert Sollen, *An Ocean of Oil: A Century of Political Struggle over Petroleum off the California Coast* (Juneau, AK, 1998).

15. Acting Secretary of the Interior (Train) to Elliot L. Richardson, Undersecretary of State, 17 November 1969, in Susan K. Holly and Warren B. McAllister, *Foreign Relations of the United States, 1969–1976*, vol. E-1, *Documents on Global Issues, 1969–1972* (Washington, DC, 2005), (hereafter Nixon-Ford *FRUS* E-1), doc. 288.

16. An overview of these environmental activities, particularly focused on the State Department, is in "Significant Activities of the Department of State in the Environmental Field," transmitted by Acting Deputy Director of the Office of Environmental Affairs (Salmon) to Secretary to Council on Environmental Quality (Gibbons), 14 July 1970, Nixon-Ford *FRUS* E-1, doc. 298. On Nixon's environmental agenda, see Flippen, *Nixon and the Environment*.

Cooperation and Development (OECD), and NATO.[17] The administration listed forty-six priority subjects, most of them categorized according to location (i.e., atmosphere, oceans, coasts, cities), but others were more specific: pesticides, toxic metals, noise, and man-made radioactivity.[18]

Radioactive waste held a relatively high profile in the ocean dumping debates. Although known primarily for her criticism of chemical pesticides in *Silent Spring*, marine biologist Rachel Carson launched a few critical broadsides against radioactive waste disposal in a 1961 reissue of her earlier popular book, *The Sea around Us*. She pointed out the ecological connections between species, emphasizing the possibility of concentrated radioisotopes reaching humans through the food chain.[19] Other prominent marine scientists, such as Jacques-Yves Cousteau, blasted atomic energy establishments that sought to dump at sea and thereby drew public attention toward radioactive waste.[20] By the end of the decade, critics frequently targeted the wastes from civilian and military uses of nuclear power. A popular book by Sheldon Novick, *The Careless Atom*, warned of future reactor accidents and argued that not enough care was taken in site selections, especially in earthquake-prone regions such as California.[21] During the same summer in which man first walked on the moon, the *New York Times* published letters that urged launching radioactive waste into space. One proposed an artificial junk pile, "a constantly growing moon as our use of the atom pile increases." It would be cost prohibitive, the writer warned darkly, "that is, unless we measure it against the cost of transporting the last sickly remnants of humanity away from a no longer habitable earth."[22]

Ocean pollution initiatives, even regarding radioactive waste, were not entirely new. The 1958 United Nations Convention on the Law of the Sea (UNCLOS) mandated that nations limit pollution, and the International Atomic Energy Agency (IAEA) was the designated authority for evaluating policies on radioactive waste. Although a few countries had disavowed dumping it—the Soviet Union claimed to dump nothing and the United States chose to focus on land disposal by the early 1960s—the practice was not illegal. But now the growing outcry against marine pollution suggested that more stringent controls might be possible. In Malta in June 1970, a Santa Barbara-based group, the Center for the Study of Democratic Institutions, sponsored a six-day con-

17. Telegram 171300 from Department of State to All Embassies in Europe, 14 October 1970, Nixon-Ford *FRUS* E-1, doc. 301.

18. Report by Task Force III of the Committee on International Environmental Affairs, "U.S. Priority Interests in the Environmental Activities of International Organizations," December 1970, Nixon-Ford *FRUS* E-1, doc. 303.

19. Rachel Carson, *The Sea around Us*, rev. ed. (New York, 1961), xii.

20. On Cousteau, see Jacob Darwin Hamblin, "Hallowed Lords of the Sea: Scientific Authority and Radioactive Waste in the United States, Britain, and France," *Osiris* 21 (2006): 209–28.

21. Sheldon Novick, *The Careless Atom* (Boston, 1969).

22. Albert Kotin, letter to the editor, 4 June 1969, *New York Times*, 26 June 1969, 40.

ference to address the international implications of sea pollution. About 260 scientists from sixty countries took up several issues, including radioactive waste. They discussed the inaction of the IAEA in bringing about legally binding regulations. A Soviet scientist, G. G. Polikarpov, stated that the levels of radioactivity in the Irish Sea, where Britain discharged most of its radioactive waste, were high enough to cause deformity in the backbones of some fish embryos. Others praised the British and the Americans, saying that the real problem remained ahead of them, as less responsible nations would build installations without rigorous safety standards. Reporting on the conference, *New York Times* journalist Eric Pace surmised that the conferees generally agreed that international regulations under the auspices of the United Nations were greatly needed to protect the world from future abuses.[23]

The political winds in the United States increasingly favored regulations on ocean dumping. Radioactive waste figured prominently but so did a controversy in 1970 over nerve gas. Environmentalists and many politicians bitterly opposed the U.S. Army's plans to dump thousands of unwanted M-55 rockets, filled with deadly sarin nerve gas, into the Atlantic Ocean. The canisters of nerve gas were dumped about 280 miles off the coast of Florida, despite widespread protests by environmental groups such as the Environmental Defense Fund and condemnations by U Thant, secretary-general of the United Nations. Thant called it a clear violation of the 1958 Convention on the Law of the Sea. The State Department disagreed and claimed that the most competent scientists had said it would be absolutely safe.[24] Still, Secretary of Defense Melvin R. Laird vowed to discontinue the practice. As one journalist wrote, the environmentalists succeeded in drawing public attention to the question of how to dispose of dangerous wastes without harming man or the environment.[25] The nerve gas controversy catalyzed demands for more controls, or even a ban, on dumping hazardous material at sea.

The U.S. Council on Environmental Quality, created by President Nixon in the wake of the Santa Barbara oil spill, issued a report in October 1970 that pushed American policy even further against polluting the ocean. The council, headed by Russell E. Train, called for new laws to require dumping permits from the newly created Environmental Protection Agency. The report was not a scathing criticism, but it did urge that no further chemical munitions be dumped at sea. As for radioactive waste, the council recognized that the United States had shifted its focus to land. In 1960, the United States dumped some 76,000 containers of radioactive waste into the ocean, they reported, whereas in 1969 it

---

23. Eric Pace, "Control of Radioactive Wastes in Sea Urged at Experts' Parley," *New York Times*, 1 July 1970, 6.

24. See Richard D. Lyons, "Army Will Transport Nerve Gas across South for Disposal at Sea," *New York Times*, 30 July 1970, 1; "Trains Loaded for Nerve Gas Shipment," *New York Times*, 8 August 1970, 1.

25. Richard Halloran, "Still Lots of Deadly Gas Awaiting Disposal," *New York Times*, 23 August 1970, E4.

dumped just 26 containers. Thus, the recommendations really targeted other forms of industrial and military wastes.[26]

The president and his environmental council did not imply that current measures had imperiled the seas, but others made a stronger case: waste disposal policies were killing the oceans, environmentalists claimed. An article in the *New York Times* dubbed the sea off New York Harbor one of "the seven wonders of the polluted world." The vast amount of toxic garbage threatened to make the metropolitan area "the first excrement-locked region in the world."[27] In October 1971 the *New York Times* published a long article entitled "We Are Killing the Sea around Us," in which freelance writer Michael Harwood laid out the environmental argument that the ocean was dying. He laid most of the blame on sewage, toxic industrial wastes, oil spills, and other pollutants, not radioactive waste. Still, he drew attention to biologists' claims about the synergistic effects of all pollutants in the ocean, to which radioactive waste certainly was a contributor. Harwood mentioned that the IAEA had standards for radioactive waste disposal at sea, "but no nation is forced to meet those standards. Some do; some don't." He expressed hope that when national representatives met in Stockholm in 1972, they would translate words into action—to plan a real treaty regulating waste disposal at sea.[28]

In the United States, politicians raced to become guardians of the environment. In 1971, the Senate voted 73 to 0 to restrict the dumping of wastes, including high-level radioactive waste, beyond the territorial jurisdiction of the United States. Its Commerce Committee argued that the oceans were not indestructible, and could no longer be considered the "universal sewer of mankind." The House of Representatives voted on similar legislation 304 to 3. Very few wanted to stand against the tide of environmental protection of the oceans.[29] During the 1972 presidential campaign, President Nixon highlighted his own environmental agenda, criticizing Congress for inaction on over thirty proposals he had sent them since 1969. In October 1972, shortly before the election, Nixon signed into law a prohibition on ocean dumping of high-level radioactive wastes and materials for chemical, biological, and radiological weapons. In the United States, politicians across the political spectrum had begun to characterize themselves as champions of the environment; consequently, pro-dumping advocates diminished dramatically.[30] Of course, in the

---

26. Robert M. Smith, "Panel Urges Curbs on Ocean Dumping; Nixon Hails Report," *New York Times*, 8 October 1970, 1.

27. Richard Curtis and Dave Fisher, "The Seven Wonders of the Polluted World," *New York Times*, 26 September 1971, 1.

28. Michael Harwood, "We Are Killing the Sea around Us," *New York Times*, 24 October 1971, SM34.

29. "Senate Backs Curb on Ocean Dumping," *New York Times*, 25 November 1971, 26; "Bill to Limit Dumping of Wastes in Oceans Is Passed by House," *Wall Street Journal*, 10 September 1971, 28.

30. Robert B. Semple, Jr., "Vexed Nixon Prods Congress on Ecology," *New York Times*, 6 September 1972, 32.

United States, this could be done without much sacrifice because the Atomic Energy Commission already had decided not to dump high-level radioactive waste at sea, and government officials already had promised not to dump nerve gas. The newly baptized environmentalists in Congress and the White House thus were making a largely symbolic gesture. The only ones seriously distraught by the law were the British, who dumped a great deal at sea and felt betrayed by their American counterparts.

USELESS OR NECESSARY? THE POLITICAL SIDE OF ENVIRONMENTAL MONITORING

Fortunately for the British, they had anticipated this defection by the United States and thus devoted substantial energy toward cultivating more reliable European allies. Several countries joined them in combined dumping operations in the late 1960s, under the auspices of the European Nuclear Energy Agency (ENEA).[31] Because the Nixon administration named the OECD (of which ENEA was part) as an organization to support, Britain did not expect direct opposition from the United States. Yet the international momentum against marine pollution, and the likelihood of radioactive waste being fingered in particular, created tense and politicized negotiations in Europe. Allied dumping operations were not immune to pressure from what British health physicists—the scientists concerned with the biological effects of radiation—derided as the "environmental lobby." The countries nearest to the disposal operations demanded guarantees of safety from the countries of the ENEA. The only way that dumping countries could answer these demands effectively was to promise some kind of environmental monitoring. This they did reluctantly at times; scientists did not believe that monitoring could yield conclusive results, but politicians needed to show that someone was watching the sea.

Environmental monitoring soon became a tempting political placebo. As the ENEA planned dumps in the last years of the decade, requests for monitoring became routine. Spain, Portugal, and Ireland all sent representatives to insist upon it, despite scientists' repeated claims that there were no reasons to expect water samples to detect enough radioactivity to yield conclusive results. Malachy Powell, an official from Ireland's Department of Health, observed that the low scientific worth of such studies was beside the point. Negative results would calm the Irish people, whereas a lack of monitoring might alarm them, he insisted. Powell stated privately that such monitoring was the only way to satisfy critics, as they had learned from their experiences with the discharges into the Irish Sea from Windscale (the major British nuclear reprocessing facility). Taking samples of water and seaweed in the Irish Sea was Ireland's present strategy of trying to convince the Irish people that British discharges did not

31. Britain's effort to create these dumping allies is discussed more fully in Jacob Darwin Hamblin, "Environmental Diplomacy in the Cold War: The Disposal of Radioactive Waste at Sea during the 1960s," *International History Review* 24, no. 2 (2002): 348–75.

threaten them. Although they increasingly saw monitoring the Irish Sea as politically necessary, British health physicists could not help but balk at the idea of "useless, fruitless sampling" of dumping areas further out in the Atlantic.[32]

Requests for monitoring aroused cynicism among British scientists because they were accompanied by other demands, all of which were primarily intended to placate the electorate. Ireland, for example, asked for assurances from the ENEA that no marine organisms would be harmed, and asked that an Irish official join the ship's crew as an escorting officer, to reassure the Irish people that the materials were dumped in the right place and under the safest circumstances.[33] As one French representative surmised, the intervention made by the Irish was "not really made in the goal of suppressing the operation but to cover themselves vis à vis Irish public opinion." The Irish seemed more concerned with keeping the ship itself far from the sight of the Irish coast than with the effects of the radioactive materials.[34] Tadhg O'Sullivan from the Irish embassy in France addressed the ENEA representatives, pointing out that Ireland's position did not reflect suspicion of the ENEA's actions or the safety of the operation. He accepted that the scientific justification for dumping was sound, but that the main concern was the psychological effects on the public. Recalling the dramatic decline in fish prices after the *Torrey Canyon* oil spill, he pointed out that news of the dumping operations could affect Ireland's fishing and tourism industries.[35]

The ENEA failed to persuade the Irish to abandon thoughts of moving the site, conducting monitoring operations and other activities for publicity's sake. O'Sullivan continued to push for them—British health physicist David Richings observed that the Irishman "launched a full-scale attack" on the ENEA group planning the operation, using "a whole range of social/political/economic/technical arguments."[36] But although the ENEA was willing to allow an Irish escorting officer, it would not budge on monitoring or a site change, because both decisions would undermine the scientific credibility upon which the sites had been chosen. To yield any meaningful results, monitoring would have to be done on a huge scale, and it would end up being more expensive than the whole operation. Disdainful of the Irish attitude, British radiobiologist Alan Preston noted that the Irish clearly wanted "a minor movement of the disposal area, say ten to fifteen miles further offshore, which would demonstrate to the Irish public that their government had some influence in keeping the operation as far from the Irish shore as possible." Other countries unanimously agreed that this

---

32. R. H. Burns, "Notes on a Meeting Held in Paris (ENEA Offices) on 17th and 18th October 1968," 28 October 1968, United Kingdom National Archives, Records of the United Kingdom Atomic Energy Authority and Its Predecessors (hereafter AB), 54/72.

33. G. W. Clare to L. D. G. Richings, 21 March 1969, AB 54/92.

34. Y. Sousselier, "Opération de Rejet en Mer . . . ," 11 March 1969, Fonds Haut-Commissaire, Commissariat à l'Énergie Atomique, Fontenay-aux-Roses, France (hereafter HCCEA), box M3/07-61, folder "Rejets de Dechets Radioactifs dans l'Océans Atlantique."

35. G. W. Clare to L. D. G. Richings, 21 March 1969, AB 54/92.

36. L. D. G. Richings to H. J. Dunster, 26 March 1969, AB 54/92.

would be a foolish gesture, and in fact a second choice of sites might be closer, not further from the coast. Ironically, Preston mused, this would probably be preferable to the Irish, because it would put the site about equidistant to Irish, British, and French shores, and that might seem more equitable to them.[37]

Although the other representatives at the ENEA dismissed the Irish objections, these dumping operations had become politically vulnerable. Trying to press forward with a 1970 European dump, British officials met separately from their European counterparts to discuss the political ramifications. Given the public outcries against marine pollution, and government support of such anxieties even in the United States, they considered waiting until the political situation cooled a bit. They knew that the stakes were high, given the "risks of ignoring possible reactions in the current climate." The prevailing argument, that caving in to political pressure would undermine their scientific credibility, proved extraordinarily difficult to maintain. But they did maintain it. Experienced health and safety hands such as Fred Morley and John Dunster refused to make an exception in 1970. After all, they had been doing this routinely since 1949. Giving ground to the environmentalists would not mark them as conciliatory, they believed; rather it would suggest that they had been mistaken all along.[38]

This intransigence was increasingly difficult to sustain, particularly because of hardening attitudes in the United States. When British health physicists met in 1969 with the American Martin B. Biles of the Atomic Energy Commission's Division of Operational Safety, they recognized that the United States could no longer be counted upon to back British or European policies regarding waste disposal at sea. The Americans, British, French, and others—including the Soviets despite contrary claims—all had in previous years dumped radioactive waste into the oceans from ships and/or from pipelines.[39] But the United States recently had abandoned the practice, "on the grounds that they could easily bury it or store it ashore and the objections were too troublesome to deal with." One of the British scientists, Richings, wrote in a note for the record that the agitation in the United States seemed much more serious than that in Europe. And worse, American policy seemed to give in to it. He was astonished with Biles, who "said that he thought the A.E.C. were in no position ever again to 'get away with' a Hanford situation where millions of curies were discharged into the river."[40]

American attitudes toward environmental monitoring distressed British government scientists even more. In 1970, the United States proposed an ambitious global network of monitoring stations to provide the IAEA with a constant flow of environmental data. British radiochemist A. W. Kenny dismissed the idea, pointing out that the British approach was to trace the pathway

37. A. Preston to L. D. G. Richings, 29 April 1969, AB 54/92.
38. A. G. Perrin to L. D. G. Richings, 22 April 1970, AB 45/85.
39. Controversies regarding the American, British, and French cases are analyzed in Hamblin, "Hallowed Lords of the Sea."
40. L. D. G. Richings, note for the record, 4 June 1969, AB 45/85.

of dangerous radioactive materials to man through the food chain, using information about local ecology—not simply to take measurements uniformly around the world, which could lead to irrelevant but highly politicized conclusions.[41] Others, such as Preston, argued that it might be better to go along with the American ideas to some extent, "[i]n the interests of not widening the differences in approach to environmental problems which already seem to be arising between the US and the UK in a radioactivity context."[42] But this view did not prevail; the British preferred to protect the scientific credibility of their policies rather than pander to public opinion. The British Atomic Energy Authority (AEA) had spent most of the previous decade trying to persuade British ministries and fellow dumping countries in the ENEA that monitoring in the open ocean wasted money and was indefensible from a scientific point of view. It did not wish to back away from that position now, just because the Americans were promoting monitoring.[43]

Monitoring *did* have its uses in public relations, however—and Britain did conduct environmental monitoring, defined loosely. In 1971, Preston and his colleague at the Ministry of Agriculture, Fisheries and Food (MAFF), P. C. Wood, described the political side of environmental monitoring in the *Proceedings of the Royal Society of London*. They noted that although most people understood "monitoring" to be studies designed to ensure that pollutants behaved as expected after the fact, "in practice monitoring cannot really be separated from the assessment of potential damage which should precede it." Preliminary studies counted as monitoring just as much as studies done after the fact. The studies that went into the planning of dumping and effluent discharge were actually more important than the commonly held understanding of monitoring as something that occurred after the fact. A good monitoring program for the protection of man and his resources, Preston and Wood declared, had three elements: an assessment of the degree of exposure to man and the environment; some kind of scientific investigation related to this assessment or to the effects of exposure; and maintaining good public relations. None of these explicitly required scientists to survey the environment after disposal occurred.[44]

In some cases, they believed, routine after-the-fact monitoring was totally illogical, because contamination would be impossible to detect, making conclusive judgments equally impossible. Even such cases, however, "may still merit a limited monitoring programme for public relations reasons, but careful appreciation is required in deciding the scale of such effort." If this were done, Preston and Wood argued, the surveys ought to be very limited in scope, taking just a few critical measurements. They pointed out that a larger effort could imply, to the

41. A. W. Kenny to J. H. Axford, 30 October 1970, AB 54/93.
42. A. Preston to J. H. Axford, 2 November 1970, AB 54/93.
43. L. D. G. Richings to J. H. Axford, 3 November 1970, AB 54/93.
44. A. Preston and P. C. Wood, "Monitoring the Marine Environment," *Proceedings of the Royal Society of London, Series B, Biological Sciences* 177, no. 1048 (1971): 451–62.

public, a lack of confidence in the operation as a whole. After a few years, even this cursory monitoring could be abandoned "and the situation can be monitored through control of the discharge alone."[45] Although they were speaking of marine pollution in general, Preston and Wood undoubtedly had radioactive waste discharges in mind when making these statements, as they were a perfect reflection of the British government's actions, and Preston knew the issues intimately. The only requirement of monitoring, the authors pointed out, was to show that established levels were maintained at the point of discharge.[46] But because most laypersons understood monitoring to be the periodic testing and observation of the sea (after discharge or dumping), assurances about "environmental monitoring" became important political tools.

STOCKHOLM AND A TEST OF NERVES

Other European countries did not prove as resolute in defending waste disposal practices at sea as Britain. Although British officials had hoped to undertake international dumps in 1971 and 1972, they realized it would be difficult to "rustle up enough contributors," as one put it, owing to increased sensitivity about marine pollution. Although in 1970 the British recognized the possibility that they "might have to go it alone," the prospect of returning to unilateral dumps was from a political and diplomatic point of view a grim one.[47] To lessen the impact, they hoped to use the ENEA flag even in a unilateral dump. But the other countries would have none of it, particularly the French, who made it clear that the ENEA flag could only be used if at least three nations took part. The issue never came to a head; as it turned out, Belgium, The Netherlands, and Switzerland all hoped to dump some wastes, despite the potential political cost. But Britain was losing control over the ENEA as each member gradually bowed to domestic political pressure. British scientists learned with disgust that the site for the 1971 and 1972 dumps had been negotiated at the ENEA to reflect the politics of the day. The new site would be 750 kilometers from both Portugal and Ireland, reflecting diplomatic rather than scientific priorities. It was also out of range for accurate navigation.[48] The decision incurred not only more cost but also more possibility of a navigational blunder; nevertheless, it made politicians happier. This uncertainty must have reinforced many existing views that such political expediencies were irrational and irresponsible.

Irresponsible or not, political expediencies became increasingly compelling as the Stockholm Conference approached. Delegates at the ENEA hesitated to

---

45. Ibid. Quote on p. 454.
46. Ibid.
47. M. I. Michaels to L. D. G. Richings, 4 November 1970, AB 45/148.
48. These ships used Decca navigation, which relied on interpreting radio transmissions from coastal stations to determine the ship's position. Navigational accuracy diminished farther from the coast. J. B. Lewis, "Radioactive Waste Disposal into the Atlantic: First Meeting of the Operations Executive Group of ENEA," 14 December 1970, AB 54/53.

go forward with their planned dump in 1972. Although they realized that backing off of their plans would create the appearance of giving in to public outcries, they did not want to fuel any controversy that might come up during the conference. Their main priority was to get through the Stockholm Conference unscathed, without drawing too much attention. They were appalled to realize that they unwisely had scheduled the next dumping operation to take place simultaneously with the conference. As Richings put it, "this was courting trouble and enabling certain people to make a series of hysterical statements which might get widespread publicity." He and others lobbied ENEA chief E. Wallauschek successfully to postpone the operation until after the Stockholm Conference had passed safely.[49]

The Stockholm Conference, held June 5–16, 1972, consolidated the environmental movement considerably, giving rise to international agreement on several environmental proposals. But in some ways, the conference just reflected Cold War politics. For example, representatives from the People's Republic of China politicized the event by criticizing the United States at length. In addition, the Soviet Union boycotted the conference because of the exclusion of the German Democratic Republic, pulling out all of its allies except Romania. From the sidelines the Soviet media emphasized the American military destruction of the environment in Vietnam. American intelligence services concluded that, despite the Soviets' growing awareness of domestic ecological problems in regions such as Lake Baikal, on the international scale "they still seem to view environmental protection primarily as an issue for diplomatic exploitation."[50]

These roadblocks did not amount to much, however, and the conference seemed to be a success. The resistance to environmental protection by developing countries did not materialize as strongly as some expected. As an American embassy official in Brazil put it prior to the conference, "There is going to be a continuation of the feeling among many of the underdeveloped countries that being concerned about the environment is, in the final analysis, a rich man's game."[51] But at the conference, only China, Tanzania, and Algeria took hostile positions, and most developing countries proved cooperative. As for the absence of the Soviet bloc, American representative Christian Herter observed: "No one seemed to care."[52] The United States proposed a UN environmental fund of $100 million and pledged to make up $40 million of it, while other countries immediately pledged about $25 million. In fact, the conference recommended

---

49. L. D. G. Richings, note for the record, 14 March 1972, AB 54/53.

50. Intelligence Note, Bureau of Intelligence and Research, "The Soviets in the International Environment: After Stockholm," 11 August 1972, Nixon-Ford *FRUS* E-1, doc. 328.

51. Miller N. Hudson, Jr., Scientific Attaché, U.S. Embassy, Rio de Janeiro, to Christian A. Herter, Office of Environmental Affairs, 12 February 1971, Nixon-Ford *FRUS* E-1, doc. 306.

52. Christian A. Herter, "Classified Report of the United Nations Conference on the Human Environment, Stockholm, Sweden, June 5–16, 1972," 28 July 1972, Nixon-Ford *FRUS* E-1, doc. 325.

most of the American environmental goals, including a whaling moratorium, a world heritage trust, a global environmental monitoring program—and a global ocean dumping convention.[53]

Meanwhile, European atomic energy establishments waited through the Stockholm proceedings with trepidation. The conference ended on June 16, 1972; the same day, with the conference safely behind them, ENEA countries resumed dumping operations. The cargo included 7600 drums of waste from Belgium, The Netherlands, Switzerland, and the United Kingdom. To manage the political situation, the ship (*Topaz*, operated by a private firm) included observers from Ireland, Japan, and Belgium. The site for disposal was the same as the 1971 dump, chosen for diplomatic reasons roughly equidistant from the shores of Ireland and Portugal, far from the coast of France and well outside the Bay of Biscay, in water roughly 4500 meters deep. The ENEA secretariat issued a statement a couple of months later noting that the object was to devise, at the international level, "with the help of specialists in marine biology, oceanography, marine radioecology and radiation protection, disposal methods . . . which will provide the maximum guarantee for the protection of man and the marine environment." Although the statement was packed with references to scientists, "disposal methods" referred merely to the logistical arrangements required to get several countries to dump together. The mention of the "marine environment" as worthy of protection was a nod to the Stockholm Conference and its goals; however, protecting the environment, including marine biota, never had been a concern in waste disposal policy unless a danger to humans existed.[54]

Negotiating the Details of the Global Dumping Convention

The basic strategy of atomic energy establishments thus far had been to avoid environmental politics by dissociating themselves from "marine pollution." Although there had been oil spills, nerve gas controversies, and industrial waste in lakes and rivers, they pointed out, with some justification, that radioactive waste disposal had never undergone significant periods of laissez-faire neglect. Scientists already had studied the effects of radioactive waste at sea, and atomic energy establishments adhered to national and (more recently) international standards. British radiobiologist Alan Preston boasted to colleagues that Britain's "exemplary control and management" had allowed the nation to keep radioactive waste out of the Oslo Convention, a 1972 agreement to regulate marine pollution in the North Sea.[55] Although the Stockholm Conference did

53. Memorandum from the Chairman of the Council on Environmental Quality (Train) to President Nixon, 19 June 1972, Nixon-Ford *FRUS* E-1, doc. 324.

54. OECD Nuclear Energy Agency, "Radioactive Waste Disposal into the Atlantic (June–July 1972)," 2 August 1972, AB 54/73.

55. A. Preston to L. D. G. Richings, 6 November 1972, AB 54/53.

not target radioactive waste, the subject had not been similarly excluded. It seemed clear that radioactive waste would be part of a new global dumping convention. Although the strategy of complete dissociation had failed, there was still hope that scientists could persuade governments not to ban dumping completely.

Some creative thinkers in Britain began to see a global dumping convention as a way to save, rather than condemn, radioactive waste disposal at sea. If properly handled, such a convention could extend the life of radioactive waste disposal at sea while satisfying the environmental lobby at the same time. As Preston observed to Richings, now at Britain's National Radiological Protection Board, they could support a ban on dumping highly radioactive waste at sea, leaving it to the IAEA to define the precise meaning of "highly radioactive." All other radioactive wastes would be permitted. If such wording were preserved, it would give dumping nations wide latitude for interpretation, and might even make it possible to dump most of their wastes without getting approvals from radiation safety bodies as they currently were required to do. As Preston put it: "Neither of these provisions will be in any way embarrassing to the UK, and I would have thought could well give us endorsement at [the] international level in non radiological protection fora for the continuation of disposals." Preston was worried that other dumping countries in the NEA ("European" recently had been dropped) might not see the opportunity and would instinctively fight any ban. But he argued persuasively:

> We (MAFF) have fought hard for this and would not take kindly to having it all brushed aside by ill-founded nervous apprehension in the [Nuclear Energy Agency] directorate. We believe in the correctness of what we are doing and have clearly succeeded in convincing others of it—how ironic if NEA should let it all go now![56]

He and others believed that it would be possible to work within the convention and continue their basic policies while seeming to concede a victory to the environmentalists.

Ultimately radioactive waste was included in the convention, drafted at London and opened for signature in late 1972. The London Dumping Convention itself was fairly straightforward, but the agreement included an array of details that remained to be negotiated. For one, it contained black and gray lists; the black list designated banned materials, whereas the gray list designated materials requiring only special permits from national authorities. High-level radioactive waste was put on the black list, but its meaning would have to be negotiated across national lines at the IAEA. Those most dependent on disposing of waste at sea knew quite well how flexible such definitions could be. In addition, although the convention banned "high-level" solid wastes, it ignored

56. A. Preston to L. D. G. Richings, 6 November 1972, AB 54/53.

equivalent effluent wastes; the much larger quantities of liquids pumped through pipelines did not provoke the political firestorms produced by a few drums of solids. The London Convention applied only to dumping from ships, not the general introduction of radioactivity into the sea.

Senior scientists who had been the architects of British dumping policies were among the most influential figures in the postconvention negotiations. These included radiobiologist Alan Preston and health physicists David Richings and John Dunster. Richings knew that the IAEA was keeping in close contact with the NEA secretariat, composed primarily of E. Wallauschek and J. P. Olivier, and listening to its advice. As international debates now would turn on what "high-level" wastes were, it would be crucial to concentrate not on resisting the ban but rather on influencing these definitions. For example, the British wanted to keep plutonium out of the "high-level" category, because it made up a large part of what Britain put in the sea. As Richings explained to a colleague:

> I detected a doubt in some minds on the categorisation of alpha emitters, and in particular, plutonium. In my view we should take this opportunity of pre-conditioning the minds of Wallauschek and Olivier on the desirability of not including alpha emitters as such in the definition of "high level wastes," thus leaving national authorities free to determine on merits whether any particular waste of this category should or should not be dumped in the sea.[57]

Now was the time to act behind the scenes through informal meetings, rather than through formal representations by a government agency. These British experts acting in advisory, unofficial capacities undertook the task of exercising indirect influence over the IAEA by "preconditioning the minds" of experts in other bodies. Richings added, "We should be experienced enough to avoid washing any dirty linen in front of them."[58]

The situation was precarious because the American delegates to the IAEA already had devised a troubling definition of "high-level waste." The United States targeted wastes generated at reprocessing facilities such as Hanford in the United States, Windscale in the United Kingdom, and La Hague in France. As worded (see footnote 59), the definition potentially would have enormous ramifications because it might include both liquid and solid wastes. From Britain's point of view, the global dumping convention was going to apply only to solid wastes being dumped at sea. The American definitions would have branded Britain's "medium-level effluent" as "high-level waste." Given the huge amount of waste water discharged into the Irish Sea from Windscale, the American view was rather threatening. The British hoped that they could negotiate other delegates away from this position, particularly by convincing them that neither tritium nor plutonium were high level enough to be included, even though both

57. L. D. G. Richings to J. B. Lewis, 22 January 1973, AB 54/53.
58. L. D. G. Richings to J. B. Lewis, 22 January 1973, AB 54/53.

fit the American definition.[59] All these discussions indicated that the London Convention itself need not be earth shattering. The postconvention negotiations at the IAEA about definitions would, by contrast, be crucial.

When the IAEA convened the panel in June 1973 to define high-level radioactive waste, the British were surprised at how yielding their counterparts were. For one, the British wanted to exempt their large volume of tritium, and the other countries did not seem to mind. The panelists watched a film of the first ENEA dumping; although it was produced by France's Commissariat à l'Énergie Atomique, Britain's practices were on display more than anyone's, and they received praise. After some preliminary reviews of the convention and the technical background, the panelists started the serious business of hammering out a definition of "high-level waste." Ultimately, this definition set numerical limits on curies per ton for alpha and beta activity.[60] Any amounts of solid radioactive waste less "hot," with fewer curies per ton of gross weight, could be handled according to each nation's own authorization procedure. The definition did not mention the source of the waste, nor did it mention any particular element except to exempt one (tritium, according to Britain's wish; Britain also successfully avoided direct reference to plutonium).[61] Although this definition changed in subsequent years—identifying different levels for strontium-90, for example—it still left national atomic energy establishments with a great deal of flexibility, given the internationally accepted threshold levels legitimizing dumping operations.[62]

The soft line taken on the definition of high-level waste should not have been a surprise. After all, from a politician's point of view, the important part was over: the convention itself was signed and the frightening (but still undefined) high-level waste was banned. These two facts would satisfy most domestic critics, including the dreaded environmental lobby. This perspective was all the more apparent as the delegates passed quickly from negotiating the technical details to

---

59. The proposed American definition of high-level waste was "aqueous wastes resulting from the operation of the first cycle solvent extraction system, or equivalent, and the concentrated wastes from subsequent extraction cycles, or equivalent, in a facility for reprocessing irradiated reactor fuels." J. H. Clarke, "Meeting at DTI to Discuss the 'Panel on IAEA Responsibilities under the Convention on the Prevention of Marine Pollution by Dumping of Waste & Other Matter,' Vienna 4–8 June 1973," n.d., AB 54/73.

60. Reporting on the negotiations, Preston and Dunster stated the definition thus: "For the purposes of Annex I [the black list] to the London Convention of 1972, high-level radioactive wastes or other high-level radioactive matter unsuitable for dumping at sea means any waste or other matter with a concentration of beta activity (excluding tritium) exceeding 1000 Ci per tonne gross weight, or a concentration of alpha activity of half life greater than 100 years exceeding 10 Ci per tonne gross weight. Both of these activity concentrations are to be taken as averaged over 100 tonnes." A. Preston and H. J. Dunster, note for the record, 11 June 1973, AB 45/84.

61. On Britain's hopes for these IAEA negotiations, see J. H. Clarke, "Meeting at DTI."

62. These definitions were subject to periodic review. The fifty-year half-life for alpha activity and the restrictions on strontium-90 were specified in the definition submitted by the IAEA to governments in late 1974. See Sigvard Eklund to F. H. Jackson (resident UK representative to the IAEA), 6 December 1974, AB 54/125.

making the political pronouncements: many participants clearly preferred to use the meeting as a vehicle for making pro-environment statements about the future of the oceans. Because the IAEA was going to leave the granting of special permits to the discretion of individual nations, some of these nations decided to point out that they would not be exercising their rights very often. French and German delegates drafted a note for inclusion in their agreement, stating that the coming decades would see further development of the use of the sea's resources, and that the countries of the world ought to take care not to squander these with excess pollution. Although they did not condemn sea dumping, they wanted to state plainly that the convention should not encourage it, either. In fact, France, the United States, and Canada all gave formal declarations saying that they did not intend to use the sea to dump radioactive wastes.[63]

The only significant diplomatic hiccup during the negotiation of details came from the Soviet Union. Although historically opposed to dumping radioactive waste at sea, the Soviets seemed willing to let the loose definition pass without a fight. But in subsequent IAEA meetings, they negotiated a new perspective (and for dumping nations, ostensibly a new limitation) into the convention. G. G. Polikarpov, from the Institute of Biology of the South Seas (Ukraine), persuaded the other delegates that the biosphere needed to be protected, and not necessarily because of a connection to man. He introduced a sentence to the convention that required concentrations of radioactivity to present no unacceptable risk to man or to marine ecosystems. Adding "or to marine ecosystems" violated Britain's long-standing approach to determining risk by tracing likely pathways through the environment to man. But because the convention did not apply to liquid discharges, British negotiators let it go. "This was an undesirable addition," British scientists Dunster and Preston pointed out in a note for the record, "but was the price paid for a unanimous agreement on the final text."[64]

Despite successfully protecting their policies, ocean dumping countries trod lightly on the political front. The pressures generated by the Stockholm Conference had led several countries to limit the amount of waste that they intended to dump at sea in 1972. Although perhaps prudent in the short term, it proved burdensome the following year, when they faced an overabundance of material to dump. The embarrassed European countries appeared to escalate their activities now that the Stockholm Conference had ended. Not surprisingly, Britain felt this inconvenience most acutely. Not only did it have its usual amount of material and what it had held back in 1972, but it also needed to get rid of about 16,000 tons of plutonium wastes that had built up over the years and were being stored on land. Thus Britain faced a conundrum, knowing that it had a comparatively large amount of waste to dump in an international climate that seemed to stand firmly against the practice. Much of the material was tritium,

63. A. Preston and H. J. Dunster, note for the record, 11 June 1973, AB 45/85.
64. Ibid.

which did not concern health physicists as a serious danger—but as one of them put it, "to the public, all curies are the same."[65]

The rise of environmentalism continued to play havoc on waste disposal attitudes, despite the renewed legality of existing practices under the dumping regime. Although none of ENEA countries opposed dumping on scientific or technical grounds, they feared the uproar in the press. Chemical engineer J. B. Lewis, who represented Britain in some of these Europe-wide meetings, put it thus:

> Current opinion, even among those who feel that sea dumping must continue, is that there should be a pause for 1 to 2 years during which time all the technical, legal, and above all, political issues are disposed of *to the satisfaction of the environmental lobby* [emphasis in original]. It is not enough to convince technologists, the public at large must be reassured.[66]

The ENEA countries were afraid to dump and, moreover, they did not want Britain to conduct any national dumps either; the uproar could jeopardize the future of ocean disposal. As an alternative they might have organized a sanctioned dumping operation under the banner of the IAEA, but the resolute opposition from the Soviet Union probably would have rendered this impossible. Indeed, routinely negative views expressed in *Pravda* did not bode well for any international consensus. Thus the atomic energy establishments—in Britain, The Netherlands, and Belgium—wanting to dump despite prevailing environmental politics faced an array of European nations standing in their way.[67]

Despite this political climate, the dumping continued much as it had in the past, albeit with greater awareness of the public sensitivity to the environment. The Dutch were particularly eager to press on despite objections from environmental groups. B. Verkerk, a scientist from Reactor Centrum Nederland, proposed that the NEA be sidelined for the time being. More dedicated countries could continue dumping according to the existing principles. If the NEA was not willing to take on a major dumping operation in 1973, then it could be done on a more limited, yet still multinational, scale, among the United Kingdom, The Netherlands, Belgium, and whoever else wanted to join in.[68] Without this offer from The Netherlands, Britain likely would have made a unilateral sea dump and would have had to face the unpleasant political and diplomatic consequences by itself.[69] In the end, most of the NEA countries did not want to participate in 1973, largely because of political uncertainties. Still, none explicitly opposed a dump; they were content to be seen frowning upon it. The chairman of an NEA meeting in May 1973, Italian physicist Carlo Salvetti,

---

65. J. B. Lewis, "Radioactive Waste for Sea Dumping in 1973," 10 October 1972, AB 54/73.
66. J. B. Lewis to J. Williams, 13 October 1972, AB 54/53.
67. Ibid.
68. B. Verkerk to J. B. Lewis, 8 November 1972, AB 54/53.
69. J. B. Lewis, "Radioactive Waste Sea Dump 1973," 15 November 1972, AB 54/73.

pointed out that there seemed to be little enthusiasm for "bringing about a marriage of the atom and the sea," but that there were no grounds for stopping the operation.[70]

CONCLUSION

One of the strange twists of the London Dumping Convention was that the restrictions on radioactive waste were in practice so loose that some countries *wanted* their toxic garbage labeled "radioactive." On the Belgian leg of the 1973 voyage of the *Topaz*, for example, the crew at Zeebrugge loaded drums contaminated with cyanide under the weak premise that the cyanide had been produced at the Belgian Nuclear Centre in Mol and had become slightly radioactive. The Belgians were eager to classify the waste as low-level radioactive waste, with the minimal restrictions under the convention, rather than as high-level toxic waste, with much tighter controls. But other government officials in Belgium objected and alerted the press. Many NEA members soon protested, and the ship—after dumping some of the cyanide—had to turn around and return most of it to Belgium.[71]

After the convention and subsequent negotiations about definitions, the IAEA ultimately placed very loose restrictions on the dumping of radioactive waste at sea. Its implicit sanction of the practice, vindicating years of actions taken formally and informally by Britain, did not detract from politicians' sensitivity to environmental issues. In December 1974, IAEA Director-General Sigvard Eklund transmitted the agency's negotiated interpretation of "high-level" radioactive waste to member countries. Reflecting the continued stigma associated with waste disposal, he reminded them that the definitions and recommendations "should not be construed as encouraging in any way the dumping at sea of radioactive wastes and other radioactive matter," and that the subject would continue to be reviewed periodically.[72] Eklund and others made their feelings about pollution clear to the public, but without ruffling the feathers of countries already dumping.

My attempt to draw attention to the details of one particular environmental regime shows how existing ocean dumping policies survived virtually unchanged despite an extraordinary rise in environmental consciousness, political action, and diplomatic negotiation. The common aphorism "God lives in the details," with the caveat that the devil also lives there, can take us far in understanding how some scientists, diplomats, and politicians tackled international environmental politics in the late 1960s and early 1970s. Looking beyond the laws

---

70. J. A. H. Broughton, note, "NEA Steering Committee Meeting, 3 May 1973," 4 May 1973, AB 54/53.

71. J. B. Lewis, brief of meeting, Operations Executive Group, NEA, meeting held 5 November 1973, 12 November 1973, AB 54/53.

72. Sigvard Eklund to F. H. Jackson (resident UK representative to the IAEA), 6 December 1974, AB 54/125.

passed, the treaties signed, the "environmental monitoring" conducted, the statesmanlike avowals of protecting nature, and the outright ban on dumping high-level radioactive waste, a surprising degree of continuity in practice existed both before and after the convention took effect. The prime mover behind a dumping convention, the United States, had nothing at all to lose by it. In Britain, the architects of earlier policies protected dumping by assenting to the publicly visible treaty while digging in over the details about what constituted "high-level" waste. In the case of radioactive waste, even the British were surprised at how few of their counterparts in other countries cared about the real negotiations—most seemed more interested in making public statements about high-level waste, without particular attention to its meaning. The result was an agreement that surpassed Britain's wildest expectations. Perhaps more importantly, the negotiation of this environmental treaty—which changed little in the way of policy—created an illusion of a serious concession on an environmental issue, an illusion elaborated by the creation of a formal legal regime to continue protecting the sea. As "environmental monitoring" had done earlier, the creation of this legal framework acted as a placebo upon public opinion. To be fair, the convention was not set in stone and both the treaty language and the definitions of concepts have been revised over the years. The more recent alterations might reflect genuine policy changes, or they might be mere window dressing designed to placate, as British government scientists so often put it, the environmental lobby. In 1972, what changed was not actual practice but rather attentiveness to environmental politics, making the regime more a custodian of international public opinion than of the environment.