

Environmental Ethics in Antarctica

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The concerns of environmental ethics on other continents fail in Antarctica, which is without sustainable development, or ecosystems for a "land ethic," of even familiar terrestrial fauna and flora. An Antarctic regime, developing politically, has been developing an ethics, underrunning the politics, remarkably exemplified in the Madrid Protocol, protecting "the intrinsic value of Antarctica." Without inhabitants, claims of sovereignty are problematic. Antarctica is a continent for scientists and, more recently, tourists. Both focus on wild nature. Life is driven to extremes; these extremes can intensify an ethic. Antarctica as common heritage transforms into wilderness, sanctuary, wonderland. An appropriate ethics for the seventh continent differs radically from that for the other six.

I. ANTARCTIC REGIME

Environmental ethics, increasingly global, covers all continents, but the seventh is quite a challenge. Ethics goes "green"? But this vast continent is white. A land ethic? Antarctica is ice, only marginally land, two percent at the edges, or vertical rock cliffs, or bare, dry valleys, and then mostly in the short summer. An ecosystemic ethic? On land there are none of the higher plants and animals in temperate, tropical, or boreal regions. People in harmony with their landscapes? No one lives here. Sustainable development? There isn't any. An ethic of caring, or virtues? On an uninhabited continent? Ethics freezes up. Duties to glaciers and icebergs? Protecting their intrinsic value? Ethics still works in the seventh sea, the Southern Ocean, with whales, seals, albatrosses, penguins, Maybe Antarctica is beyond ethics, a pole apart? Certainly no ethics is there until we humans arrive and struggle to determine what to make of the place.¹

Antarctica is governed by what political scientists call a "regime," a negotiated set of principles, norms, rules around which actors' expectations converge in an area of international relations.² Any Antarctic regimes is obviously a social construction imported there from nations on the other six. There is no "policy" or "ethics" among the glaciers and penguins. This "regime" is our

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¹ For brief reflections encountering Antarctica, see Holmes Rolston, III, "Environmental Ethics on Antarctic Ice," *Polar Record* 36, no. 199 (October 2000): 289-90.

² Stephan Haggard and Beth A. Simmons, "Theories of International Regimes," *International Organization* 41 (1987): 491-517.

human superimposition, nicely "pragmatic" for those who enjoy pragmatism. It is the way we have agreed among ourselves to handle the place. We sketch that regime, wondering whether a regime can generate an ethic.³

(1) The Antarctic Treaty of 1959, ratified 1961, is fundamental.⁴ Originally there were twelve consultative parties (ATCPs), or "powers." Later fourteen more were added. On the second tier are acceding states (ACSSs), nonconsultative parties (NCPs), who support the treaty but do not vote. Today some forty-four nations are involved. For the nations that can vote, decisions must be authorized by consensus, which sounds congenial and adds strength to any policy enacted; but this decision process also makes possible a veto by the most shortsighted party. The consultative parties meet annually.

The treaty, quite an accomplishment, is primarily political, rather than environmental, even if the "preservation and conservation of living resources in Antarctica"⁵ is the last of its goals. Antarctica will be used for peace; there will be no nuclear detonation or wastes dumped; scientists are to exchange findings; the parties will further consider jurisdictions. We have hardly reached an environmental ethics.

Treaty advocates like to say that the signatory nations (including China and India) represent eighty percent of the world's peoples. Broadly speaking that is correct, but it is also so loose a claim that we will have to return to it. The treaty is not general international law applicable to all nations (as though it had United Nations authority), but only for those who participate; and even for them, unless such nations enact parallel laws in their own legislative bodies, how far the treaty is soft or hard law is open to debate. Also, can and ought the consultative parties make law for the acceding states? Nevertheless, any nation acting contrary to the treaty would be subject to considerable ostracism.

Treaty advocates may also say that only nations with an actual "presence" in Antarctica should be involved in administrative decision making there, and not every nation on Earth, the most of which have had no contact with Antarctica. Critics say the result is that the rich vote; the poor do not.

(2) The Agreed Measures for the Conservation of Antarctic Fauna and Flora followed in 1964, an annex to the treaty, at once genuinely concerned for conservation but powerless.⁶ Governments are called upon to protect "fauna

³ Facts in the following sketch can be found in: Francesco Francioni, ed., *International Environmental Law for Antarctica*, 1st ed. (Milan: Guiffre Editore, 1992); and with Tullio Scovazzi, *International Law for Antarctica*, 2d ed. (The Hague: Kluwer, 1996); Olav Schram Stokke and Davor Yidas, *Governing the Antarctic: The Effectiveness and Legitimacy of the Antarctic Treaty System* (Cambridge: Cambridge University Press, 1996); Lorraine M. Elliott, *International Environmental Politics: Protecting the Antarctic* (New York: St. Martin's Press, 1994); Christopher C. Joyner, *Governing the Frozen Commons: The Antarctic Regime and Environmental Protection* (Columbia: University of South Carolina Press, 1998).

⁴ 12 U.S.T. 794 (*United States Treaties and Other International Agreements*). See <http://www.unog.ch/frames/disarm/distreat/antarctic.htm>.

⁵ Antarctic Treaty, Article 9, 1 (f).

⁶ 17 U.S.T. 996. See <http://sedac.ciesin.org/entri/texts/acrc/aff64.txt.html>.

and flora," more specifically mammals and birds in their ecosystems, as well as specially protected areas and those of outstanding scientific interest. Each state is to operate unilaterally. The United States did not agree to these measures until 1978, and they entered into force in 1980.

(3) The Convention for the Conservation of Antarctic Seals (CCAS—pronounced "C-cass"), followed in 1972, ratified 1978, concerned about seals' "vulnerability ... to commercial exploitation" and seeking the "protection, scientific study, and rational use of Antarctic seals."⁷ An environmental ethic is now within sight, or at least a resource ethic is. Signatories agree on an allowable catch for crabeater seals, leopard, and Weddell seals; there is no catch allowed for Ross, Elephant, and fur seals. This agreement seems to respect these forms of life. Sled dogs have been banned in Antarctica since the mid-1990s, for fear of contaminating seals with distemper.

(4) Because whales move around, this part of the regime is more global. The International Whaling Commission in 1985 introduced a worldwide moratorium on all commercial catches, with some compromise clauses for subsistence and scientific reasons, and with some nations objecting, especially Japan. Since 1994, the commission has designated Antarctica the Southern Ocean Whale Sanctuary, banning all whaling, including scientific whaling, below 40° S. Japan, continuing to object, kills 300 to 400 minke whales a year there.⁸

It was fairly easy to gain consensus on seals and whales, because, as with bison or passenger pigeons, we are not proud of the past exploitation. Whales and seals are also charismatic. Still, enlightened exploitation is a central theme, or a least-common-denominator position, while some do seem increasingly concerned about the seals and whales in themselves.

(5) Next came the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR—pronounced "Cam-larr") in 1980, ratified in 1982.⁹ The name is something of a misnomer, since the interest, more specifically, is fish and krill. "Krill probably constitutes the world's largest single remaining unexploited living resource," concluded B. B. Roberts, head of the British Antarctic program,¹⁰ though researchers since have doubted such optimistic estimates. Krill are shrimp-like animals (*Euphausia*), the basis of the oceanic food chain. Here everything eats krill, or eats what eats krill. People use them for food for fish or cattle, or fertilizer, though for human consumption fluoride from the krill's carapace contaminates the meat unless processed very quickly. Humans have harvested millions of tons, and CCAMLR sets quotas.

So far, the ethics is in the ocean, a marine environmental ethics. Also, so far,

⁷ 29 U.S.T. 441, Preamble. See <http://www.tufts.edu/departments/fletcher/multi/texts/BH592.txt>

⁸ Judith Berger-Eforo, "Sanctuary for the Whales," *Pace International Law Review* 8 (1996): 439-83.

⁹ 33 U.S.T. 3476. See http://www.ccamlr.org/English/e_basic_docs/e_pt1_p1.htm.

¹⁰ B. B. Roberts, "Conservation in the Antarctic," *Philosophical Transactions of the Royal Society of London*, Series B 279 (1977): 97-104; citation on p. 99.

everything is voluntary. The treaty powers have considered setting up a secretariat, which might have enforcement powers, but they have never reached consensus enough to do so.

(6) The Convention for the Regulation of Antarctic Mineral Resource Activities (CRAMRA—pronounced "Cram-rah"), attempted in 1988, proposed rules and procedures for regulating mineral extraction. The convention failed—a failure of considerable interest for environmental ethics in Antarctica, on land.¹¹ With minerals, there is always the presumption that they will be exploited, but how? Once Antarctica was part of Gondwanaland, the ancient southern supercontinent, from which Australia and Africa spun off. Think what mineral wealth is in South Africa's rocks, and wonder whether more is under Queen Maud Land, once attached to Africa. No minerals in commercially exploitable quantities are known to exist; exploration is difficult. But then no oil had been extracted from the North Sea fifty years ago, and fifty years hence in Antarctica? Before the fact, some agreement might anticipate and prevent dissension. To whom will such mineral benefits go? To those who extract the minerals? To the consultative parties only? To the nations on whose territorial claims they are found? The nonconsultative parties objected, advocating Antarctica as a global commons, like the deep sea. The proposed convention favored treaty members, presumed likely mining states, but also spoke of some openness to all states.

But the whole exploitation approach was the deepest trouble, Australia and France balked, and, given the consensus requirement, they had veto power. This time the consensus requirement is used to advance an ethic. There should be no mineral exploitation at all, Antarctica ought to be a "nature reserve." At first, everybody else was for CRAMRA. The United Kingdom and the United States especially opposed a ban—at least the official U.S. representatives did, from the Department of State. But then-senator Albert Gore got a resolution through the U.S. Congress, the Antarctic Protection Act of 1990, preventing U.S. citizens from engaging in mineral resource activity in Antarctica, and this set Congress at odds with the Department of State. Next, the U.S. Environmental Protection Agency opposed the minerals convention.

In Australia, sixteen environmental groups were influential with the environmental minister. So was Peter Scott, son of Robert Scott, appealing to the Australian prime minister. In France, Jean Jacques Cousteau was influential, NGOs, such as the Antarctic and Southern Ocean Coalition, were active, helping to shape the final draft of the upcoming Protocol. Greenpeace and the World Wildlife Fund promoted a ban and a world park. Scientists were not especially effective. Richard M. Laws, then president of the Scientific Committee on Antarctic Research (SCAR), complained about the "disproportionate influence" of NGO's over advice by scientists and the NGO's "having engi-

¹¹ 27 I.L.M. 859 (*International Legal Materials*). See <http://www.polarlaw.org/1988cramra.htm>.

needed the wrecking of CRAMRA and paving the way for the Environmental Protocol and its prohibition on mining."¹²

(7) The outcome, surprisingly, was the Madrid Protocol, 1991, though not ratified until 1998, regrettably held up five years by opposition in the U.S. and Japan.¹³ The delay continued despite the U.S. Congress enacting in 1996 the Antarctic Science, Tourism, and Conservation Act¹⁴ to enable the U.S. to endorse the protocol. More officially, this is the Protocol on Environmental Protection to the Antarctic Treaty, judged by Francesco Francioni to be "the most important normative and institutional innovation in the Antarctic System, since its birth with the Treaty of Washington in 1959."¹⁵ "The Parties commit themselves to the comprehensive protection of the Antarctic environment and dependent associated ecosystems and hereby designate Antarctica as a natural reserve, devoted to peace and science."¹⁶ Scientific, tourist, and other activities require an "environmental impact assessment" filed with the sponsoring nation.¹⁷ There is a "50 year moratorium" on mineral exploitation in the Antarctic. "Any activity relating to mineral resources, other than scientific research, shall be prohibited."¹⁸ It was the U.S. again, at least its executive branch, which opposed a permanent ban and insisted on the fifty year walkout possibility, with some rhetoric about not foreclosing options for future generations.

The pact also sets strict environmental standards for researchers, who must take all their waste with them when they leave—even their excrement and dishwater. The conviction that humans ought not to pollute the place is quite strong—and also interesting, because Antarctica is the one continent where one might think trash could be dumped out of sight and out of mind. The next convention proposed is on "liability for damage to the Antarctic environment."

There are strict sections on conservation of fauna and flora and the protection of special areas. The nations seek to keep the continent as pristine as possible. Each step in this developing regime desires less development in Antarctica, ideally none at all. The regime sounds like a new paradigm; politically a regime is transforming into an ethic.

II. ANTARCTIC POLITICS

These developments need closer analysis. Politics is not ethics, though the two are cousins. A difference is that politics puts the focus on state actors. The

¹² Richard M. Laws, "Antarctic Science and Politics are Coming into Conflict," *Antarctic Science* 3, no. 3 (1991): 231, and a speech reported in Elliott, *International Environmental Politics*, p. 195.

¹³ 30 I.L.M. 1455. See <http://www.aad.gov.au/environment/protocol/protocoltxt.asp>.

¹⁴ 16 U.S.C 2401-2413.

¹⁵ Francioni, *International Environmental Law for Antarctica*, p. 29.

¹⁶ Madrid Protocol, Article 2.

¹⁷ *Ibid.*, Article 8.

¹⁸ *Ibid.*, Article 7; Article 25.

presumed rationale for entering a regime has typically been enlightened national self-interest. Such regimes privilege political and economic interests over environmental ones. Sovereign states are always asking whether the current negotiations are a zero-sum game. Nation *X* wins; nation *Y* loses.

Interests can coincide; if so, we reach consensus. If not, there is veto. Nothing about such a state-centered posture guarantees that humans will figure out how to behave appropriately here. Looking out for oneself, or one's constituents, is not the same as protecting Antarctica itself, although we could hope that the two could at times coincide—as seems to have happened with the Madrid Protocol.

Ethicists will ask whether the politics is fair, just, impartial, produces the greatest good for the greatest number, is democratic, and so on. Consensus seems democratic and protective of minorities, but possibly insisting on consensus will get no further than the least common denominator of perceived self-interest. Everything is by consensus, but the discussions reaching consensus are not public. In fact, the diplomats often both met in secrecy and kept most of their records secret. One can't negotiate well with an open hand, and there is national security to consider. The broad consensus claimed might not preclude something of a closed circle mentality. The actors are often diplomats who have never been to Antarctica, nor are they particularly close to their constituencies. Diplomats are relatively independent of elections. They insist on "consensus" among themselves, but such consensus does not guarantee that the diplomats will reflect a "consensus" of their own constituencies. These troubles surfaced with the failure of the Mineral Resources Convention, where the U.S. State Department said one thing, the U.S. Congress and the Environmental Protection Agency said another.

The treaty nations represent over eighty percent of the world's population? But the voting members, the "consultative parties" do not represent any such eighty percent. They comprise only twenty-six nations from 170 nations in the world. Mostly big rich nations control decisions; poorer nations big enough and with an elite willing to spend significant money on research there (such as India) may also vote; but the rest of the world does not even vote.

Further, only seven nations have made territorial claims. These territorial claims were so contentious that, essentially, the Antarctic Treaty had to duck them. "Nothing contained in the present Treaty shall be interpreted as ... a renunciation by any Contracting Party of previously asserted rights or existing claims to territorial sovereignty in Antarctica." "No new claim, or enlargement of any existing claim, to territorial sovereignty in Antarctica shall be asserted while the present Treaty is in force."¹⁹ Any future claims should be "frozen" (a good word for Antarctica!).

The seven nations could be saying: "The continent is ours," though they would

¹⁹ Antarctic Treaty, Article 4.

never put it just like that. The other three dozen consultative and acceding nations could be saying: "There will be no more claims, and even the ones we have are a bad idea. Suspend them." Both could be meant, the former by the seven, the latter by the rest. Usually the answer one gets is that these claims are "in abeyance." Others are more forceful. Robert D. Hayton concludes that such claims, especially the hinterland sector claims, are a "flagrant flaunting of international law standards and should be exposed as such."²⁰

There are territorial claims in Antarctica made by Argentina, Australia, Chile, France, New Zealand, Norway, and the United Kingdom. Five other states were original signatories to the treaty, making no territorial claims (and often not recognizing such claims either): Belgium, Japan, South Africa, and, of particular interest, both the United States (which originally called for the treaty) and the then Soviet Union. Six of the seven make their claims as sectors, pie-shaped pieces widest at the coast and diminishing to a point at the Pole. In the western half of the continent, some of the apparent mainland may prove to be ice several miles thick over bedrock that is below sea level. The Ross Ice Shelf and Filchner-Ronne Ice Shelf, huge areas, are ice over sea water.

The claims can overlap; Britain's claims include all of Argentina's and most of Chile's. Argentina has objected to U.K. claims since 1908, the year of the first formal British claims. Argentina and Chile also dispute the border between their own territories. Norway, first to the Pole with Amundsen, might have claimed that region, but never did. Rejecting the sector theory as well, Norway has claimed only a coastline area they mapped and "occupied," that is, on which they placed various huts and bases, mostly infrequently used.

Territorial claims, one will hope, are legitimate (supported in law) and ethical (fair, just). Territories of national sovereignty and properties public and private are the foundation of land use policy on the other six continents. Historically, ideas of what justifies such claims has been dynamic, often problematic. In earlier centuries, imperialists typically went around claiming whatever they found they could enforce a claim on, and, in the colonial epochs, this could degenerate into Europeans playing finders keepers with the rest of the Earth.

The grounds of initial territorial claims are the discovery and occupation of hitherto unoccupied land. Typically, the anti-colonialist challenges to territorial claims have been that the Europeans were mistaken about what they presumed to "discover" and call terra nullius. The colonized land was occupied by indigenous peoples, who had discovered it millennia before. But Antarctica was discovered and is indeed unoccupied. The question then turns, rather, to how much claim attaches to discovery and whether Antarctica has been occupied.

On the other continents, we have a reasonably persuasive model, descending

²⁰Robert D. Hayton, "The Nations and Antarctica," *Österreichische Zeitschrift für öffentliches Recht* 10, nos. 3-4 (1960): 368-412, citation on p. 398.

from John Locke.²¹ One must inhabit and mix one's labor with the previously unowned and uninhabited land, reflected, for instance, in the U.S. Homestead Act, transferring parcels of "unsettled" public domain land to those who come to live on and work it. But in the Antarctic there is no permanent inhabitation, reduced "occupation," and, outside construction sites, doubtful mixing of any labor with the land/ice—no plowed fields or pastures. Scattered scientific sites, most of them seasonal and temporary, are insufficient. With some vacillation, the U.S. position has typically been that these lands are unsuitable for effective occupation. The classic treatise *International Law*, originally by Lassa Oppenheim, later edited by Hersch Lauterpacht, admits no exceptions to the "effective occupation" test.²²

What counts as a discovery claim absent any occupation? Will it suffice to see land from a ship? Thaddeus von Bellinghausen, a Russian, sighted a bit of Antarctica in 1820. John Davis, an American, was probably first to land on the mainland in 1821. Islands are often iced together and to the mainland; what is ice shelf over sea and what is ice over land is deceptive. France claims land which a Frenchman, Dumont d'Urville, only saw from ship in 1840 and no Frenchman ever set foot on for over a century (1942). Douglas Mawson, Australian, landed, where an American, Charles Wilkes had sailed sixty years before. If one must set foot on it, how much land must be crossed? Remembering that these sectors extend coast to pole, most of the hectares claimed have never had a human footprint on them.

Argentina and Chile made their claims on grounds of being close and inheriting their rights from the Spanish, though neither sent an expedition until after their claims were made. Both nations insist that their Antarctic territories are integral to their national territory. Argentina has frequently sent women and children, families of military or scientific personnel, to its Esperanza station at Hope Bay on the Peninsula to establish more claim. An Argentine citizen was even born there, one "native" Antarctic.

Recalling that Australia and New Zealand are in the British Commonwealth—the British Empire when these claims were made—the Commonwealth claims cover half the continent. Australia alone claims forty-two percent, recently expanded to an offshore 200 mile Exclusive Economic Zone along their 4,300 mile coastline.

Phillip G. Law, leader of the Australian Antarctic Research Expedition, set up the first permanent scientific station on the continent. He recalls his thrill at Mawson station in February 1954, claiming the land for the English sovereign (selecting the site for the station using aerial maps the Americans had given him from Operation Highjump!). "It was an exciting moment for me as we

²¹ John Locke, *Two Treatises of Government*, *Second Treatise*, chap. 5, "Of Property," secs. 25-51.

²² "Occupation," in Lassa Oppenheim, *International Law: A Treatise*, 2 vols., 8th ed., ed. Hersch Lauterpacht (New York: David McKay, 1955), vol. 1, pp. 554-63.

raised the Australian flag over the site. I had been brought up on the stories of Scott and Shackleton and other explorers—and here I found myself in a similar position, on virgin territory, raising a flag and claiming the land in the name of the English sovereign."²³

Some excitement was appropriate, but Law might have asked whether the era of imperialism was over. A decade before, the British had given up their claims in India and they were then abandoning colonial claims in Kenya. But then, on this uninhabited continent, there never were any indigenous peoples protesting their occupation, and so the colonial claims, without their usual disruptive challenges, have tended to linger. Five years later, though, the 1959 Antarctic Treaty was prohibiting any further claims. Forty years later the Australians were leaders in the minerals ban, advocating Antarctica as a world park. Then again, the Australian claims to offshore rights to subsea minerals adjacent to their sector returns to national ambition.

What ought we to do with this continent? A conclusion that seems to be forming is not to nationalize it, as we have done with the other six, but to internationalize it—though presently we will wish to reconsider even that. Territorial claims will not, by consensus, be abandoned. More plausibly they can be transformed into something else. Reaching the New Zealand sector, the "Ross Dependency," where claims have focused primarily on the ice shelf region, my group was given literature by the New Zealand representative, that spoke of "connections." But, a few hours later, when I actually encountered the Ross Ice Shelf, a floating ice sheet as big as France, joined by glaciers to the mainland, meeting the sea one hundred meters thick with a massive cliff front, I wondered how it "depends on" New Zealand. Perhaps these can become "administrative" claims, "spheres of influence" or "stewardship jurisdictions." Maybe the claimants can feature their responsibilities to all peoples represented by the treaty parties, rather than insist on their rights.

One way of reading what happened with the Madrid Protocol is that the environmentalists persuaded the politicians to concede that, at least for purposes of minerals extraction, nobody owns the Antarctic. Jonathan Charney argues that the protocol "confirms the view that Antarctica is not subject to the ordinary legal regime of land territory and rather than *res nullius* it is *res communis*."²⁴ This place belongs to nobody, because this place belongs to everybody—nobody with particular property claims, everybody having common access. That seems true, at least as far as we have gotten. The claimants may still resist *res communis*, as though all owned Antarctica equally; but perhaps they can accept *res publica*, an area they hold in trust for all. Americans own the Grand Canyon, but have an obligation to preserve it for the world to enjoy. Later,

²³ Phillip G. Law, box memoir, in Jeff Rubin, *Antarctica* (Hawthorn, Victoria: Lonely Planet Publications, 1996), pp. 330-31.

²⁴ Jonathan L. Charney, "The Antarctic System and Customary International Law," pp. 10-101 in Francioni and Scovazzi, eds., *International Law for Antarctica*, 2d ed; citation on p. 58.

however, we will wonder whether belonging to everybody and belonging to nobody amount to the same thing. The Americans planted a flag on the moon, but did not claim it as a public place for all of us humans, much less as territory for the United States.

When Antarctica goes international, the question at once arises: who will govern the place? There is a United Nations, and one might think that Antarctica affairs ought to be decided there. This has been repeatedly proposed by India (a consultative treaty party), Malaysia (not a treaty party), and others, who argue that the treaty dates from a colonialist mentality. The issue has been intensely but rather ineffectively debated at the United Nations.²⁵ Consultative treaty nations dislike these debates, sometimes calling them "confrontational" and even boycotting them.²⁶ The counter argument is that the United Nations has enough problems on the other continents, and no expertise on the seventh. The burden of proof lies with anyone who argues that more UN-style presence and skills, such as peace keeping in places in political turmoil, are what is needed for deciding how humans ought to behave in Antarctica.

III. ANTARCTIC SCIENCE

An alternative answer is to stipulate that Antarctica is a continent for science. In the treaty, Antarctic politics mixes closely with Antarctic science. The nearest thing to what might be called inhabitants are scientists there on tour of duty; the nearest thing to industry or agriculture is their work.²⁷ Turn Antarctica over to scientists. They will know what to do with the place. Or they can find out. Let them take care of it.

There is a Scientific Committee on Antarctic Research (SCAR), with a secretary at the Scott Polar Research Institute, Cambridge, which existed even before the Antarctic Treaty, and which has since continued, regularly advising the treaty parties. The International Geophysical Year in 1957-1958 (IGY) triggered the treaty. Since then a decision constantly to be faced has been what kind of science to do, made urgent because Antarctic science is five to ten times more expensive than similar science elsewhere, and almost always uses taxpayers' money. So the science needs to be special.

That can mean two things. First, we study what humans have at stake on the other continents which can best be studied here. Scientists are fond of saying that we cannot understand how the planet works until you understand how Antarctica, with its vast ice cap, affects global atmosphere and ocean currents, thermal balance, sea levels. The fossil snow layers document climate changes.

²⁵ Moritaka Hayashi, "The Antarctica Question in the United Nations," *Cornell International Law Journal* 19 (1986): 275-90.

²⁶ Elaine Sciolino, "Antarctic Treaty Nations Threaten to Boycott U. N. Debates," *New York Times*, 4 December 1985, p. A11.

²⁷ D. W. H. Walton, ed., *Antarctic Science* (Cambridge: Cambridge University Press, 1987).

The ozone hole is monitored here, as is global warming. The special science here fits into a global perspective.

Antarctic science is special, second, because of natural phenomena found in extremes. There are the coldest temperatures on Earth, the most unusual environments, strange diatoms, algae, lichens. Icefish have no hemoglobin. There is life in the Dry Valleys. If the science focuses on what is endemic here, it can be seminal science and of high intrinsic interest. Such science might reveal knowledge helpful elsewhere, if, for instance, the taxa-poor and simple ecosystems provide some basic answers, not so easily available in more complex systems. But science peculiar to the Antarctic is not likely to be of high priority—how those bacteria live so long in the Dry Valleys, or how the invertebrate species here produce fewer but larger, more yolky eggs.

There is a deeper problem. Science as such is not promising for an ethic, given the persistent is/ought problem. Antarctic science can describe what is there. But prescribing appropriate human behaviors will have to be decided somewhere else. The Scientific Committee on Antarctic Research has carefully distinguished between science and politics, though they have also often advocated conservation. But what science would authorize SCAR to oppose or favor the no-minerals protocol? Geologists with paleomagnetic studies in ice cores? Mineralogists estimating minerals present? Lichenologists appraising upset to the flora? What science authorized Richard Laws to lament that the NGO's had such disproportionate influence as to wreck CRAMRA?

The U.S. Congress and courts have held that the National Environmental Policy Act applies to Antarctica, and the National Science Foundation is in charge of most Antarctic activities.²⁸ The Polar Research Board of the National Research Council issued a policy statement: *Science and Stewardship in the Antarctic*.²⁹ But what science answers the question whether stewardship requires mineral development or preserving a pristine Antarctica? Maybe these scientists can find an ethic, but we should not pretend they will be doing it as scientists. They will do it as and because scientists are also ethicists.

Maybe, while figuring out an ethic, the scientists will also come too much under the sway of politics. For example, critics claim that, since a nation has to do science in the Antarctic in order to get status as a consultative treaty member, the scientists can find themselves as players in larger political maneuvers. The result is too many research stations, using up ice-free areas, thirty-five permanent ones and fifty more temporary. Neither scientists nor politicians ought further to stress the Antarctic environment in order to gain the right to vote in decisions about its conservation.

Scientists may or may not be careful with their pollution, which is never easy and always expensive to handle in the Antarctic. This is a deep freezer; garbage

²⁸ Antarctic Science, Tourism, and Conservation Act of 1996 (Public Law 104-227).

²⁹ *Science and Stewardship in the Antarctic* (Washington: DC: National Academy Press, 1993).

and wastes rot, decay, rust, or recycle more slowly by orders of magnitude than on other continents. Although Antarctica is vast, the places impacted by humans are those few places on land where plants and animals can survive.

Greenpeace had their own scientific station and therefore the privilege of visiting other stations, under the treaty. Worried about trash and pollution, Greenpeace personnel found themselves first unwelcome at the U.S. McMurdo base, one of the worst offenders, though they later found themselves welcome, because adverse Greenpeace publicity about trashy scientists was enabling scientists to get more adequate funding to behave in cleaner ways, in which they had hoped to behave all along.³⁰ Scientists need a pristine environment for research, if they care for no other reason. There were similar problems at New Zealand's Scott Base.³¹

Antarctic science could do more harm than good. Anxious to establish their claim and do their science, at Point Géologic and Dumont D'Urville Station, the French in 1983 blasted an airstrip out of a chain of islands, running directly through a penguin colony, and disrupting one of the richest ecosystems in Antarctica, an airstrip that might still be used had not a calving glacier damaged the runway. At Cape Hallett in 1957, a penguin colony was leveled to build a station during the International Geophysical Year, forcing 8,000 penguins to move, though later the station was closed, and the buildings removed to allow the penguins to reclaim their space. Helicopters and airplanes used to supply the bases fly low over adjacent breeding colonies and penguins flee, exposing eggs and chicks to predation by skuas. But does not good Antarctic science trump a few penguin colonies? In these discussions, scientists gave rather muted responses, and of course no science evidently answers these value questions.

There is, more recently, the phenomenon of conservation science, science with a mission. The Ecological Society of America advocates research that will result in a "sustainable biosphere."³² That could mean quite high priority research here, but only because of what is at stake on the other continents. Certainly the biology here will not be the usual conservation biology.

IV. ANTARCTIC TOURISM

The largest group of nonresidents is the tourists, although they are not much actually on the continent. People here are "tourists" in the basic, etymological sense, taking a short "turn" to see another place in passing. Because even scientists are transients, on a "tour" of duty, we need an ethic not for residents

³⁰ Maj De Poorter, "Environmental Impacts of Science," box essay, in Rubin, *Antarctica*, pp. 151-54. De Poorter visited thirty-five scientific bases.

³¹ David G. Campbell, *The Crystal Desert* (Boston: Houghton Mifflin, 1992), p. 281.

³² Jane Lubchenco et al., "The Sustainable Biosphere Initiative: An Ecological Research Agenda: A Report from the Ecological Society of America," *Ecology* 72 (1991): 371-412.

but for outsiders, aliens. Antarctic ethics will be tourist ethics; this fact brings into focus the anomalous and non-participatory character of ethics here.

Scheduled tourism started in 1966, and has now reached up to 14,000 persons per year. Almost all visit only the Peninsula.³³ In the 1990s, perhaps three major ships each year have taken tourists to the Ross Sea area, totaling less than 800 persons annually. Generally, neither the politicians nor the scientists welcomed tourism. Scientists, understandably, disliked tourist interruptions. Also they feared that tourists might be inadequately prepared, and if they got into trouble, scientists would be obliged to help. Sometimes scientists sought to suppress tourism on environmental grounds; the tourists might be upsetting the phenomena they were trying to study.

But the tourists came anyway. Tourism is, or could be, the biggest industry here, and, if Antarctica is to be a world park, it needs tourists. The consultative treaty parties attempted to address this issue off and on over twenty years but never acted. It was not clear whether or whom tourists might need to get permission from? Passports? Visas? Nothing in the Antarctic Treaty or international law requires asking permission of anybody.³⁴

If the seven nations are still making their sectorial claims, one will need a visa to Chile, or New Zealand, or wherever. But, these claims are in abeyance, and the tourists remain mostly on their ships, presumably under the law of the nation whose flag they are flying, or under the Law of the Sea. Doing so can as easily avoid regulation as enforce it. U.S. nationals are the largest component of tourists (about half); however, of some fifteen ships cruising there, two-thirds travel under flags of convenience. The U.S. Environmental Protection Agency has ruled that U.S. commercial operators must submit environmental documentation for review.³⁵

If there is no agreement about territorial sovereignty, there is even less about jurisdiction over coastal waters. Increasing numbers of tourists visiting no man's land—no immigration officials, no customs authorities—reinforces the idea that Antarctica is stateless. So even if we could find an ethic to recommend, would there be any way legally to enforce it?

Eventually the International Association of Antarctica Tour Operators (IAATO) released their own "code of conduct" for visitors, two pages in length, straightforward, often specific, evidently sensitive to respect for wildlife, a sort of do-not-interrupt-and-leave-no-trace ethic. The preamble:

³³ Colin Michael Hall and Margaret E. Johnston, eds., *Polar Tourism: Tourism in the Arctic and Antarctic Regions* (New York: John Wiley, 1995).

³⁴ Permission to visit Antarctic territory must be distinguished from permission to visit scientific bases and historic huts. The latter are supervised by the Antarctic Heritage Trust, an international group, mostly in New Zealand.

³⁵ Woodruff A. Polk, "Welcome to the Hotel Antarctica: The EPA's Interim Rule on Environmental Impact Assessment of Tourism in Antarctica," *Emory International Law Review* 12(1998):1395-1442.

"Antarctica, the world's last great wilderness, is particularly vulnerable to human presence. Life in Antarctica must contend with one of the harshest environments on earth, and we must take care that our presence does not add more stress to this fragile and unique ecosystem."³⁶

"Do not disturb, harass or interfere with wildlife," "Give animals right of way." Visitors are warned that Antarctic species lack fear of humans, which tempts observers to get too close. Fifteen feet has been suggested for penguins, nesting birds, and crawling seals, with fifty feet for fur seals. If an observer is influencing an animal's behavior, that is too close.

"Do not walk on or otherwise damage the fragile plants, i.e., lichens, mosses, and grasses." Visitors are warned that the soil is poor and living conditions are harsh, damage likely to be done before one realizes it, and recovery times prolonged. So now we do get an ethics for wildlife and for plants, especially appropriate for the Peninsula, where most tourists go.

The tourist ethic is non-invasive, non-intrusive. Since there is precious little land in Antarctica, and only in summer when the suitable patches are crowded with nesting penguins and resting seals, also since there are no land-based services (such as electricity, sewers, supplies), it seems wise to keep tourism ship-based. Tourism ought never to move on land, except for transient expeditions. There will be no Ramada Inns here; your ship is your hotel.

With both scientists and tourists showing up in appreciable numbers, the unresolved sovereignty problems could mean inadequate policing. If this is no man's land, who will oversee these visitors? Maybe the ethic can just be self-regulating. But an ethic for the environment usually needs some enforcing, even where the visitors are well-intended. Can this be left to the tour operators, monitoring those whom they take ashore? Maybe we will need a "regime" after all. Project Antarctic Conservation, a research team from the Scott Polar Research Institute, Cambridge, has been watching Antarctica tourism closely.³⁷ One solution in the recent Madrid Protocol is that any citizen of a country that has ratified the protocol should have, or be travelling with a tour operator that has, a permit based on an environmental impact assessment filed with their home Antarctic authority.

V. ANTARCTIC WILDERNESS

Antarctica is not a political place, and it is a mistake to try to make it one. On the uninhabited continent, one should not apply criteria from other continents. We are not seeking sustainable development, a land ethic, one of people in harmony with their landscape, or protecting natural capital, or ensuring that

³⁶ International Association of Antarctica Tour Operators, *Code of Conduct for Visitors to the Antarctic*, 1996. See also <http://www.iaato.org>.

³⁷ For a summary of their findings, see Bernard Stonehouse, *The Last Continent* (Norfolk, U.K.: SCP Books, 2000), pp. 264-67.

future generations have as much opportunity for development as do we. Then again, maybe we do have a model from the other continents: wilderness. In the language of the U.S. Wilderness Act, a wilderness is "where man himself is a visitor who does not remain," a place "retaining its primeval character and influence, without permanent improvements or human habitation, ... affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable."³⁸ Subantarctic islands have noticeable human interruptions, even human habitations. But most of the continent is seldom if ever visited. If any such wilderness remains on Earth, surely it is here.

There is science, but what the scientists are studying is wild nature. There is tourism, but the tourists take pleasure in seeing, again, wild nature. On the seas, the shores, on the Peninsula, that generates an ethic for wildlife, for penguins and seals, lichens and mosses. But fauna and flora go into a bigger, wilder picture. This is wilderness featuring the desolate and empty as well. When NASA wanted to simulate the surface of Mars, they came to the Dry Valleys. The expanses of the continental interior, even after being mapped, are little more than white spaces on the map.

The ethic needs to respect where life is found, but, beyond that, is more like that for canyons, mountains, rivers, or caves. We respect Everest as the highest point on Earth, although the highest thousand meters is lifeless and no ecosystem. The lowest point on Earth, the Dead Sea, also a difficult place to live, seems less commanding. The Barwick Valley in Victoria Land is protected from nearly all visits because it is one of the most nearly sterile areas on Earth. There are designations for particular protection: Sites of Special Scientific Interest (SSSIs) and Specially Protected Areas (SPAs), the latter isolated even from scientific activities.³⁹

We respect the geysers in Yellowstone, though we usually do not think we have duties directly to natural phenomena, so much as to people who enjoy them. There are no duties to clouds or to dust devils. Nothing matters to glaciers or icebergs; they have no interests. So all that matters is us and our interests? But these places, some of them at least, have site integrity; something makes them special, notable. Mountains are here; Mt Erebus is majestic. We respect the Delicate Arch in Utah, the crystals in Mammoth Cave in Kentucky, unusual achievements in nature. Once we move past respect for life, we need some further account of where the values lie that command our respect.

One answer is to go back to people. The best model is that of World Park Antarctica. This model is not Yellowstone or Yosemite; it would have to be an atypical park, but maybe the "park" idea is moving in the right direction. Since 1972, IUCN has advocated designating Antarctica as some kind of World Park, as have the Antarctic and Southern Ocean Coalition, Greenpeace, the Jacques

³⁸U. S. Congress, Wilderness Act of 1964, sec. 2c. 78 Stat. 891 (Public Law 88-577).

³⁹W. N. Bonner and R. I. Lewis Smith, eds., *Conservation Areas in the Antarctic* (Cambridge: Scientific Committee on Antarctic Research, 1985).

Cousteau Society, and other NGOs. The World Wilderness Congress in 1987 called for a World Park. A wilderness park will keep the idea that people here do not remain and that the landscape displays primarily the processes of spontaneous nature, but it does connect up with people, who must visit for Antarctica to be a park. This is not a park for penguins or mosses.

Wilderness, some say, is gymnasium and theater. Here you show what you can do (like the heroic explorers), and you get let in on nature's show (icebergs and penguins), and that can happen even on an uninhabited continent. Antarctica has surprising aesthetic value, but of course appreciating such value requires humans. Still, enjoying getting in on nature's show seems to presume something going on worth watching. In the presence of such aesthetic values and opportunities for adventure, one can begin to wonder: Do we humans just preserve it so that we can enjoy it? Is the purpose of this place to produce adventures and heroes?

An anthropocentric environmental ethic is simultaneously possible, required, and troubling on the other continents, because there are so evidently resources present, and people are undeniably helped or hurt by the condition of their environment. Those lands are our life support system; people are both foolish and immoral not to regard what is at stake. The troubling part is whether environmental ethics is nothing but enlightened human self-interest. One of the attractive justifications for wilderness is to have humans appreciate what wild nature is in itself, its intrinsic value. Extrapolating that logic to Antarctica, especially if there are no resident humans, the search for a nonanthropocentric ethic might seem more promising.

But the nonresidence problem returns, this time not the lack of people but the lack of fauna and flora. On the other continents, wilderness means an ecosystem with its integrity, "an area where the earth and its community of life are untrammelled by man."⁴⁰ But here? On the subantarctic islands, fauna and flora can be abundant, but on the continent itself? One is first struck by the barrenness of the southern continent contrasted with the teeming waters of the Southern Ocean. What wildlife is there is really marine life that uses the coastal edges for nesting or resting. "Higher animals use Antarctic terrestrial ecosystems for purposes other than feeding," note H. Kanda and V. Komárková.⁴¹

There are no native land animals, not at least as characterize other continents. Antarctica's native terrestrial animals are all invertebrates, mostly arthropods, such as mites, lice, springtails, midges, many of which are parasites of seals and birds. Much is microscopic: protozoans, rotifers, nematodes, tardigrades, bacteria. The largest animal that really dwells on the land is a wingless midge

⁴⁰ Wilderness Act, sec. 2c.

⁴¹ H. Kanda and V. Komárková, "Antarctic Terrestrial Ecosystems," pp. 721-61, in F. E. Wielgolaski, ed., *Ecosystems of the World 3, Polar and Alpine Tundra* (Amsterdam: Elsevier, 1997); citation on p. 736.

(*Belgica antarctica*), barely over one centimeter long. It doesn't sound like much animal welfare or rights ethic will be needed on the continent, however crucial one might be for the whales and seals.

Indeed, we have to pause asking whether we need an ecosystemic ethic, wondering first if there are ecosystems here. "The ecosystem is very 'simple' in terms of food-webs, stratification of organisms, mineral cycling, and primary productivity," concludes Emanuel D. Rudolph.⁴² There is rather little predation, but some: a mite eating a nematode worm. As Kanda and Komárková note, "Food chains, in which predators may be virtually absent, are short."⁴³ Decomposition and nutrient turnover are slow. The system is not productive enough to support higher animals. Maybe this simplicity means we do not need much ecosystem-based ethics. Or, rather, it could also mean that such ecosystems are fragile, easily stressed, disturbed by introduced exotics or wastes, and slow to recover from human interruptions. Multiply this fragility by the inverse of the fraction of the continent that is land, ice-free enough to permit an ecosystem, escalate the human demands by both scientists and tourists for the same, limited areas, and this simplicity will intensify any ethics, rather than dilute it.

Biocentrists insist that all life counts "morally"—even "equally," they can say, meaning usually that all living organisms, by virtue of being fully alive, beetles as alive as persons, are within the sphere of moral concern. Equally, all are alive, and therefore all count, though how much significance they have needs further analysis. But just this further analysis is problematic here, because, although there is life in the nooks and crannies of the continent, there are almost no higher flora, two species on the Peninsula (a grass, *Deschampsia antarctica*, and a pearlwort, *Colobanthus quitensis*), and none below the Antarctic circle. Mostly the flora is lichens, 350 species, 100 species of mosses, hundreds of species of algae. The algae can make colorful patches on the snow, aesthetically. But the biocentrist needs a hand lens or microscope. Is this minuscule biocentrism?

Another way to think of this simplicity and fragility is that environmental ethics is driven to extremes. The further south one goes, the more life disappears; even lichens and algae cannot survive. On land and in ice, life at its edges challenges the ultimate limits—down in rocks in the Dry Valleys, with microbial colonies 200,000 years old (a hundred times older than a redwood tree), on a landscape where no rain has fallen in two million years, and it is now too dry to retain snow. "Endolithic life," as the biologists term it, is algae, bacteria, and fungi inhabiting the spaces between grains in rocks. There are microbes at the South Pole.⁴⁴ There is life in the deep freshwater lakes, maybe

⁴² Emanuel D. Rudolph, "Conserving the Antarctic Terrestrial Ecosystem," *Biological Conservation* 3 (1970): 52-54.

⁴³ Kanda and Komárková, "Antarctic Terrestrial Ecosystems," p. 741; see p. 737.

⁴⁴ Edward J. Carpenter, Senjie Lin, and Douglas G. Capone, "Bacterial Activity in South Pole Snow," *Applied and Environmental Microbiology* 66 (2000): 4514-17.

even in Lake Vostok, under two miles of ice and not exposed to the atmosphere for a million years, since before *Homo sapiens* appeared on Earth.⁴⁵

Respect for life is not gone; rather respect goes to extremes, with these achievements. The really exciting science here is about nature irrelevant for people—those microbes at the Pole or hemoglobin-less fish. Such science might bring us a deeper respect for life, more resolution to leave no human imprint. This life is "untrammelled by man"; that is the fact of the matter. And, problematic though the transition from is to ought is, we ought to let life already at the limits continue untrammelled.

It may be difficult to specify the transition between description and prescription; it is more difficult to begin an argument with anyone who urges that we humans ought to exploit the endolithic microbes, or who, jeopardizing such life, would shrug his shoulders and remark that he did not give a damn. Here is survival of the fittest gone ultimate. So what? The most moving conclusion, even if we are still groping for arguments, is that humans have intensified duties to respect such life; it is more fitting that we do so here, even than on the other continents. Life at the limits of possibility commands our respect.

This is not "our world"; it belongs to the penguins—a conclusion I reached watching a half dozen propelling themselves above the waves, "porpoising" like small dolphins, catching breath and plunging back under, surrounded by icebergs and at home in icy waters. Penguins on land may amuse us as cute and comic, but a penguin in the sea is grace and power on this frigid but magnificent seventh continent.

Here is nature revealed in the wildest: the southernmost penguin colonies, the densest feathers, penguins that live on ice and need never touch land. We respect remote oceanic islands or desert canyons, with odd forms of life, or little life at all. The combination of nature in the extraordinary and life pushing into those extremes does deserve our respect when we encounter it, and demands more vigilance, lest we disturb it. Antarctica is a "wonderland." The humanists will insist that people must be there to "wonder." The naturalists will wonder that such experience is generated in the presence of something remarkable, worthy enough to induce our wonder, a natural wonderland that generates duties when moral agents encounter it.

VI. GLOBAL ANTARCTICA

Antarctica is at once unique and global, combining both particular and universal dimensions. An ethics for Antarctica will prove to be on the cutting edge of global morality in significant senses, though it is likely to remain peripheral in others. Antarctica will not solve the population problem, it holds

⁴⁵ Warwick F. Vincent, "Icy Life on a Hidden Lake," *Science* 286 (1999): 2094-95, and related articles in the same issue.

no answers to global warming (although this may be monitored there), or to the loss of biodiversity, escalating consumerism, or sustainable development.

But this stateless continent could be a pace setter for an ethic of the common heritage of humankind, rather slowly developing on the other continents, filled with those 170 nation states. Typically the nations presently in control in Antarctica have denied that the common heritage principle applies here, but this denial seems increasingly implausible with the freezing of territorial claims and the resolution not to develop it. The protocol states; "The development of a comprehensive regime for the protection of the Antarctic environment and dependent and associated ecosystems is in the interest of mankind as a whole."⁴⁶

Part of the dispute is whether *common heritage* means "common property," "common inheritance" (as it does in some cultures, even some languages, more than others), needing "common management," multinational control, and benefits of exploitation equitably distributed—as might be the case with deep sea minerals or have been the case with Antarctic minerals. Third world nations advocating common ownership might do so with as much intent of exploitation as conservation. But since the occupation of this property is so problematic, and non-exploitation has been in central focus after the Madrid Protocol, this shifting emphasis invites an enlarged concept of heritage, transcending property. Antarctica is heritage like the globe is heritage, not exploitable property held in common, but the inheritance of natural history, a given shared by all.

Environmental ethics has gone increasingly global. That forces rethinking shared resources, thinking about the common heritage as a planetary legacy, our "sources" in, with, and under these "resources." Most of the world's big rivers are transnational. Wildlife—whales, seals, penguins, elephants, wolves, whooping cranes—pay little heed to national boundaries; we humans make some decisions about jurisdiction over them, but we also think they simultaneously belong to everybody and to nobody. Who owns wild species? Who owns genes? Who owns the sky? Who owns the moon? Ownership, sovereignty, and exploitation dissolve; and the question is more holistic, how we belong on Earth, not how it belongs to us.

If there can be an Earth ethics, concern for the planet, then Antarctica is one of the poles about which the world turns. The ethics now does not need to focus on the particulars of life here, but becomes more systemic. We link up with an ethics for the sea, the seven-tenths of Earth's surface that does not belong to anybody, with an ethics for the atmosphere, which flows over us all. One cannot have duties to clouds, or to ocean waves. One has no duties to magmas in the interior core of Earth, or to the Pacific tectonic plate, or the San Andreas fault. These are natural givens, nonmoral. But one can have duties concerning the life support processes, the hydrology, the meteorology, vital to life.

⁴⁶ Madrid Protocol, Preamble.

Most stimulating of all is the wilderness model, emphasizing not common property, but a place humans only visit. After we have first insisted that this continent belongs to nobody because it belongs to everybody, we need to turn that idea on its head and take "belonging to nobody" to mean more precisely what it says: no humans, individually, nationally, or internationally, own this place. Human ownership is not the relevant category. Antarctica is not *res nullius*, not *res communis*, not *res publica*, but *res naturalis*. Now the idea of World Park is seeming less adequate than before; this is not "our" human park. Park status may be all that is politically possible; philosophically this is good, but not best. Take "wilderness" more seriously. Don't nationalize it. Don't internationalize it. Naturalize Antarctica!

The Madrid Protocol seeks to protect "the intrinsic value of Antarctica, including its wilderness and aesthetic values."⁴⁷ We humans seem to be resolving to keep the one nonhuman continent as pristine as possible. Philosophers have much argued about intrinsic value, and they will wonder just what is meant here. But it is impressive to have a consensus of several dozen nations resolved to protect the intrinsic value of Antarctica. There is more consensus here, and more potential for enforcement, than could likely have been produced were these decisions cast into the often divisive forums of the United Nations. The laws may still be soft laws, enforcement and jurisdiction remain problematic; but that makes their moral force all the more important and impressive.

This consensus is more impressive recalling that, in academic philosophical circles at least, ethics lately has been much tied to particular cultural heritages, narrative traditions. In the postmodern world evidence for this pluralism is found in the outspoken diversities within the United Nations. But in Antarctica, in the protocol, we begin to reach a transcultural, even a global ethic. If this ethics is still a pragmatic one, Antarctica for science, tourists, and future generations, this pragmatism has convictions about Antarctic nature independently of the human presence.

We struggle to get oriented, and many of us come to feel something about this seventh continent, as many have felt something about the seventh day, that takes us toward powers exceeding ordinary human life. We must stay busy at work on the other six continents, but we ought to set this one aside as a place to realize deeper perspectives. "Antarctic Sanctuary" might be the best designation, suggesting that we leave this wonderland place sacrosanct. When the moral species overlooks this Earth, this biosphere, and gains powers that jeopardize these vital processes, duties do arise appropriately to respect the legacy of genesis in natural history. Antarctica is an axis of this turning, and particularly challenging because here is the one continent on the home planet that is not, cannot, and ought not to be our home.

⁴⁷ Madrid Protocol, Article 3.