

Background and Evolution of Some Ideas and Values That Have Led to the Antarctic Treaty

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The story of exploration of the polar regions is a fascinating story of the role of new knowledge—science—in the evolution of public and political consciousness and opportunity regarding the world and its resources. The story involves the interplay of the attributes of curiosity, personal ambition, greed, drive for national prestige, and impulse to control that are characteristic of human impulses and activities anywhere, but in the polar regions they have been manifest in individual actions against a harsh and unforgiving natural environment that brings to light successes and failures in a dramatic fashion. In the Antarctic, this interplay of forces has led, through a number of faltering steps over the last century, to significant recent progress, in global human terms, in cooperation and shared responsibility for the management of a portion of the planet and its environment. The evolution of science, and its attendant evolution of technology, has been a key factor in achieving this progress and in recognising the key role that Antarctica plays in global processes.

The story of the activities and the policies that have led eventually to the Antarctic Treaty is also a story of individual persons of strength, determination, and perseverance, whose knowledge, ability to make contacts, and influence governments has shaped polar history. Each has used the science of the day as a tool for diplomacy, used it to develop new paradigms of what is progress, and used new knowledge as a force for change in national and public attitudes in ways that were not apparent at the time.

The story of the evolving concepts concerning the polar regions is also a tale of the interplay between the impulse to explore and to exploit a new region or its resources, on the one hand, and to govern and control it, on the other. Both these contrasting impulses have used progressive scientific knowledge, or the desire for new knowledge, as a tool for their particular ends. The result has been that scientific investigation has been an integral part of the exploration and development of the polar regions throughout its history. Today, the Antarctic Treaty enshrines the twin values of “peace” and “science.”

The history of the growth of these concepts, and the tension between the impulses of exploitation and of governance, can in many ways be traced back to the Treaty of Tordesillas of 1494, which formalized the papal bull of Pope Alexander VI and addressed the competing claims of Spain and Portugal to

exploit and control the wealth they might obtain anywhere in the world through their newly developed technology and navigational science, based on rot-resistant ropes, the magnetic compass, and the astrolabe, that enabled them to travel the world oceans. Chinese ships had, indeed, roamed throughout the Pacific and beyond nearly a century earlier, perhaps into high latitudes, but simply as explorers and traders, and there seems to be no evidence that they were interested in governance or control. The Treaty of Tordesillas extended from pole to pole and granted to Portugal all wealth and territories that were “not already under the mandate of a Christian king” east of a line west of the Azores Islands and to Spain a similar right west of that line. The boundary on the other side of the world was not defined. This treaty had a strong influence in spurring northern European nations to explore their northern regions in order to bypass the decree laid down by the Catholic Church, which impeded their access to the wealth of the Indies and Cathay. This exploration led to long-continuing interest and efforts to discover a practical Northeast Passage and a Northwest Passage. The northern expertise thus developed served as a basis for later actions in southern polar regions.

An important step, in political terms, in the development of national attitudes toward new territories and the ownership of polar regions was taken during the reign of Queen Elizabeth I of England when Martin Frobisher, on his first voyage to what is now Arctic Canada, after his ship had capsized in the mid-Atlantic and lost a mast, came to a headland of Baffin Island and named it “Queen Elizabeth’s Foreland.” This is the first time that a newly discovered land had been named and claimed for a reigning monarch. Queen Elizabeth asked her adviser, the polymath John Dee (who also had instructed Frobisher, a private citizen, in navigation), to produce an argument for her rights to undiscovered and uncontested lands claimed in her name. In 1585 Dee presented a document, which is still preserved in the British Library, stating the basis by which the monarch had legal rights to accept newly discovered lands claimed by her citizens “compassing . . . even unto the North Pole.” This statement, although it had no immediate geographical effect, linked discovery of new lands to the claims of expanding empire and undoubtedly was an influence in building a continuing interest in Britain in polar exploration. That interest and “right” in due course extended to southern polar regions. It led to similar or competing intentions and actions by other nations.

At the same time that several nations were developing an appetite for competition in discovery of polar territories for political or commercial reasons, the progress of science

was raising questions about natural phenomena that could only be answered by observations in the high latitudes. Questions about the ocean currents and ice, magnetism, astronomical navigation, and the pull of gravity and the shape and dimensions of planet Earth were becoming pre-occupations in academies of science in several countries, and although many of these topics had practical application for navigation, trade, and economy, they were not the prerogative of any one country, and new scientific information was exchanged freely across national boundaries. Thus, by the eighteenth century, in many countries a difference in orientation developed between the geographical institutions, whose polar interests were to a large extent focused on discoveries of new lands in the name of the exploring country, and the scientific institutions, whose aim was to uncover new natural facts, new species, and new relationships and make them known regardless of the country or countries involved. This difference in attention had an influence on the course of subsequent exploration in Antarctica and the involvement of different countries in subsequent international investigative activities such as the International Polar Years, the International Geophysical Year, and the Antarctic Treaty.

The Royal Society of Britain became a dominant influence in the pursuit of scientific knowledge in polar regions in the eighteenth century. After his successful expedition to the South Pacific in 1768–1771 to measure the transit of the planet Venus in front of the illuminated disc of the Sun and thus enable the dimensions of the solar system to be more accurately calculated, James Cook was commissioned to determine the existence and position of the continent of Antarctica, whose presence had been a persistent feature in myths, stories, and intellectual philosophy for many centuries. The name Antarctica had been used by Greek cosmologists two thousand years previously for the supposed lands opposite on the planet to those in the north under the celestial bear Arctos (anti-Arctos = Antarctic). In pursuit of this objective, in 1772–1775 Cook went as far south as he could sail his ship and circumnavigated the edge of the ice pack surrounding Antarctica but never sighted the continent.

Just as Cook was returning from his frustrating circumnavigation of Antarctica, in 1775 the Royal Society launched the first truly multidisciplinary scientific expedition to the polar regions, “a voyage towards the North-Pole to be of service to the promotion of natural knowledge.”¹ This expedition, commanded by Constantine Phipps, had a genuine international background: the plan had been proposed by a French explorer (de Bougainville), and German, Dutch, and Swiss scientists had contributed. A very

large number of observations and experiments were successfully completed. The first substantive information was obtained on the depth, chemistry, and currents of the subarctic ocean and on pack ice, marine fauna, magnetism, and the aurora; gravity measurements were made that led to calculations of the curvature of the Earth, and some imaginative but ultimately useless experiments on the expansion of materials at low temperatures were carried out to determine whether there was a “latitude” effect. This was the first truly careful scientific examination of the polar regions. It added substantially to world scientific knowledge. Yet, except for the fact that the polar bear carries the scientific name *Thalacrtos maritimus Phipps*, this very productive expedition remained unknown or ignored in geographical circles and by the public because it did not discover, or try to discover, new physical territories for national glory. Likewise, the more limited but still important scientific accomplishments of Cook’s Antarctic voyages were submerged or publicly forgotten in the attention given to geographic discovery.

However, national ambitions for empire, or the non-national incentives for new knowledge, can become overridden by commercial and financial opportunities. Cook was pessimistic about whether the world would benefit from further discoveries in Antarctica, “lands doomed by nature to everlasting frigidness,” but he also noted, and recorded, the abundance of seals on the subantarctic islands among which he passed.² Within a decade of his expedition, commercial sealing was in full swing. By 1804, an estimated 100 sealing ships were operating in the subantarctic waters. Some ships reported taking up to 100,000 seals per season. Most of the ships and their sponsoring companies were British or American, but ships from several other countries were involved. Although several of the islands had been claimed in the name of a “home” country, there was no government control, and the whole Antarctic region was considered *terra nullis*. The sites of exploitation shifted periodically, as ruthless slaughter of seals reduced the local resource in one island area after another to unprofitability and the sealers searched for new resources. Despite occasional pleas for restraint of indiscriminate slaughter in order to maintain the productivity of the resources,³ uncontrolled exploitation continued. By 1824, the sealing frenzy subsided, as the fur seal populations in most of the subantarctic islands were nearly exterminated. Some taking of elephant seals, for oil, and of small right whales with hand-launched harpoons continued. After 1870, when the explosive harpoon came into use and the whales in the Arctic waters, formerly “as numerous as carps in a pond.”⁴ became rare and with the establishment

of a whaling station on South Georgia in 1904, harvesting of large whales became a principal commercial activity in the south polar waters. Then followed another “exploitation explosion.” By 1912–1913 there were 6 land stations, 21 floating factory ships, and 62 catcher boats collecting nearly 11,000 whales in subantarctic waters; by 1930–1931 the harvest was 400,000. This high level of exploitation continued until and after the Second World War. In realization that most of the once-abundant marine mammal resource was inevitably being destroyed, the International Whaling Commission was formed in 1946. It has had mixed results. One consequence has been the polarization of public attitudes and some policies about use and conservation of natural resources in polar regions.

During the period of uncontrolled private exploitation of resources, scientific interest and the urge to explore the undiscovered Antarctica arose at intervals, and governments of several countries took an interest in exploration and research. Between 1819 and 1840 eight expeditions, sponsored by the governments of Russia, the United Kingdom, United States, and France added much to the knowledge of the geography of the Antarctic coastline and surrounding seas and of the features of its oceanography, meteorology, and geophysics. National interests, both scientific and commercial and based on country prestige, dominated. By the end of the nineteenth century, territorial claims were beginning to be recognized by governments, and following a precedent in the Arctic, a “national sector” concept began to emerge. Progressively, between 1923 and 1943 governments of seven countries laid formal claims to sectors of almost the whole Antarctic continent and parts of the surrounding waters, although three of those claims overlapped and one “sector” remained unclaimed.

The challenge to investigate the interior of the Antarctic continent, and specifically to reach the South Pole, arose at the end of the nineteenth and beginning of the twentieth century, mainly from the ambitions of a few determined individuals, who cultivated a broad public interest that then took on aspects of national rivalry. On top of “the race to the pole” was added, in some cases, some excellent scientific investigation. But once the pole had been reached, interest subsided. A world war followed by a worldwide economic depression meant that little attention was paid to polar regions. The declining activity in marine mammal exploitation became ostensibly the responsibility of the respective governments who now claimed territorial sectors, although there was little effective management. The few expeditions to the continent between the First and Second World Wars were privately organized, although some had government contributions

(United Kingdom, United States, Norway, Germany), and focussed on geographical exploration, including, for the first time, aerial mapping.

During the Second World War, the possibility that Antarctic and subantarctic territories might be used as havens by enemy interests prompted the United Kingdom, France, Australia, Argentina, and Chile to take protective measures in areas of their responsibility. Although the reasons for the establishments of stations and patrols on the continent and subantarctic islands were political, some of the activities made contributions to scientific knowledge. They helped to create a new corps of scientists and technicians with polar experience and interest and to develop a notion, which had originally been forcefully expounded by Karl Weyprecht in the 1880s in connection with the International Polar Year, that scientific knowledge itself was a valuable justification for investigation in polar regions.

In 1945, at the close of the Second World War, a proposal was made by a Swedish scientist, Hans Ahlmann, that a purely scientific multidiscipline international research expedition, sponsored jointly by Norway, Sweden, and the United Kingdom, be undertaken in the hitherto unvisited part of Antarctica, within the sector claimed by Norway, part of which had been photographed from the air by a German expedition in 1938–1939. The proposal was supported by senior scientists and endorsed by institutions with polar interests in the three countries concerned. The result, after considerable negotiation, was the Norwegian-British-Swedish Antarctic Expedition, 1949–1952.

The Norwegian-British-Swedish Antarctic Expedition was the first modern, genuinely international scientific expedition in the polar regions without territorial pretensions. Scientists from five countries participated. The expedition consciously and openly endorsed and demonstrated

the principles for polar research that had been expressed by Weyprecht 70 years previously for the first International Polar Year: that science was not a territory for national possession or international discord, that all nations have a role to play in polar research, and that the results of polar scientific investigation should be freely shared without discrimination.⁵ It prepared the way, in the sense of the advantages it demonstrated of political cooperation as well as nonnational cooperation between scientific institutions from different countries, for the Third International Polar Year, which became the International Geophysical Year, 1957–1958, and, in turn, helped set the stage for the Antarctic Treaty.

NOTES

1. Minutes, Council of the Royal Society (London), meeting 19 January 1773. London: The Royal Society Library and Archive.

2. “Lands doomed by nature to everlasting frigidness and never once to feel the warmth of the sun’s rays; such are the lands we have discovered, what may we expect those to be which lie more to the south, for we may reasonably suppose that we have seen the best as lying most to the north, whoever has the resolution and perseverance to clear up this point by proceeding farther than I have done, I shall not envy him the honour of the discovery but I will be bold to say that the world will not be benefitted by it.” *The Journal of Captain James Cook*, Vol. II, 1776. Reprinted 1969 with agenda and corrigenda, ed. R. A. Skelton. Extra Series No. 36. 1647 pp. London: The Hakluyt Society.

3. Capt. James W. Buntington (a Connecticut sealer), testimony to the US Congress 1892.

4. C. M. Scammon, 1874. *The Marine Mammals of the Northwestern Coast of North America*. San Francisco: John H. Carmany and Company Publishers.

5. N. H. deV. Heathcoate, and A. Armitage. 1959. “The First International Polar Year (1882–1883).” In *Annals of the International Geophysical Year*, Vol. I, pp. 3–302. London: Pergamon Press.

The Antarctic Treaty System comprises the Treaty itself and a number of related agreements. It also includes a range of organisations that contribute to the work of the decision-making forums. In addition to the related agreements (described below), the Treaty System includes the recommendations, measures, decisions and resolutions of the Consultative Meetings relating to matters such as: scientific cooperation; protection of the Antarctic environment. Bodies with technical expertise relevant to the Treaty discussions also participate. They include the International Hydrographic Organisation, the World Meteorological Organisation and the Intergovernmental Oceanographic Commission. The Protocol on Environmental Protection to the Antarctic Treaty, also known as the Antarctic-Environmental Protocol, or the Madrid Protocol, is part of the Antarctic Treaty System. It provides for comprehensive protection of the Antarctic environment and dependent and associated ecosystems. It was concluded in Madrid and opened for signature on October 4, 1991 and entered into force on January 14, 1998. The treaty will be open for review in 2048.