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A Recommended Approach to the Antarctic Resource Problem

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LEGAL ASPECTS: EXPLOITATION OF ANTARCTIC RESOURCES

A Recommended Approach to the Antarctic Resource Problem*

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As existing resource reserves dwindle, exploration in areas once considered to be beyond feasible exploitation is now being examined much more closely. The author suggests that the southern polar region is one such area ripe for future development. Since Antarctica lacks a political administration, however, problems arise concerning sovereignty rights over its resources. Claims of historical entitlement must be reconciled with the demands of the international community for general recognition to be realized. Currently, a treaty exists among states interested in Antarctica which is concerned primarily with the continued use of the continent for peaceful scientific investigation. Although the Antarctic Treaty provides a framework for a structured development scheme, it conspiciously fails to address the resource-sovereignty issue. The author proposes a plan which assimilates the existing Antarctic Treaty composition while resolving the polemic interests of states asserting territorial claims in the Antarctic and of the remainder of the world community.

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I. INTRODUCTION

Until recently, Antarctica was generally considered to be little more than a massive oddity on the earth's crust. Cold, inhospitable and surrounded by the globe's most dangerous ice-filled seas, the continent was known only as a great hazard for intrepid adventurers and a gigantic natural laboratory for a few hardy scientists. Those treasures which might lie hidden beneath its mile-thick ice cap were not considered worth the trouble of investigation.

Today, however, many states of the world are intrigued with the offshore natural resource potential of Antarctica. Unfortunately, at the present time there is no established legal order governing resource exploration and exploitation in Antarctica.

Although seven states have made actual sovereignty claims to various "sectors" of the Antarctic continent,[1] none of these claims enjoys general recognition. Additionally, the United States[2] and the Soviet Union[3] have "interests" in Antarctica, but neither has yet made any movement towards formalizing a claim of sovereignty.

The Antarctic Treaty of 1959[4] effectively demilitarizes Antarctica and establishes the continent as a "science preserve" among the signatory states. The Treaty, however, is not binding upon the nonsignatory states which constitute most of the world community.

1. The seven claimant states, in the chronological order in which they asserted their claims, are Britain, New Zealand, Australia, France, Norway, Chile and Argentina. These claims are more fully described in notes 17-24 and accompanying text *infra*.

2. The American "interest" stems from early expeditions to Antarctica, supplemented by a continuing presence thereafter. *See* notes 32-33 and accompanying text *infra*.

3. Russian involvement is predicated upon discoveries dating back to 1819. *See* notes 35-37 and accompanying text *infra*. Other international interests in and contacts with Antarctica are considered in notes 17-31 and accompanying text *infra*.

4. Antarctic Treaty, Dec. 1, 1959, 12 U.S.T. 794, T.I.A.S. No. 4780, 402 U.N.T.S. 71 (entered into force June 23, 1961) [hereinafter cited as Antarctic Treaty or Treaty].

Moreover, it conspicuously fails to address the issue of resource activity within Antarctica.

The legal and political vacuum pertaining to potential resource exploitation has combined with the increasing pressures on the states of the world to initiate resource activities in Antarctica to create the Antarctic resource problem. A solution to this problem must be found soon if the current possibility of conflict over Antarctic offshore natural resources is to be reduced. In all probability, only a unique approach will solve the difficulties inherent in attempting to establish an internationally acceptable legal order for this unique continent. This article attempts to develop an approach which realistically evaluates the competing needs and interests of the international community and which will enable a viable initiation of Antarctic resource development in the near future.

II. A HISTORICAL PERSPECTIVE

Terra Australis Nondum Cognita, the unknown land in the south, was a purely theoretical concept for over two thousand years. Greek philosophers of the Aristotelian school had determined that if the earth were indeed a sphere, there would have to be a considerable land mass in the south to counterbalance the Eurasian land mass in the north.[5] These teachings, however, were renounced by the early Christian Church as heresy.[6] It was not until after Magellan's circumnavigation of the globe, which confirmed the Greek prediction that the earth was spherical, that European cartographers adopted the Aristotelian theory postulating the existence of a southern antipode.[7]

From the sixteenth to eighteenth centuries, many unsuccessful attempts were made to find the theoretical southern continent.[8] In 1795, Captain James Cook undertook such a maritime endeavor, but he too failed to find an Antarctic continent. Cook did, however,

5. *See* I. CAMERON, ANTARCTICA: THE LAST CONTINENT 21 (1974); *cf.* W. SULLIVAN, QUEST FOR A CONTINENT 21 (ancient Greeks' search for symmetry led them to theorize four continents evenly distributed over the globe). The Greeks were also instrumental in the coining of the word "Antarctic." They named the constellation above the North Pole *Arktos* (The Bear). That term was later applied to the northern polar region. *Arktos* was modified to "Arctic" and "Anti-Arctic," or the region opposite the Arctic, was modified to "Antarctica." I. CAMERON, *supra*, at 21.

6. Religious leaders felt that the existence of a southern landmass could well mean that an independent human population also existed. Since the equator was thought to be a zone of impassible heat, the possibility that such a population existed was irreconcilable with the postulate that all human beings were descended from Adam through Noah. I. CAMERON, *supra* note 5, at 22-23.

7. *Id.* at 23; *cf.* W. SULLIVAN, *supra* note 5, at 21 (the Renaissance rekindled the notion of an immense continent covering almost the entire southern portion of the world).

8. *See, e.g.*, W. SULLIVAN, *supra* note 5, at 21-34.

circumnavigate the world at a high southern latitude proving, at least, that the "unknown land in the south" could not be as gigantic as had been supposed.[9]

The question of who first discovered Antarctica is still unresolved.[10] American historians claim it was a New England sealer named Nathaniel Palmer, while the British contend it was Edward Bransfield of the Royal Navy. Actually, the first to sight the mainland may well have been Thaddeus von Bellingshausen of the Imperial Russian Navy, sometime between 1819 and 1821 during an expedition in search of the South Pole.

In 1895, the introduction of the Suen Foyd harpoon gun marked the start of successful Antarctic whaling and many vessels began to ply the waters of the Southern Ocean.[12] By 1904, Scott was exploring the interior of Antarctica by dog sled.[13] On December 14, 1911, Amundsen of Norway reached the South Pole.[14] By 1929, Admiral Byrd had flown over the South Pole,[15] and he explored much of Antarctica in a series of expeditions between 1928 and 1947.[16]

In the early twentieth century, states began to assert territorial sovereignty claims in Antarctica. Beginning with Britain in 1908,[17] several countries made "sector claims."[18] During the years between 1923 and 1940, sector claims, many of which overlapped, were as-

9. H. KING, THE ANTARCTIC 200 (1972). In his journal, Captain Cook commented: "[I]f anyone should have the resolution and perserverence to clear-up this point [the existence of Antarctica], by proceeding farther than I have done, I shall not envy him the honor of the discovery; but I will be bold to say that the world will not be profited by it." *Id.* at 18.

10. *See* Gould, *Antarctica in World Affairs,* 128 HEADLINE SER. 3, 12-18 (1958); Sullivan, *Antarctica in a Two-power World,* 36 FOREIGN AFF. 154, 155 (1957).

11. *See* I. CAMERON, *supra* note 5, at 17-18. *But see* Gould, *supra* note 10, at 18 (suggesting that the first sighting was a Nantucket whaling captain named Christopher Burdick). *See generally* L. MOUNTEVANS, THE ANTARCTIC CHALLENGED 12-18 (1956); W. SULLIVAN, *supra* note 5, at 21-26.

12. *See* I. CAMERON, *supra* note 5, at 245.

13. *See* C. GRATTAN, THE SOUTHWEST PACIFIC SINCE 1900, at 561-77 (1963). For a detailed account of Captain Scott's second and last expedition, see L. HUYLEY, SCOTT'S LAST EXPEDITION (1957).

14. I. CAMERON, *supra* note 5, at 245; C. GRATTAN, *supra* note 13, at 579.

15. N.Y. Times, Nov. 30, 1929, at 1, col. 4. For a detailed account of the flight, including narratives by Admiral Byrd, see W. JOERG, THE WORK OF THE BYRD ANTARCTIC EXPEDITION 1928-1930, at 34-51 (1930).

16. *See* I. CAMERON, *supra* note 5, at 246. *See generally* R. BYRD, DISCOVERY (1935); W. JOERG, *supra* note 15; W. SULLIVAN, *supra* note 5, at 79-109.

17. The political history of Antarctica began on July 21, 1908, when a claim was asserted to an area known as Graham Land. The Governor of the Falkland Islands was entrusted with the administration of the Antarctic claim on behalf of the British Crown. J. KISH, THE LAW OF INTERNATIONAL SPACES 29 (1973).

18. To determine the boundaries of these sector claims, an angle is drawn from the South Pole, and all the territory within the sector, including a measure of adjacent water, is claimed by the asserting sovereign.

serted by the governments of New Zealand,[19] Australia,[20] France,[21] Norway,[22] Argentina[23] and Chile.[24] The United States[25] and the Soviet Union[26] protested such claims and refused to recognize any claim to territorial sovereignty in Antarctica.

Other countries have exhibited varying degrees of interest in Antarctic territory short of actual formal claims. Belgium has indicated an interest based on its scientific expedition in 1897-99.[27] Japan made some "vague nonspecific claims" during a 1911-12 expedition but has since renounced such claims.[28] Nazi Germany took substantial steps toward an assertion of Antarctic territorial sover-

19. On July 30, 1923, New Zealand claimed sovereignty over the Ross dependency. Gould, *supra* note 10, at 23.

20. The Australian claim to two sectors of Antarctica was asserted on February 7, 1933, by British Order in Council. These two sectors, Wilkes Land and Victoria Land, are bisected by Adelie Land, the sector which France claims. J. KISH, *supra* note 17, at 29. For a detailed history of Australian exploration in Antarctica, see A. SCHOLES, SEVENTH CONTINENT (1953).

21. On March 27, 1924, France laid claim to Adelie Land based upon discoveries made by the French explorer Dumont d'Urville around the year 1840. Gould, *supra* note 10, at 23. In 1938, when France announced its claim by official decree, it received recognition by the British. This was in exchange for a French guarantee which granted Great Britain the right to fly over Adelie Land. J. KISH, *supra* note 17, at 29.

22. Norway asserted a sector claim over an area called the Maud Land on January 14, 1939. J. KISH, *supra* note 17, at 29.

23. Argentina communicated its territorial claim to Britain on November 30, 1925. Gould, *supra* note 10, at 23. A 1927 statement to the Universal Postal Union, however, was probably the first official announcement of an Antarctic claim by Argentina. Hayton, *The "American" Antarctic*, 50 AM. J. INT'L L. 583, 587 (1956). In 1942, the *Primero de Mayo* Argentine expedition proclaimed the annexation of all territory within the sector of longitude 25° W. and 68°34' W. Commemorative plaques were placed on Deception and Wiencke Islands, although no official decree was issued confirming this claim. The later removal of these plaques by the British caused considerable diplomatic friction between the two countries. P. JESSUP & H. TAUBENFELD, CONTROLS FOR OUTER SPACE AND THE ANTARCTIC ANALOGY 146-47 (1959).

24. On November 6, 1940, Chile issued a decree claiming an Antarctic sector which included part of a sector previously claimed by Great Britain. J. KISH, *supra* note 17, at 29.

25. The official United States position on sector claims in Antarctica was announced in 1924 by the Secretary of State Charles Evans Hughes: "It is the opinion of this department that the discovery of lands unknown to civilization, even when coupled with the formal taking of possession, does not support a valid claim of sovereignty unless the discovery is followed by actual settlement of the discovered country." Gould, *supra* note 10, at 21.

26. *See* J. KISH, *supra* note 17, at 30.

27. *See* P. JESSUP & H. TAUBENFELD, *supra* note 23, at 158; *cf.* Hanessian, *Antarctica: Current National Interests and Legal Realities*, 1958 PROC. AM. SOC'Y INT'L L. 153 (Belgium government expectation, based on its discoveries during the expedition of 1897-99, to be included in any international discussions concerning the future political status of Antarctica).

28. Japan had successfully explored several Antarctic regions in 1912 without asserting any specific territorial claims. Hanessian, *supra* note 27, at 154 n.23. Any inchoate Japanese claims were formally renounced on Sept. 8, 1951, in the peace treaty signed with the Allied Powers: "Japan renounces all claims to any right or title to or interest in connection with any part of the Antarctic area, whether deriving from the activities of Japanese nationals or otherwise." Treaty of Peace with Japan, Sept. 8, 1951, art.II(e), 3 U.S.T. 3169, T.I.A.S. No. 2490, 136 U.N.T.S. 165.

eignty,[29] but neither East nor West Germany has thus far made a derivative claim.[30] Brazil, Uruguay and Peru have also expressed what might be termed a marginal interest in Antarctica.[31]

Although the United States has never made a formal claim to Antarctica or recognized any claims by other states, it has always reserved the right to assert such a claim.[32] American activities have been motivated, at least at times, by sovereignty concerns.[33] In fact, the United States may be generally acknowledged to have some sort of inchoate proprietary interest in the area known as Byrd Land, resulting from unofficial claims to the area made on behalf of the United States by Admiral Byrd in 1929 and by others involved in subsequent expeditions.[34]

The Soviet Union has as yet made no formal sovereignty claim to Antarctica but, like the United States, has reserved the right to do so.[35] Soviet interests in Antarctica are based upon the discoveries

29. *See* W. SULLIVAN, *surpa* note 5, at 124-27. The Nazi exploration in 1938-39 was carried out by seaplanes launched from a catapult ship and resulted in the mapping of some 300,000 square miles of Antarctica. Steel markers with the Nazi emblem were dropped every 15 to 20 miles to provide a basis for the Nazi claim. P. JESSUP & H. TAUBENFELD, *supra* note 23, at 157.

30. P. JESSUP & H. TAUBENFELD, *supra* note 23, at 157. The German Democratic Republic has since acceded to the Antarctic Treaty. *See* note 64 *infra*.

31. *See id.* at 158. Prior to 1959, these three countries apparently considered making claims in Antarctica. The basis of these claims would be a projection of their boundaries poleward. Thus far, however, they have not made any formal sovereignty claims. *Id.* Brazil has acceded to the Antarctic Treaty. *See* note 64 *infra*.

32. Members of the United States Antarctic Service were told by President Roosevelt in 1939 that they could take and record any appropriate acts which might later assist the United States in supporting a sovereignty claim. Public announcement of such activity, however, was forbidden without specific permission from the Secretary of State. Hayton, *Polar Problems and International Law*, 52 AM. J. INT'L L. 746, 762-63 (1958). *See generally* Gould, *supra* note 10, at 27-28.

33. Originally secret directives for three United States Navy expeditions, Operations High Jump (1946), Windmill (1947) and Deepfreeze I (1955), listed "extension and consolidation of 'United States sovereignty over the largest practicable area of the Antarctic continent' " as among their objectives. Hayton, *supra* note 32, at 763; *see* P. JESSUP & H. TAUBENFELD, *supra* note 23, at 155-56. References to strengthening territorial claims were omitted from the specific objectives of Operation Deepfreeze for 1956-57 pursuant to a "gentlemens' agreement" that no activities undertaken during the International Geophysical Year (I.G.Y.) would be used as a basis for political objectives. Operation Deepfreeze was initiated to install United States scientific stations for the I.G.Y. Sullivan, *supra* note 10, at 160.

34. *See* P. JESSUP & H. TAUBENFELD, *supra* note 23, at 153-54. Byrd Land is an area that was first explored and claimed by Admiral Richard Byrd in 1929. *See generally* W. JOERG, *supra* note 15; Gould, *supra* note 10, at 26-27. The Ellsworth expedition in 1935-36 also made claims for the United States. On July 1, 1930, Senator Tydings unsuccessfully introduced a resolution which would have resulted in an American sovereignty claim to all lands in Antarctica discovered or explored by American citizens. P. JESSUP & H. TAUBENFELD, *supra* note 23, at 154.

35. *See generally* Toma, *Soviet Attitude Toward The Acquisition of Territorial Sovereignty in the Antarctic*, 50 AM. J. INT'L L. 611 (1956).

of Bellingshausen and Lazarev.[36] The Soviets contend that the lapse of 130 years does not in any way result in the diminution of those interests.[37]

In the years following World War II, both the United States[38] and the Soviet Union[39] unsuccessfully attempted to initiate discussions aimed at establishing an international regime in Antarctica.[40] After years of failing to resolve a dispute with Chile and Argentina over conflicting sovereignty claims,[41] England adopted a policy calling for the internationalization of the Antarctic.[42] The internationalization question was brought to the attention of the world community by proposals calling for a worldwide accord from the government of India to the United Nations General Assembly in 1956[43] and again in 1958.[44]

Any notion of international cooperation in Antarctica can trace its conception to the International Geophysical Year (I.G.Y.), which

36. *See generally* notes 10-11 and accompanying text *supra*.

37. P. JESSUP & H. TAUBENFELD, *supra* note 23, at 157. *See also* Toma, *supra* note 35, at 623.

38. J. KISH, *supra* note 17, at 76; *cf.* Gould, *supra* note 10, at 29-30 (effects of the Cold War on American involvement in Antarctica). *See generally* C. GRATTAN, *supra* note 13, at 669-71.

39. *See* J. KISH, *supra* note 17, at 76-77. The Soviet position on internationalization seems to have changed between 1949 and 1950. A 1949 memorandum by the U.S.S.R. Geographical Society drew a distinction between states having an "historical right to territorial claims" in Antarctica and other interested states without such a right, while a 1950 Soviet memorandum spoke in terms of "all countries concerned." *See* Memorandum of the Soviet Government on the Question of the Regime of the Antarctic (June 7, 1950) and Resolution of the All-Soviet Geographical Society of February 10, 1949, *reprinted in* Toma, *supra* note 35, at 624-26 app.

40. *Cf.* C. GRATTAN, *supra* note 13, at 661 (prior to 1959, only New Zealand had developed an international approach toward Antarctica).

41. The Antarctic territorial claims which Chile and Argentina asserted overlapped each other by some 21°. Both of these claims, in turn, overlap Great Britain's claim in the Palmer Peninsula region. Gould, *supra* note 10, at 23. During the decade following World War II, the differences between these three countries were clearly manifested in a competition to maintain and establish bases. In fact, the Argentines established a practice of locating their bases in close proximity to British stations. *See* C. GRATTAN, *supra* note 13, at 662-69. On February 2, 1952, the Argentine Navy actually fired on a British expedition attempting to land. This dispute, however, was later resolved through diplomatic channels. Gould, *supra* note 10, at 23. On May 4, 1955, Great Britain made a unilateral application to the International Court of Justice in an effort to achieve a judicial settlement of the territorial dispute. Since submission to the jurisdiction of the court is voluntary and because a British application had been made, Chile and Argentina were put in the position of having to formally refuse to adjudicate. Hayton, *supra* note 23, at 607-08.

42. Hayton, *supra* note 23, at 591.

43. U.N. Doc. A/3118, October 16, 1956. This proposal was later withdrawn by India because of opposition, notably by Chile and Argentina, to any international scheme requiring a relinquishment of sovereignty claims. *See* Hayton, *supra* note 32, at 760.

44. U.N. Doc. A/3852, July 15, 1958. Because of resistance, India again decided not to press the issue. By the time the proposal was submitted, plans were being made to convene an Antarctic Treaty conference among 12 interested states. *See* Hayton, *supra* note 32, at 760.

began on July 1, 1957 and continued for the ensuing eighteen months. The I.G.Y. was a cooperative, nongovernmental research project carried on by various national members of the International Council of Scientific Unions.[45] As part of the cooperative, some forty-eight research bases were established by eleven states in different areas of Antarctica without regard to sector claims.[46] A gentlemens' agreement to the effect that all activities taking place during the I.G.Y. were to be nonpolitical and could not serve as the basis for territorial or other claims existed among all I.G.Y. participants.[47]

On May 3, 1958, the United States, prompted by Soviet announcements that it intended to continue operating its bases in the Australian sector after the termination of the I.G.Y.,[48] invited eleven other states to participate in joint talks regarding the future of Antarctica.[49] The United States Proposal calling for an Antarctic Treaty was designed to prolong the international cooperation initiated by the I.G.Y.[50] This conference[51] ultimately did produce the

45. Sixty-six countries, far more than had any interest in Antarctica, participated in these geophysical studies. Of particular interest to the geophysicists was the influence of the huge southern ice mass on global weather and on atmospheric and oceanographic dynamics. Although the primary thrust of research activity was directed toward Antarctica, I.G.Y. stations existed worldwide. *See generally* C. GRATTAN, *supra* note 13, at 696-97. Gould, *supra* note 10, at 35-37.

46. The states operating stations in Antarctica during the I.G.Y. were: Argentina (8), Australia (2), Belgium (1), Chile (4), France (2), Great Britain (14), Japan (1), New Zealand (1), Norway (1), the Soviet Union (6) and the United States (8). C. GRATTAN, *supra* note 13, at 697. It is estimated that there were about five thousand persons on the continent at one time during I.G.Y. research activities. M. MCDOUGAL, H. LASSWELL & I. VLASIC, LAW AND PUBLIC ORDER IN SPACE 800 n.126 (1963) [hereinafter cited as LAW IN SPACE]. For a map showing the location and distribution of I.G.Y. bases, see P. JESSUP & H. TAUBENFELD, *supra* note 23, at 144-45.

47. *See generally* note 33 and accompanying text *supra*.

48. *See* Hayton, *The Antarctic Settlement of 1959*, 54 AM. J. INT'L L. 353 (1960); *cf.* Gould, *supra* note 10, at 48 (the concern of the United States over possibility of the Soviet Union obtaining exclusive footholds in Antarctica after the end of the I.G.Y.).

49. *United States Proposes Conference on Antarctica*, 38 DEP'T STATE BULL. 910 (1958). The states invited were Argentina, Australia, Belgium, Chile, France, Japan, New Zealand, Norway, the Soviet Union, the Union of South Africa and the United Kingdom. Despite their previous recalcitrance, both Chile and Argentina agreed to participate. *See* note 42 and accompanying text *supra*. In light of the likelihood that the conference would be held anyway and the reality that a "widely popular, concrete proposal" would probably result, participation was the only viable alternative for these two competing claimants. Hayton, *supra* note 32, at 78-79. Poland requested participation in the conference but remained uninvited. Nevertheless, it maintained an interest in Antarctica, and during 1958-59, a Polish expedition in collaboration with the Soviet Union conducted activities out of a Russian base in Antarctica. Hayton, *supra* note 48, at 354 n.22.

50. This initiative of the United States was almost certainly motivated by Cold War considerations, and its primary goal was probably the continued demilitarization of Antarctica. Because the United States had previously called for the internationalization of Antarctica, *see* note 38 *supra*, and never made a formal sovereignty claim, and because in 1959 Antarctica was thought to have little resource potential, there is little reason to conclude that

present Antarctic Treaty, which was signed in Washington on December 1, 1959,[52] and entered into force on June 23, 1961.[53]

Relying on the international cooperation established during the I.G.Y. as its foundation,[54] the Antarctic Treaty called for the continued and exclusive use of Antarctica for peaceful purposes.[55] Military activities were strictly prohibited.[56] Additionally, the detonation of nuclear explosives and the disposal of radioactive waste were forbidden.[57]

The provisions of the Treaty apply to the area south of latitude 60° S., including the ice shelves. No authority, however, is asserted over what would be regarded as the high seas under international law.[58] In general terms, the area so defined is to be used for scientific observations. The articles set out an agreement providing that scientific information and personnel will be freely exchanged among Treaty parties on prospective, as well as present, activities in Ant-

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the United States' proposal was primarily the result of American proprietary ambition.

The invitation, delivered by the American ambassador to the invited countries, stated in part:

> The International Geophysical Year comes to a close at the end of 1958. The need for coordinated scientific research in Antarctica, however, will continue for many more years into the future. Accordingly, it would appear desirable for those countries participating in the Antarctic program of the International Geophysical Year to reach agreement among themselves on a program to assure the continuation of the fruitful scientific cooperation referred to above. Such an arrangement could have the additional advantage of preventing unnecessary and undesirable political rivalries in that continent, the uneconomic expenditure of funds to defend individual national interests, and the recurrent possibility of international misunderstanding.

United States Proposes Conference on Antarctica, 38 DEP'T STATE BULL. 910, 911 (1958).

51. For the text of the welcoming address by Secretary of State Herter, see *Conference on Antarctic Opens at Washington*, 41 DEP'T STATE BULL. 650 (1959).

52. *See Twelve Nations Sign Treaty Guaranteeing Nonmilitarization of Antarctica and Freedom of Scientific Investigation*, 41 DEP'T STATE BULL. 911 (1959). Of the 12 states which signed the Treaty, only 7 had existing sovereignty claims to Antarctica. These were Argentina, Australia, Chile, France, New Zealand, Norway and the United Kingdom. The Union of South Africa claimed an island below latitute 60° S. (the boundary limit of the Treaty area); however, it had made no claim to a sector of the Antarctic continent. The nonclaimant states were Belgium, Japan, the Soviet Union and the United States.

53. [1961] 12 U.S.T. at 794, 402 U.N.T.S. at 71.

54. Antarctic Treaty, *supra* note 4, Preamble (Treaty called for "the continuation and development of such cooperation" in accord "with the interests of science and the progress of all mankind").

55. *Id.* art. I(1) (forbids establishment of military bases, carrying out of military maneuvers and testing of weaponry).

56. The Treaty does not prohibit the presence of military personnel in Antarctica if they are connected with scientific research or other peaceful purposes. *Id.* art. I(2).

57. *Id.* art. V(1).

58. *Id.* art. VI. The Southern Ocean below latitude 60° S. is an integral part of the Antarctic Treaty area. Fifth Antarctic Treaty Consultative Meeting, Nov. 29, 1968, 24 U.S.T. 1793, T.I.A.S. No. 7692 [hereinafter cited as Fifth Consultative Meeting].

arctica.[59] To ensure both this exchange and compliance with Treaty provisions, "Consultative Parties"[60] may designate "observers" who have complete access to all areas of Antarctica.[61] Advance notice must be given to all Consultative Parties before any expedition is undertaken.[62]

The Treaty allows for amendment and modification at any time.[63] Accession to the Treaty is open to any member of the United Nations upon the unanimous agreement of the Consultative Parties and to nonmembers by invitation.[64] A prerequisite to becoming a Consultative Party, and thus to having voting rights, is a substantial commitment to scientific research activity in the area.[65] Although the language of the Treaty implies that an interested state which has already acceded and hence become a contracting party[66] would automatically have an option to become a Consultative Party upon fulfilling the qualifying criteria,[67] actual events indicate otherwise. Thus far, Poland has been the only applicant for consultative membership which has been accepted.[68]

Consultative meetings are to be held for the purpose of formulating and recommending measures in furtherance of the principles and objectives of the Treaty.[69] Proposed measures, to become effec-

59. Antarctic Treaty, *supra* note 4, art. III(1).

60. Consultative Parties are those Treaty members which have the power to appoint representatives to the consultative meetings. As such, these states are the only Treaty participants with voting status. *See id.* art. IX(1)-(2).

61. *Id.* art. VII (purpose of observers is to "promote the objectives and ensure the observance of the provisions of the present Treaty"); *cf.* Hayton, *supra* note 48, at 361 (Article VII is "the strongest concrete stipulation" in the Treaty).

62. *Id.* art. VII(2).

63. *Id.* art. XII(1) (modification or amendment enters into force upon notice of unanimous ratification).

64. *Id.* art. XIII(1)-(3). To date there are eight Treaty parties who were not among the original signatories: Brazil, Czechoslovakia, Denmark, the German Democratic Republic, the Netherlands, Poland, Rumania, U.S. DEP'T OF STATE, TREATIES IN FORCE 260 (1977), and since Sept. 11, 1978, Bulgaria, 78 DEP'T STATE BULL. No. 2020, at 56 (Nov. 1978).

65. Antarctic Treaty, *supra* note 4, art. IX(2) (examples of "substantial scientific research activity" include "the establishment of a scientific station or the dispatch of a scientific expedition").

66. "Contracting Parties" include both the original signatories and those states which have acceded to the Treaty. For a list of original parties, see note 52 *supra*. Acceding states are listed at note 64 *supra*.

67. The only criterion specified in the Treaty is that an acceding party must "demonstrate its interest in Antarctica by conducting substantial scientific research activity there." Antarctic Treaty, *supra* note 4, art. IX(2).

68. Telecommunication with Norman Wulf, Legal Adviser to National Science Foundation (Oct. 12, 1977) (on file at *University of Miami Law Review*).

69. Antarctic Treaty, *supra* note 4, art. IX(1) (consultative meetings shall also serve as a forum for the exchange of ideas and discussion of matters of common interest pertaining to Antarctica).

tive, must be approved by all Consultative Parties.[70] In the event that any proposed modification or amendment fails to enter into force within two years of its communication to all contracting parties, any party to the Treaty may serve notice of its intention to withdraw. Such a withdrawal then becomes effective two years after receipt of such notice.[71] Should a dispute between contracting parties arise, the Treaty suggests procedures for settlement which include negotiation, mediation, conciliation and arbitration.[72] Disputing parties may choose any procedure which is a pacific means of settlement, however, and are not limited by the specifically enumerated methods.[73]

While nonsignatory states are not bound by the prohibitions of the Treaty, contracting parties are under an obligation to see that it is observed by all. In what might be termed the "policeman's clause" of the Treaty, contracting parties have agreed, within the bounds of the Charter of the United Nations, to exert appropriate efforts in order to ensure that "no one engages in any activity in Antarctica contrary to the principles or purposes of the present Treaty."[74]

Significantly, with respect to questions of sovereignty, the Treaty "freezes" prior and potential claims. Nothing contained in the Treaty will be interpreted as affecting previously asserted entitlements.[75] Moreover, acts or activities transpiring while the Treaty is in force neither create nor enlarge any previously existing claim of territorial sovereignty.[76]

III. Sovereignty Claims and the Antarctic Resource Problem

A. *Status of Sovereignty Claims to Antarctica*

The status and weight accorded to claims of sovereignty in Antarctica is central to the Antarctic resource problem. Key issues which arise in determining this status are: (1) whether traditional methods of "land" discovery and acquisition are relevant to the various forms of semipermanent ice in Antarctica; (2) whether the

70. *Id.* art. XII (1)(a); *see* note 63 and accompanying text *supra.*

71. Antarctic Treaty, *supra* note 4, art. XII(1)(b). *See generally* notes 181-83 and accompanying text *infra.*

72. Antarctic Treaty, *supra* note 4, art. XI(1).

73. *Id.* art. XI(2) (failure to resolve a disagreement after reference to the International Court of Justice does not absolve parties of their responsibility to seek a peaceful accord).

74. *Id.* art. X.

75. *Id.* art. IV(1) (nothing in the Treaty shall be interpreted as a "renunciation" or "diminution" of any basis of claim to territorial sovereignty).

76. *Id.* art. IV(2) (no new claims or enlargement of existing claims while the Treaty is in force).

more modern "sector theory" method of staking sovereignty claims relaxes the traditionally accepted requirements attended upon land acquisition; and (3) whether any of the claims made thus far by participants in the exploration and exploitation of Antarctica have satisfied the older criteria to the point that they, because of either their manner or scope, should be accorded a superior weight when compared with the interests of other states.

Unfortunately, the Antarctic Treaty does not explicitly address these issues.[77] Although the Treaty effectively demilitarizes the region[78] and guarantees access to the area for scientific research purposes, it does not attempt to govern resource activities. This failure stems in part from a desire to avoid a confrontation among the claimant states[79] and in part from ignorance of the resource potential of the region.

These deficiencies, however, have gradually become crucial and stand as a source of potential diplomatic and military conflict. While sector claims were once made casually and, for the most part, without serious disagreement among the participating states,[80] they have now acquired a perceived strategic[81] and economic significance, which makes almost all claims subject to heated dispute. The refusal of the Soviet Union in 1958 to relinquish the research stations it acquired during the I.G.Y. is characteristic of this new reality. In such an atmosphere, the manner in which a state stakes a claim becomes part of the criteria by which the validity of the claim is judged by the international community.

B. *The Susceptibility of Antarctic Ice to Sovereignty Claims*

In many respects, Antarctica is a geological anomaly. As a consequence of its peculiar physical nature, it is often difficult to assign juridical classification to the various geomorphologic units of Antarctica. This is particularly true in the case of the three Antarctic ice forms—continental sheet ice,[82] pack ice[83] and shelf ice.[84] The crux

77. *See generally* Antarctic Resources—Report from the Meeting of Experts at Fridtgof Nansen Foundation at Polhøgda [hereinafter cited as Nansen Foundation Report with page citations to *Antarctic Policy Hearing, infra*], *reprinted in United States Antarctic Policy: Hearing Before the Senate Subcomm. on Oceans and Int'l Environment of the Comm. on Foreign Rel.*, 94th Cong., 1st Sess. 76-78 (1975) [hereinafter cited as *Antarctic Policy Hearing*].

78. Antarctic Treaty, *supra* note 4, art. I.

79. Similar to the one which arose as a result of the overlapping claims of Chile, Argentina and the United Kingdom.

80. Excluding, of course, the dispute referred to in note 79 *supra*.

81. *See* LAW IN SPACE, *supra* note 46, at 799 (discussion of military considerations as they relate to Antarctica).

82. Continental sheet ice is formed on land where fresh water and compacting snow

of the problem is whether to include the respective ice forms in a legal regime associated with land or with water. This determination is significant because of the different rules of international law applicable to the territorial acquisition of land and water. Moreover, classification is also necessary because there is no independent, generally acknowledged body of international law applicable to ice.

Land[85] is, of course, subject to sovereignty claims. Water which is part of the high seas, however, is not susceptible to such claims. The 1958 Convention on the High Seas concluded: "The High Seas being open to all nations, no State may validly purport to subject any part of them to its sovereignty."[86] While it is certainly true that, in a physical sense, ice is different from water, that fact does not preclude the classification of some forms of ice as "water," or perhaps as "high seas,"[87] for juridical purposes.

Logically, since sheet ice forms on the land and overlays a geomorphologic land basement, it is land-based and should therefore be governed by a juridical regime associated with land. In support

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freeze to form layers of ice, adding pressure to that beneath. This form of ice, which is generally considered land ice, encompasses 95% of the Antarctic continent. Its 5.5 million square miles spread over an area the approximate size of the United States and Mexico combined. I. CAMERON, *supra* note 5, at 12.

83. Often described as sea ice, pack ice is formed by the freezing of sea water along the coast. The Antarctic continent is girdled by a ring of pack ice that fluctuates in size according to the season. In summer, the area of the pack ice may be no greater than the British Isles, while in winter its area may be larger than the United States and Canada combined. Pack ice may extend outward from the coast to a distance of one thousand miles. *Id.* at 17.

84. Shelf ice is formed on the surface of the ocean, generally in bays and sheltered areas. Deposits of this type can, and often do, build up a shelf which will remain attached to land for extended periods of time. Shelf ice is especially subject to calving and large portions often break away to form icebergs. These icebergs may be larger than the state of Massachusetts and can drift for as long as 10 years. H. KING, *supra* note 9, at 7.

85. "Land" is defined as: "The solid substance composing the material part of the earth, considered in its entirety; especially the exposed surface of the earth as opposed to the oceans and seas." FUNK & WAGNALL'S NEW STANDARD DICTIONARY OF THE ENGLISH LANGUAGE 1383 (1949). Because "ice" is defined as "congealed or frozen water," *id.*, it can be inferred from the above definitions that "ice" is never "land" because "oceans and seas" are generally composed of "water." The fact that ice may never be considered "land" in the geological sense does not prohibit the classification of some forms of ice as "land" for juridical purposes.

86. Convention on the High Seas, *open for signature* Apr. 29, 1958, art. 2, 13 U.S.T. 2313, T.I.A.S. No. 5200, 450 U.N.T.S. 82 (entered into force Sept. 30, 1962).

87. "The term 'high seas' means all parts of the sea that are not included in the territorial sea or in the internal waters of a State." *Id.* art. 1. It is possible that the Third United Nations Conference on the Law of the Sea (UNCLOS III) may result in the diminution of waters heretofore considered "high seas." Economic "zones of various extents have already been declared by several states; some extend for two hundred miles from the coastal baseline. There appears to be a dispute concerning whether or not these "zones" will have "high sea" status. *See also* Revised Single Negotiating Text of the Third United Nations Conference on the Law of the Sea, art. 75, U.N. Doc. A/CONF.62/WP.8/Rev. 1 (May 6, 1976) (does not include exclusive economic zones in definition of high seas).

of this position, it is significant that marine navigation in the traditional sense is impossible through any medium composed of continental sheet ice. The inability of marine transit to negotiate this ice form further indicates that the freedom of navigation consideration applicable to the classification of the "high seas" is not implicated in the case of continental sheet ice and, as such, does not present a restraint on the application of sovereignty claims.[88]

While compelling arguments can be advanced supporting the proposition that the juridical nature of continental sheet ice is identical to that of land, the juridical nature of pack and shelf ice is largely undetermined for purposes of territorial acquisition. Legal publicists who have addressed the pack and shelf ice classification issue usually examine the reasons underlying the legal concept that land is subject to sovereignty claims while the high seas are not.[89] One criteria which has been advanced is the degree to which various ice formations permit marine navigation.[90] Experience in the Arctic teaches that pack ice is definitely susceptible to navigation.[91] Antarctic pack ice is structurally similar to Arctic pack ice[92] and is passable via icebreaker and submarine. Using this as the determinative standard, it appears that Antarctic pack ice should be subject to the same legal regime applicable to the high seas and thus not subject to claims of sovereignty.[93]

The application of the "susceptibility of navigation" criterion to Antarctic shelf ice is a more difficult enterprise. Where shelf ice has formed in an Antarctic bay and is vertically homogeneous, it is not susceptible to marine navigation of the traditional surface or

88. *Cf.* D. PHARAND, THE LAW OF THE SEA OF THE ARCTIC 181-82 (1973) (frozen water and land are similar in that both form an effective barrier to navigation); Bernhardt, *Sovereignty in Antarctica*, 5 CAL. W. INT'L L.J. 297, 302 (1975) (sheet ice generally considered land ice). The "susceptibility of navigation" criterion is discussed in notes 90-93 and accompanying text *infra*.

89. For a discussion and comparison of the arguments advanced by leading theoreticians regarding the sovereignty status of Antarctic ice formations, see Bernhardt, *supra* note 88, at 302-10.

90. *See, e.g., id.* at 309.

91. In 1977, a nuclear powered Soviet icebreaker reached the North Pole. Miami Herald, Aug. 18, 1977, § A, at 4, col. 1. The U.S.S. Skate and the U.S.S. Seadragon have transited routes through the Northwest Passage and the Seadragon has reached the North Pole via submerged navigation. D. PHARAND, *supra* note 88, at 162. Interestingly, feasibility and cost studies are currently in progress with a view toward using giant submarine tankers for the transportation of oil through the Arctic Ocean to Western Europe. *Id.* at 163.

92. *Compare* I. CAMERON, *supra* note 5, at 15-17 (description of Antarctic pack ice) *with* D. PHARAND, *supra* note 88, at 153 (description of Arctic pack ice). *See generally* Mouton, *The International Regime of the Polar Regions*, 107 RECUEIL DES COURS 169, 197 (1962).

93. *See, e.g.*, J. KISH, *supra* note 17, at 35-36 (ice formations not attached to the coast are subject to the general regime of the high seas).

even subsurface modes.[94] On this basis, it seems that Antarctic shelf ice would generally be subject to sovereignty claims.

There is, however, an Antarctic geological phenomenon involving shelf ice that presents serious problems for the application of the "susceptibility of navigation" criterion. In several instances, notably the gigantic Ross Ice Shelf, portions of the thick ice shelf are floating on a subjacent water column.[95] Submarine transit may, in rare cases, be possible beneath these so-called "ice tongues."[96] Whether this is sufficient to render the ice tongues beyond the reach of sovereignty claims is uncertain.[97] In most instances, however, because the thickness of the floating shelf ice[98] prevents any navigation, it appears that the ice tongues would be subject to sovereignty claims.

The juridical nature of the underlying water is a far more difficult issue to resolve. Several possible solutions have been advanced in an effort to determine the status of this subjacent hydrosphere.[99] Those suggested include treating it as a territorial sea,[100] as inland waters[101] or as the high seas.[102] Naturally, the degree to which a hypothetical sovereign could prohibit submerged transit would depend on the status afforded to the water columns.

Permanency is a second basis commonly used by legal commentators to determine whether ice is to be assimilated to a land or to a high sea legal regime.[103] The "permanence principle" posits that all ice formations that are immobile should be considered within the

94. *See generally* N.Y. Times, Dec. 16, 1976, at 1, col. 3 (the Ross Ice Shelf is generally 700 feet thick and over 1,375 feet thick in some areas).

95. *See* Bernhardt, *supra* note 88, at 310. *See generally* N.Y. Times, Dec. 16, 1976, at 1, col. 7 (depth of water beneath Ross Ice Shelf drill site estimated at 780 feet).

96. *See* Mouton, *supra* note 92, at 196.

97. Bernhardt suggests three reasons why the possibility of subsurface transit is not sufficiently compelling to assimilate shelf ice into a high seas regime: (1) the problem is de minimis from a practical perspective because there are only a few areas of Antarctica which would permit submarine navigation; (2) in most places where the ice shelves would admit submarine navigation, the thickness of the ice would be so great that there would be little threat to the territorial sovereign above; and (3) the problem probably would never arise since a territorial sovereign would most likely be entitled to a territorial sea in which it could, in the exercise of its discretion, prohibit all subsurface navigation. Bernhardt, *supra* note 88, at 310.

98. In some cases, the floating shelf ice is over one thousand feet thick. *See* note 94 *supra.*

99. *See* Bernhardt, *supra* note 88, at 310.

100. The territorial sovereignty of the sector state extends beyond its land territory and its internal waters to a belt of sea adjacent to its coast. J. KISH, *supra* note 17, at 27.

101. "Inland waters" include ports and waters within the indentations of the coastline. With respect to these waters, coastal sovereigns claim an authority to permit or deny access to private or governmental vessels. M. MCDOUGAL & W. BURKE, THE PUBLIC ORDER OF THE OCEANS 89, 93 (1962).

102. For a definition of the "high seas," see note 87 *supra.*

103. *See generally* Bernhardt, *supra* note 88, at 303-10.

land regime, while those ice formations that are mobile should be included in the high seas regime.[104]

Pack ice lacks any real aspect of permanency.[105] Not only is it unattached to land, but also it has a tendency to break up at seasonal intervals.[106] It cannot be classified as immobile ice because it lacks coastal attachment. As a result, Antarctic pack ice appears unsusceptible to sovereignty claims.

The changing physical nature of shelf ice makes it difficult to generalize about its legal status. For the most part, it is integrally connected to land.[107] Shelf ice, however, is subject to calving, the breaking off of large pieces which form floating icebergs.[108] In this respect, shelf ice is mobile and impermanent. Nevertheless, it is possible that such a process should not affect the legal status of the major ice shelves. An analogy may be drawn to the geological processes of accretion, erosion and avulsion, none of which diminishes the susceptibility of land to claims of sovereignty.[109]

Although the Ross Ice Shelf, an immense Antarctic ice structure which effectively blocks surface navigation, is subject to some calving, it should be considered indistinguishable from land with regard to sovereignty claims.[110] It actually rests upon land in some places, and, for all practical purposes, it does not differ at all from the ice-covered mainland.[111] The real problems arise with ice shelves that are not as large and stable as the Ross Ice Shelf. Particularly in Antarctica, where there is an active inland ice sheet, portions of shelves or even the entire shelf may disintegrate over a fairly short period of time.[112] Therefore, it has been suggested that it would be

104. *See* Lakhtine, *Rights Over the Arctic*, 24 AM. J. INT'L L. 703, 712 (1930).

105. Surrounding Antarctica like a belt and often reaching widths of up to one thousand miles are enormous ice fields comprised of pack ice, frequently called the "pack." Mouton, *supra* note 92, at 197.

106. Pack ice, which is formed by the freezing of surface layers, is generally solid in the winter and impenetrable for 10 out of 12 months. Ranging from heights of 1 inch to 12 feet, Antarctic pack ice is never still. It drifts under the constant influence of currents and winds. I. CAMERON, *supra* note 5, at 17. Expanding and contracting according to season, its annual variation in area is about six times as great as that for Arctic pack ice. ENCYCLOPEDIA BRITTANICA, 1 MACROPAEDIA 956 (1974).

107. Ice shelves near the true coast line actually rest on the seabed; in deeper water, however, they float.

108. The calving which occurs off the coastline of Antarctica has produced icebergs of enormous size. A British ship in 1951 reported sighting an iceberg 90 miles long and 25 miles wide. W. SULLIVAN, *supra* note 5, at 337. In November of 1956, an American icebreaker observed an iceberg north of the Ross Ice Shelf which measured about 200 miles in length and 40 miles in width. Mouton, *supra* note 92, at 196.

109. *See* Bernhardt, *supra* note 88, at 305.

110. *See* G. SMEDAL, ACQUISITION OVER POLAR REGIONS 30-31 (1931).

111. *See* Mouton, *supra* note 92, at 192-93.

112. For a discussion of the calving phenomenon, see notes 107-09 and accompanying text *supra*.

desirable to develop criteria which could readily be used to determine the relative stability of an ice shelf.[113]

In summary, the continental sheet ice covering the mainland of Antarctica would most likely be subject to claims of sovereignty under existing theories of international law even though the validity of existing claims to these areas appears to be in doubt.[114] It is very doubtful that floating pack ice is susceptible to claims of sovereignty.[115] Ice shelves present the most difficult questions and may have to be considered on an individual basis. In any event, the unique physical nature of Antarctica will require the development of sui generis legal principles as rapidly as possible.

C. *An Appraisal of the Sector Theory Under International Law*

At present, seven states have laid claims to Antarctic territories[116] which encompass all types of ice formations. The "sector theory" has served as the method for defining claims of territorial acquisition.[117] Before any state can hope to perfect a sovereign title to an Antarctic territory, however, it must first obtain sufficient recognition of its claim by other members of the international community.[118]

Historically, states have most often acquired the necessary recognition of their territorial claims through traditional modes such as accretion, annexation, cession, discovery and occupation, plebiscite, and prescription.[119] The most applicable of these conventional modes due to the *terra nullis* status of Antarctica is discovery and occupation.[120] The exceedingly severe environment of Antarctica,

113. *See generally* D. PHARAND, *supra* note 88, at 181-88 (seeking to determine the legal status of ice shelves in terms of a permanency criteria).

114. *See generally* notes 116-55 and accompanying text *infra* (discussion of sector theory).

115. *See, e.g.*, Hayton, *supra* note 48, at 472 (the author suggests that "pack ice . . . and floating ice islands separated from mainland attachment are not assimilated to the status of territory, no matter what their dimensions.").

116. For a listing of these claims, see notes 17-25 and accompanying text *supra*.

117. Although often compared directly with traditional modes of territorial acquisition, the sector theory, on a conceptual level, is something quite different. It does not independently support sovereignty claims but instead serves as a method of delineating claims which can look to some other mode or theory as their basis. Without the underpinning doctrines of contiguity, discovery, occupation or some other accepted principle of international law, the sector theory would be of little use.

118. For a work which considers the importance of international recognition of territorial claims, see Schwarzenberger, *Title to Territory: Response to a Challenge*, 51 AM. J. INT'L L. 308 (1951).

119. The enumerated modes represent the six principal theories advanced by Soviet jurists through which a state can acquire title to a territory. Toma, *supra* note 35, at 611.

120. *See* Bernhardt, *supra* note 88, at 317 (primary mode of acquiring sovereignty in Antarctica is occupation coupled with discovery).

however, makes effective occupation an impractical goal.[121] It is perhaps for this reason that claimant states in Antarctica have made claims to sectors instead of to the less symmetrical territorial configurations that would generally be associated with actual occupation, settlement and development.

The sector theory was first recognized in modern usage in 1907, when Canada employed it to justify its claim to lands and islands lying between its northern border and the North Pole.[122] The sector theory as applied by Canada rested on the notion that the area claimed adjoined existing Canadian borders. Such is not the case in Antarctica.[123] Still, the impossibility of effective occupation in the inhospitable regions of Antarctica[124] may warrant the relaxation of traditional criteria associated with territorial acquisition and permit the use of the sector theory. Another justification offered is the claimant's proximity to the territory and its presumed ability to assert jurisdiction and control. Under this premise, undiscovered lands within the sector are presumed to belong to the claimant and, consequently, the criterion of discovery and effective occupation, in its fullest sense, is discarded.[125]

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121. One visitor to Antarctica described the continent as follows:

> Antarctica is by far the coldest place on earth; weather stations have reported temperatures of -88° C., more than 20° below those recorded anywhere else. In this sort of cold if you try to burn a candle the flame becomes obscured by a cylindrical hood of wax, if you drop a steel bar it is likely to shatter like glass, tin disintegrates into loose granules, mercury freezes into a solid metal, and if you haul up a fish through a hole in the ice within five seconds it is frozen so solid that it has to be cut with a saw.

I. CAMERON, *supra* note 5, at 14.

122. Bernhardt, *supra* note 88, at 334. On February 20, 1907, a Canadian Senator named N.P. Poirier proposed that Canada issue a declaration stating that it had taken possession of the lands and islands lying between its northern coast and the North Pole. There is, however, some question whether the proposal by Senator Poirier was the initial impetus behind the sector theory. A map published by the Canadian Department of the Interior in 1904 depicted the western boundary of Canada as being longitude 141° W. extending north to the Pole, and the eastern boundary as being longitude 60° W. also extending to the Pole. D. PHARAND, *supra* note 88, at 134.

123. Antarctica is too far from any other landmass to justify any claim of contiguous boundaries. Polar sectors, however, have been described as being areas delimited by a definite coordinate that encompasses all islands and lands within it. Lateral boundaries are determined by longitude lines. Either the area of the sector or a specified parallel latitude defines the "coastline" of the sector. Under the sector theory, all of the area within these bounds is then considered to be the territory of the claimant state. Bernhardt, *supra* note 88, at 332.

124. Antarctica contains the coldest areas on earth. At the Pole, the average temperature is -50° C. Winds are notorious for their strength. The Australian explorer Mawson once recorded an average speed of 107 mph over a consecutive eight hour period. I. CAMERON, *supra* note 5, at 14. There is precious little soil on the continent, and only lichen can be found growing within three hundred miles of the Pole. H. KING, *supra* note 9, at 9.

125. Another justification advanced for asserting claims to more territory than has been effectively occupied is the "hinterland" principle. Under this doctrine, states with coastal

The sector theory, which embodies a means of sovereignty acquisition over yet undiscovered areas, has not gone unchallenged by the commentators[126] and, in fact, has never been incorporated into customary international law.[127] The practices of the states adjacent to the Arctic regarding their sector claims have varied widely, and no country has interpreted the sector theory in its broadest application. Although maps and unofficial statements would indicate that Canada[128] and the Soviet Union[129] have claimed sectors of the Arctic, official statements[130] and actions indicate that they are unsure of the validity and extent of their claims.[131] The other Arctic contiguous states—Denmark, Norway and the United States—neither claim nor recognize sectors in the Arctic.[132]

Since there appears to be no consensus among the adjacent Arctic states regarding the application of the sector theory to Arctic territories, it would be overly ambitious to suggest that the sector theory is an accepted doctrine in international law. Furthermore, since the sector theory, as developed in the Arctic, is predicated on the state's proximity to the lands claimed, it is even less applicable in the Antarctic than in the Arctic. No country has physical boundaries which extend below the southern polar circle, nor is there a physical connection between any of the claimant states and the sectors which they claim. Reliance on proximity to Antarctica by Chile and Argentina, which are about six hundred miles away, is

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settlements have claimed vast portions of the interiors of North and South America, Africa and Australia. While never widely accepted as a principle of international law, these claims were often perfected by agreements between the interested states. *See generally* Bernhardt, *supra* note 88, at 343-45.

126. *See, e.g.*, G. SMEDAL, *supra* note 110, at 58.

> [The] sector principle is not a legal principle having a title in the law of nations. This is partly admitted by those who uphold it. Nor should the principle be embodied in international law, for one reason because it aims at a monopoly which will doubtless delay, and partly prevent, exploration and exploitation of the polar regions.

Id.

127. For an analysis of customary international law as it applies to the sector theory, see C. FENWICK, INTERNATIONAL LAW 89-98 (4th ed. 1965).

128. For a discussion of the sector theory and its relation to Canada's involvement in the Arctic, see D. PHARAND, *supra* note 88, at 134-44.

129. *See id.* at 123-27 (considering application of the sector theory to the Soviet Arctic). *See also* Lakhtine, *supra* note 104, at 703-17 (undiscovered territory within the Arctic Circle should be under sovereignty of the adjacent polar state with no consideration being afforded the nationality of any explorer).

130. *See* D. PHARAND, *supra* note 88, at 141 (Canadian Prime Minister Trudeau does not subscribe to the sector theory).

131. For example, the Soviet Union did not object to the presence of United States icebreakers in the Soviet sector until they penetrated what the Soviet Union considered to be its territorial waters. *Id.* at 171.

132. *Id.* at 169-70, 175-76.

unpersuasive. Similar assertions would seem ludicrous if advanced by states in the Northern Hemisphere. Additionally, many of the socioeconomic consequences of contiguity which are relevant to the Arctic simply do not exist to the same degree in Antarctica. The area within the Arctic Circle is close to large population concentrations in Europe and North America, which makes the Arctic significant from both strategic and economic perspectives.[133] In contrast, Antarctica is an unpopulated continent, unparalled in its remoteness and thus less susceptible to claims of sovereign entitlement based on this aspect of the sector theory.[134]

The sector theory does not enjoy general recognition in the international community, particularly with regard to Antarctica.[135] Although many of the claimant states respect each other's claims,[136] the United States and the Soviet Union—active and powerful participants in Antarctic activities—have neither asserted sovereignty in Antarctica nor recognized the claims of these other countries.[137] Moreover, it appears that no states other than the sector claimant states have admitted the validity of the sector theory as applied to the southern polar region.

Since the geographic locations of the countries declaring sovereignty in Antarctica make the principles of contiguity and proximity of limited value in the southern polar region,[138] a second basis for justifying sector claims has evolved.[139] Acts of historical discovery and occupation have emerged as the underlying support in several instances. Where these claims are based upon present or historical involvement, the physical characteristics of the claimant states are irrelevant. Instead, sovereignty depends on the degree to which the claim fits within the legal criteria traditionally associated with

133. *See* Bernhardt, *supra* note 88, at 336.

134. *See id.* (Soviet publicist suggests that because of the lack of proximity, it would be a mistake to extend the sector theory to Antarctica).

135. Mouton, *supra* note 92, at 245. For a collection of opinions advanced by leading publicists regarding the relative validity of sector theory application to Antarctica, see Bernhardt, *supra* note 88, at 336.

136. P. JESSUP & H. TAUBENFELD, *supra* note 23, at 158 (Britain, France, New Zealand, Australia, Norway and South Africa recognize each other's claims).

137. For a more detailed discussion of the positions of the United States and Soviet Union, see notes 32-37 and accompanying text *supra*.

138. Of the states asserting sector claims, only Argentina, Australia, Chile and New Zealand are in the Southern Hemisphere and are directly across an ocean from Antarctica. Even ignoring the vast expanse of water in between, some of these interests are difficult to support. Australia, for example, asserts claims to territories which, for the most part, lie south of the Indian Ocean and not directly south of Australia. For a map of Antarctic sector claims, see P. JESSUP & H. TAUBENFELD, *supra* note 23, at 144-45.

139. France, Great Britain and Norway have each laid claim to sectors in Antarctica, yet these states are continents away from the territories over which they claim to be sovereigns.

discovery and occupation, accepted modes of territorial acquisition.

Discovery alone is not generally considered a valid basis for a perfected title. At a minimum, discovery must be followed by or combined with symbolic acts designed to announce a claim of sovereignty.[140] Nevertheless, history is replete with examples of states occupying and claiming territories which they knew had been discovered and symbolically annexed by another state.[141] As a result, it is unlikely that discovery, even when coupled with symbolic acts, will provide anything more than an inchoate title.[142]

Occupation has traditionally been considered to be a prerequisite to perfection of a sovereign title acquired through discovery,[143] and today it is the primary mode of territorial acquisition.[144] The accepted standard is one of "effective occupation."[145] The determination of what acts are required to achieve this level, especially in the polar regions, is the subject of much controversy.[146]

According to a traditional view, there are two distinct acts which claimant states must complete prior to obtaining a perfected title based on occupation of *terra nullius* lands.[147] The first act is the "taking of possession," which can be accomplished only by "real"

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140. In their classic work *Law and Public Order in Space*, McDougal, Lasswell and Vlasic asserted:

> Discovery has sometimes been regarded as the mere sighting or visual apprehension of land masses. When discovery is so conceived, claims have seldom been made that it alone can effect an exclusive appropriation. Claims have been been made, however, that such discovery entitles a claimant to a reasonable time in which to establish exclusive use by some other modality. Most often, the discovery upon which claims to exclusive appropriation have been based has been accompanied by other acts, such as by the landing of men followed by exploration of the interior, and especially by certain symbolic acts designed to announce an intention to appropriate. These symbolic acts may range from simple ceremonies, such as the planting of a flag or standard with an accompanying proclamation, to elaborate rituals.

LAW IN SPACE, *supra* note 46, at 830 (footnotes omitted).

141. For example, England, France and the Netherlands, despite Spanish and Portuguese protests, consistently occupied areas symbolically annexed by the Spaniards and the Portuguese. Similarly, the United States later took effective occupation of areas symbolically annexed by England, France and Spain. Moreover, in some instances where no actual occupation had taken place, disputes were sometimes resolved by the relative significance of the exploration and "symbolic act" activities. Such was the case regarding the disagreement between the United States and England over the Oregon area in 1845. *Id.* at 835-40.

142. *See* Mouton, *supra* note 92, at 247.

143. *See* Bernhardt, *supra* note 88, at 318-20 (a state should have the right to appropriate territory to the exclusion of others only if it uses the area claimed).

144. *Id.* at 319.

145. *See* J. BRIERLY, THE LAW OF NATIONS 163-65 (6th ed. 1963).

146. *See* Mouton, *supra* note 92, at 246-50 (former tendency among publicists suggesting more relaxed standards than those associated with more temperate zones is changing in direction of a rigid approach).

147. *See* Bernhardt, *supra* note 88, at 320.

occupation. The second act, the "administration" of the territory, is more difficult to define; perhaps it is even beyond narrow definition.[148] "Administration" does, however, comprehend that some degree of "exercise of governmental functions" be established within a "reasonable time."[149] Under this view, if the occupying authority does not commence "governmental functions" within a "reasonable time," another state could displace its prior claim.[150]

This two step process for determining effective occupation is no longer afforded general acceptance by the international community.[151] Some commentators suggest that an inchoate title which is derived through discovery, alone or combined with some "symbolic act," has a grace period of from one to twenty-five years before becoming susceptible to displacement.[152] The Soviets, on the other hand, reject the two step theory of effective occupation altogether and claim that discovery alone creates a permanent and perfected title that can never be displaced by a succeeding state.[153] Another leading theorist suggests that occupation can be accomplished externally, through relations with other states. According to this view, occupation is "the appropriation of sovereignty not of soil."[154]

148. I. CRUZ, INTERNATIONAL LAW 84 (1971). If the claimant state does not begin to exercise its sovereign rights, the inchoate title will lapse and the territory will become *terra nullius* again.

149. *See* J. BRIERLY, *supra* note 145, at 166 (upon discovery, a temporary right is raised in favor of the discoverer to exclude other states until it has had a reasonable time within which to make an effective occupation).

150. During this "reasonable" period of time, the discoverer is said to have "a sort of option to occupy" which is entitled to recognition by other states while it lasts. *Id.* For a discussion of the "possession" and "administration" stages which lead up to effective occupation, see Bernhardt, *supra* note 88, at 319-20.

151. *See* Legal Status of Eastern Greenland, [1933] P.C.I.J. 22, ser. A/B, No. 53 (settlement is *not* a necessary element of effective occupation); Clipperton Island Arbitral Award (France v. Mexico), Jan. 28, 1931, *reprinted in* 26 AM. J. INT'L L. 390 (1932); Island of Palmas Arbitral Award (United States v. Netherlands), Apr. 4, 1928, *reprinted in* 22 AM. J. INT'L L. 867 (1928). For a collection of arguments attempting to define "effective occupation," see Bernhardt, *supra* note 88, at 320-32.

152. *See, e.g.*, Bernhardt, *supra* note 88, at 322.

153. Professor Toma has translated an article appearing in the *Komsomolskaya Pravda* which stated that:

> Our country is the lawful heir to the outstanding Russian geographical discoveries made in the South Polar Seas at the beginning of the 19th century. Historically the right of priority in the discovery and exploration of a number of Antarctic lands remains eternally with Russia and, by succession, with the U.S.S.R.

Toma, *supra* note 35, at 616.

154. *See* M. WHITEMAN, DIGEST OF INTERNATIONAL LAW 1265 (1963). This view certainly offers more support to the position of territorial claimants in Antarctica than does the possession and administration approach. The latter presupposes a physical capability of appropriation. In the absence of this precondition, a territory cannot be subject to effective control. Since the physical conditions of Antarctica make it virtually incapable of appropriation,

The divergent positions which these different theories assert indicates that there is no generally accepted principle of international law prescribing the minimum standard of effective occupation which Antarctic claimants must meet in order to acquire a perfected title recognized by the international community. Thus, it is submitted that the most viable method by which the respective Antarctic claimants might obtain a recognized title to territorial claims is through a decision by the International Court of Justice or by some independent action of their own initiative which accommodates the rest of the international community. As there has been no International Court of Justice decision on the status of Antarctic claims, and since the current Antarctic claims are not internationally recognized,[155] there are no clearly perfected titles to Antarctica that could provide a legal order governing the development of potential Antarctic resources.

D. *An Appraisal of the Inchoate Status of Antarctic Sovereignty Claims*

Although no generally recognized sovereignty claims currently exist in Antarctica, the respective claims do have relative degrees of inchoate status.[156] In order to create a perspective within which to place the relative status of these inchoate sovereignty claims, it is important to attempt to understand the nature and degree of effective occupation associated with the decisions in the cases of the *Legal Status of Eastern Greenland*[157] and *Island of Palmas.*[158]

In *Eastern Greenland,* the Permanent Court of International Justice decided in favor of Denmark despite Norway's contention that Denmark failed to occupy the area in dispute. The court noted the severe physical character of eastern Greenland[159] in arriving at its determination that intermittent and inextensive acts of sover-

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under this view it would seem that the southern polar region could never be subject to territorial soverignty. *See generally id.* at 1263-64.

155. Antarctic sector claims do, however, have limited recognition. Except for the dispute concerning the overlapping claims of Argentina, Chile, and Great Britain, sector claimants recognize each others' respective claims. *See* note 136 *supra.*

156. *See, e.g.,* J. BRIERLY, *supra* note 145, at 166.

157. [1933] P.C.I.J. 22, ser. A/B, No. 53.

158. (United States v. Netherlands), Apr. 4, 1928, *reprinted in* 22 AM. J. INT'L L. 867 (1928).

159. The climate and character of Greenland are those of an Arctic country. The "Inland Ice" is difficult to traverse, and parts of the coast—particularly of the East coast—are for months together difficult of access owing to the influence of the Polar current and the stormy winds on the icebergs and the floe ice and owing to the frequent spells of bad weather.

[1933] P.C.I.J. at 27.

eignty were sufficient to establish occupational sovereignty.[160] Statements made by the King of Denmark referring to Eskimos brought back from Greenland as "our subjects,"[161] and the addition of a Greenland emblem to the King's coat of arms[162] were early acts of sovereignty. During the eighteenth century, Danish whalers regularly visited the east coast of Greenland while the government of Denmark promulgated regulations and granted concessions applicable to eastern Greenland. Danish expeditions explored the entire coastal region of Greenland during the nineteenth and twentieth centuries,[163] and by the early twentieth century, Denmark had established several trading companies on the east coast.[164] In considering Danish involvement in eastern Greenland, the court did not find, nor did Denmark claim, any particular act of occupation. Rather, the court held that Denmark established sovereignty over all of Greenland, including the sparsely settled east coast, based upon "the peaceful and continuous display of State authority over the island."[165]

The phrase "continuous and peaceful display of State authority" was first used in the Permanent Court of Arbitration decision concerning the unpopulated Island of Palmas.[166] In that case, the United States, as successor to the rights of Spain by treaty, based its title on discovery. The Netherlands countered this assertion with

160. Although Denmark had a long record of activities in the western and southern coastal areas of Greenland where the majority of Greenlanders lived, activities in the eastern area were much less intensive. *Id.* at 27-28.

161. The Eskimos were brought to Denmark by the Lindenow expedition in 1605. In 1636, the King gave a monopoly for navigation and trading in Greenland to Danish citizens. *Id.* at 28.

162. In 1666, Frederick III added a bear, representing Greenland, to the arms of the Danish Monarchy. *Id.*

163. The expeditions, including those led by Graah, Holm, Ryder, Amdrup, Peary, and Lauge Koch, took place between the years 1828 and 1931. *Id.* at 31.

164. In 1919, the Eastern Greenland Company was founded. It built a number of houses and hunting cabins in order that its hunters might winter there; however, by 1924 its resources were exhausted and operations ceased. This hunting camp was opened again in 1929 by the Nanok Company which carried on the principle occupations of its predecessor and equipped its station with a wireless. *Id.* at 34.

165. *Id.* at 45. The court went on to state:

> It is impossible to read the records of the decisions in cases as to territorial sovereignty without observing that in many cases the tribunal has been satisfied with very little in the way of the actual exercise of sovereign rights, provided that the other State could not make out a superior claim. This is particularly true in the case of claims to sovereignty over areas in thinly populated or unsettled countries.

Id. at 46.

166. The Island of Palmas (United States v. Netherlands), Apr. 4, 1928, *reprinted in* 22 AM. J. INT'L L. 867, 911 (1928). The Island of Palmas lies halfway between the Philippines and the Dutch East Indies. The United States, as a successor of Spain, based its asserted entitlement mainly on the ground of its discovery of the island in the sixteenth century.

a claim based on the commencement of occupation and the display of authority. The primary basis of the Dutch claim was the existence of historic trade agreements with the chiefs of neighboring islands. The arbitrator decided that the Netherlands had an interest superior to that of the United States based upon "the continuous and peaceful display of State authority." The decision granted "superior" rather than perfected title to the Netherlands because it had not "effectively occupied" the island to a degree sufficient to perfect title.[167]

In both of these cases, neither of the prevailing states achieved effective occupation. Along these lines, it has been suggested that "a relatively slight exercise of authority is sufficient where no state can show a superior claim."[168] The court in *Eastern Greenland* perhaps indicated the level of involvement necessary to resolve sovereignty issues when it stated: "In most of the cases involving claims to territorial sovereignty which have come before an international tribunal, there have been two competing claims to sovereignty, and the tribunal has had to decide which of the two is the stronger."[169] Thus, on the basis of *Eastern Greenland* and *Island of Palmas,* it would appear that in cases where states are competing over claims to uninhabited territories, the international decisionmaker will make an award of sovereign title to one of the states if it can show a long period of undisputed authority over the claimed territory, even if its activities in regard to that territory are relatively insignificant.

Insofar as the occupation of Antarctica is concerned, there were no permanent settlements or continuous activities by any state until after World War II.[170] By 1952, however, there were at least seventeen permanent stations in the area of the Antarctic peninsula,

167. *Id.* In reaching this conclusion, the arbitral award stated in part:

> These facts at least constitute a beginning of establishment of sovereignty by continuous and peaceful display of state authority, or a commencement of occupation of an island not yet forming a part of the territory of a state; and such a state of things would create in favor of the Netherlands an inchoate title for completing the conditions of sovereignty. Such inchoate title, based on display of state authority, would, in the opinion of the arbitrator, prevail over an inchoate title derived from discovery, especially if the latter title has been left for a very long time without completion by occupation; and it would equally prevail over any claim which, in equity, might be deduced from the notion of contiguity.

Id.

168. J. BRIERLY, *supra* note 145, at 164.

169. [1933] P.C.I.J. 22, 46, ser. A/B, No. 53.

170. *See* Bernhardt, *supra* note 88, at 318. Because of the lack of actual settlement in the areas claimed, it had been the policy of the United States since 1924 to refrain from asserting any claims itself as well as refusing to recognize those claims made by other states. *Id.* This position has since become known as the Hughes Doctrine. For more detailed consideration, see note 25 and accompanying text *supra.*

maintained by Chile, Argentina and the United Kingdom.[171] With the advent of the I.G.Y. in 1957, the construction of research stations intensified throughout Antarctica.[172]

While this increased activity could possibly be termed "administrative" acts, I.G.Y. participants had a "gentlemens' agreement" to the effect that it was not to be used as the basis of claims.[173] Thus, there is some question regarding the propriety of urging those pursuits as evidence of any form of effective occupation. Considering the nature and degree of activities undertaken prior to the I.G.Y., however, it can generally be concluded that the existing sovereignty claims to Antarctica represent a broad range in kind and degree of inchoate titles. Although England[174] may be considered to have conducted activities which more closely approached a continuous display of authority than did, for instance, Australia,[175] England's claim is challenged by Chile and Argentina,[176] while Australia's claim has been virtually undisputed since the time of its declaration.

The varying degrees of inchoate titles possessed by the Antarctic claimant states would probably prevail over competing claims lodged by other states if any case or controversy were brought before

171. P. JESSUP & H. TAUBENFELD, *supra* note 23, at 142 (answers the question of the possibility of permanent establishments). For a discussion of Argentine, Chilean and British occupation in Antarctica, see Gould, *supra* note 10, at 22-23.

172. *See generally* Gould, *supra* note 10, at 35-41.

173. *See, e.g.*, P. JESSUP & H. TAUBENFELD, *supra* note 23, at 155-56 (because of the gentlemens' agreement, the United States terminated its former practice of placing markers and flags in places it had surveyed).

174. In discussing the relative worth of various Antarctic claims, one commentator has stated:

> Great Britain appears to have been the first claimant to attempt effective occupation. The governor of the Falkland Islands in 1906 issued regulations on whaling operations carried out from land stations on South Georgia and other islands in the area. In 1908 Britain formally proclaimed a section of the Antarctic and four nearby groups of islands as the Falkland Island Dependencies, and brought the administration of the area under the authority of the governor of the Falkland Islands. From this period, Great Britain has enforced regulations concerning the whaling industry in the region, established post offices and issued stamps, constructed both temporary and permanent bases, operated wireless stations, policed the area, and carried out exploratory mapping and scientific studies.

LAW IN SPACE, *supra* note 46, at 861.

175. Australia, whose territorial claim in Antarctica is by far the largest (about one-third of the continent), bases this interest primarily on the explorations of several Englishmen in the nineteenth century and of the Australian, Douglas Mawson, in the twentieth century. P. JESSUP & H. TAUBENFELD, *supra* note 23, at 152. In discussing the incorporation of Australian Antarctic Territory into the legal structure of the Australian Capital Territory, one commentator stated: "It was as though the District of Columbia had been enlarged to include Alaska." W. SULLIVAN, *supra* note 5, at 123. *See also* note 20 *supra*.

176. For a detailed treatment of the British, Chilean and Argentine claim dispute, see Hayton, *supra* note 23, at 583-97. *See also* notes 23-24 *supra*.

an international decisionmaking body. The only possible exception to this would be potential superior claims asserted by the United States and the Soviet Union. It would appear, therefore, that these respective inchoate titles are tangible to the extent that they must be settled in any effort to resolve the Antarctic resource problem.

E. *The Effect of the Antarctic Treaty on Sovereignty Claims*

The Antarctic Treaty seems to preclude the use of activities undertaken since the Treaty went into effect as a basis for improving former sovereignty claims or asserting new ones.[177] One commentator, however, while acknowledging that such activities could not be used while the Treaty is in effect, noted that it would be impossible to ignore the existence of scientific camps constructed during the Treaty period.[178] He concluded that stations which remain in operation after the termination of the Treaty could then be offered to support new or improved claims.[179] Only those activities conducted after the termination of the Treaty, albeit from stations established during the operative Treaty period, could be used to assert claims, just as the physical presence of the station would be considered to exist legally only at the expiration of the Treaty.[180]

While the Treaty may be amended by unanimous agreement at any time,[181] there is no formal termination date, only a mechanism

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177. The Antarctic Treaty provides:

> No acts or activities taking place while the present Treaty is in force shall constitute a basis for asserting, supporting or denying a claim to territorial sovereignty in Antarctica or create any rights of sovereignty in Antarctica. No new claim, to territorial sovereignty in Antarctica shall be asserted while the present Treaty is in force.

Antarctic Treaty, *supra* note 4, art. IV(2).

178. Bernhardt, *supra* note 88, at 315. In reaching this assessment, the author argued:

> If the existence of bases cannot be gainsaid, and if the right to such bases can be said to inure to any state, the logical recipient of such a right would preforce be the building and occupying state. And as the Treaty was *ab initio* but a temporary arrangement, it would be irrational to presume that any state would consent upon signing the Treaty to surrendering the investments of the "Treaty years" upon termination of that instrument.

Id. at 315 n.56.

179. *Id.* at 314-16. The Treaty also provides that nothing in the document shall be interpreted as a renunciation of any claim which a party "may" have. Antarctic Treaty, *supra* note 4, art. IV(1)(b). It is possible that the use of the word "may" could be construed to signify a possibility in the future. Bernhardt reached this interpretation by examining the parallel French text which states this provision of the Treaty in the conditional tense. The use of the conditional tense in French is more closely akin to the future tense than to the present tense. Bernhardt, *supra* note 88, at 312-13 & n.50.

180. Bernhardt did, however, suggest that it might be politic to disassociate such stations from the Treaty regime by rededicating them, in addition to replacing the former team with different personnel. Bernhardt, *supra* note 88, at 315.

181. Antarctica Treaty, *supra* note 4, art. XII(1).

instituting a review of the document in 1991.[182] Any party may withdraw from the Treaty, effective four years after notice of an undesirable treaty modification.[183] Moreover, a country could conceivably withdraw within two years, if there were a proposed amendment outstanding for two years at the time of notice of withdrawal.

Since any structures existing at the termination of the Treaty could be used to support sovereignty claims only as of the moment the Treaty ends, it is probable that the short term of the legal existence of the building would not add sufficient support to give any state's inchoate title a perfected status. The presence of one state's scientific research station in a territory covered by sector claims of another would only diminish the display of authority of the sector claimant, not increase the other's claim.

IV. THE RISKS OF CONTINUING THE STATUS QUO IN ANTARCTICA

Because of the inchoate status of Antarctic sovereignty claims, there is a legal and political vacuum relevant to potential resource exploration and exploitation activities. If current consumption patterns continue, economic exigencies could force the initiation of hydrocarbon exploration activities on the continental shelf of Antarctica in the near future. Any such initiation of resource activities without the benefit of a recognized legal order pertaining to those activities presents a wide range of potential problems and attendant risks. The most sensitive aspect of resource development is probably the potential conflict which the unregulated initiation of resource activities could create in relation to the Antarctic sovereignty claims.[184]

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182. *Id.* art. XII(2)(a), which provides:

> If after the expiration of thirty years from the date of entry into force of the present Treaty, any of the Contracting Parties whose representatives are entitled to participate in the meetings provided for under Article IX so requests by a communication addressed to the depositary Government, a Conference of all the Contracting Parties shall be held as soon as practicable to review the operation of the Treaty.

Even though the Treaty does not provide any specific date for termination, the Treaty regime is generally regarded as being only temporary, ending in 1991—30 years after the Treaty went into force. Bernhardt, *supra* note 88, at 310-11.

183. Antarctica Treaty, *supra* note 4, art. XII(2)(c) provides:

> If any such modification or amendment has not entered into force . . . within a period of two years after the date of its communication to all the Contracting Parties, any Contracting Party may at any time after the expiration of that period give notice to the depositary Government of its withdrawal from the present Treaty; and such withdrawal shall take effect two years after the receipt of the notice by the depositary Government.

184. The Antarctic Treaty fails to address the issue of the initiation of resource activities by contracting parties in the area. A meeting of experts from the original 12 Treaty members

Several jurisdictional problems may arise concerning krill exploitation, which exploitation has already begun in Antarctica.[185] The Antarctic Treaty expressly provides that all the freedoms of the high seas are still available to all states under international law. The 1958 Geneva Convention on the High Seas[186] includes fishing as one of the high seas freedoms. Nevertheless, krill fishing could cause conflict if conducted within the marine areas comprehended by the respective sector claims. Moreover, krill exploitation activities conducted within two hundred miles of the coast of the respective sector claims could provoke claimant states to declare two hundred mile exclusive fishing zones, economic zones or other forms of extended marine jurisdiction[187] in derogation of the prohibition of the Treaty

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was held by the Nansen Foundation in 1973, and three distinct views emerged on this subject. Nansen Foundation Report, *supra* note 77.

One view postulates that any commercial mineral exploration in Antarctica would violate the Treaty. Since scientific research is one of the main objectives of the Treaty, continuing commercial exploration would contaminate the Treaty area and reduce its utility for study as an uncontaminated ecosystem. *Id.* at 79.

This view has been criticized, however, on grounds that current scientific investigation in Antarctica is often indistinguishable from commercial exploitation. *Id.* at 81. For a discussion of the similarity between "scientific" and "commercial" acivities, see N.Y. Times, Jan. 17, 1977, at 35, col. 4. It is reasonable to suggest that many forms of "research activity" could alter the ecosystem of Antarctica just as much as many forms of commercial exploration. *See* Rose, *Antarctic Condominium: Building a New Legal Order for Commercial Interests*, MARINE TECH. SOC'Y J. 19, 20-23 (Jan. 1976).

Another view expressed in the Nansen Foundation Report suggests that even though the Treaty is silent on the question of commercial exploration and exploitation, certain provisions of the Preamble and Article X imply a prohibition on resource activities by anyone, including sector claimants, without the consent of the Consultative Parties. Nansen Foundation Report, *supra* note 77, at 79. This view lacks merit as to states not party to the Treaty since the provisions of the Treaty are probably not binding on them. As to Treaty members, this view is also of dubious validity since the Treaty does not specifically address issues engendered by the potential initiation of resource activities. *Id.* at 79-80.

The final view expressed in the Nansen Foundation Report advances the proposition that the Treaty does not operate to prohibit Treaty members from initiating resource activities in Antarctica. This view is based on the failure of the Treaty to address the issue of resource activites and the belief that none of its provisions even implies a prohibition on resource activities. The suggestion was also made that engaging in resource activities is a "peaceful purpose" referred to in Article I of the Treaty and is a matter "about which the consultative parties may consult under Article IX." *Id.* at 80.

185. Krill are small, shrimp-like organisms which feed on plant, animal and organic detrital material. These protein-rich crustaceans are found in abundant quantities in Antarctic waters. Some fishery experts believe that as much as one million tons of krill could be taken annually without depleting krill stocks. 1 SCAR/SCOR GROUP OF SPECIALISTS ON LIVING RESOURCES OF THE SOUTHERN OCEAN, BIOLOGICAL INVESTIGATION OF MARINE ANTARCTIC SYSTEMS AND STOCKS (BIOMASS) 1 (1977).

186. Convention on the High Seas, *supra* note 86, at art. 2. Note, however, that the Antarctic Treaty does not expressly authorize fishing in the waters included within the respective sector claims.

187. A two hundred mile exclusive economic zone for fishing and other resource activities has been claimed by a few countries, and the concept is supported by many more. *See* Informal Composite Negotiating Text of the Third United Nations Conference on the Law of the Sea, U.N. Doc. A/CONF. 62/WP. 10.

against new claims or claim enlargements.[188] Such zones could result in the destruction of the Antarctic Treaty. Additionally, because sovereignty claims are only recognized among some of the claimant states, it is probable that any possible claims to offshore krill resources would not be recognized by other states.

The unregulated initiation of oil and gas exploration on the continental shelf of Antarctica has the potential for an even more profound confrontation between foreign exploiters and claimant states. It could cause claimant states to declare openly sovereignty over the resources of the continental shelves adjacent to their respective sector claims. These claims could be based upon the 1958 Geneva Convention on the Continental Shelf which provided that coastal states have sovereignty over their respective adjacent continental shelves for exploration and exploitation of natural resources.[189] Claimant states might also argue that, pursuant to the *North Sea Continental Shelf Case*,[190] sovereignty over their respective continental shelves for resource exploitation vested ipso facto upon the declaration of their respective sovereignty claims.[191] Therefore, they could argue that their presumptive rights over the continental shelves adjacent to their sector claims could not be construed as a new claim or as an enlargement of an existing claim, both of which are prohibited by the Antarctic Treaty.[192] Because only claimant states recognize the Antarctic sovereignty claims, however, it is likely that potential claims to the oil and gas resources of the continental shelf of Antarctica would not be recognized by states other than the existing sector claimants. Moreover, non-claimant Treaty parties may regard such claims as violative of the Antarctic Treaty.[193] Conflicts over Antarctic offshore hydrocarbon

188. Antarctic Treaty, *supra* note 4, art. IV(2). *See* notes 75-76 and accompanying text *supra*.

189. Convention on the Continental Shelf, *opened for signature* Apr. 29, 1958. art. 2(1), 15 U.S.T. 471, T.I.A.S. No. 5578, 499 U.N.T.S. 311 (entered into force June 10, 1964).

190. [1969] I.C.J. 4.

191. The *North Sea Continental Shelf Case* stated:

> [T]he Court entertains no doubt [that] the most fundamental of all the rules of law relating to the continental shelf, enshrined in Article 2 of the 1958 Geneva Convention, though quite independent of it [is] that the rights of the coastal State in respect of the area of continental shelf that constitutes a natural prolongation of its land territory into and under the sea exist *ispo facto* and *ab initio*, by virtue of its sovereignty over the land, and as an extension of it in an exercise of sovereign rights for the purpose of exploring the seabed and exploiting its natural resources. In short, there is here an inherent right. In order to exercise it, no special legal process has to be gone through, nor have any special legal acts to be performed.

Id. at 22.

192. Antarctic Treaty, *supra* note 4, art. IV(2).

193. *Id.*

deposits could also result between foreign exploiters and claimant parties.

There are many problems that could arise upon initiation of any Antarctic resource activity which could lead to the destruction of the Antarctic Treaty as well as to conflicts among competing states and Treaty parties. The unilateral issuance of offshore hydrocarbon exploration leases by a sector claimant is one example of a situation with potentially serious consequences. The Treaty member claimant could argue that such an act would be within the "peaceful purposes" apparently allowed by the Preamble and Article I of the Treaty.[194]

It is also foreseeable that the unilateral issuance of a petroleum exploratory lease by a territorial claimant would elicit objections from both consultative[195] and acceding states[196] which have not recognized Antarctic sovereignty claims. This disapproval could be manifested in the initiation of a proposed amendment by a Consultative Party pursuant to Article XII of the Treaty.[197] Such a proposed amendment could seek to delay or prohibit the issuance of exploration and exploitation leases until such time as the Consultative Parties could agree on how resource activities should be regulated.

The possible ramifications of such a proposed amendment are manifold. First, a unanimous vote would be required for the passage of such an amendment.[198] The proposal would probably fail to receive unanimous approval because the claimant Consultative Party issuing the lease is likely to veto it. Thus, the amendment would probably not enter into force. Second, the failure of the proposed amendment would provide a basis for allowing any contracting party, not just the lease-issuing state, to withdraw from the Treaty.[199] Thus, other claimant states might elect to withdraw at that time if their perceived interests so dictated, *e.g.*, in order to issue their own leases or to claim a two hundred mile economic zone. Moreover, those Treaty members not currently asserting sovereignty claims might also elect to withdraw either in protest or perhaps in order to assert sovereignty claims of their own.

The synergistic effect of these events would present a significant danger to the efficacy of the Antarctic Treaty. Similarly, the

194. *Id.* Preamble & art. I. *See generally* notes 54-56 and accompanying text *supra.*

195. The Consultative Parties not asserting territorial claims are: Belgium, Japan, Poland, the United States and the Soviet Union. The Union of South Africa, also a Consultative Party, claims an island within the Treaty area but asserts no sector claim. *See* note 52 *supra.*

196. For a list of acceding states, see note 64 *supra.*

197. Antarctic Treaty, *supra* note 4, art. XII. *See generally* notes 69-71, 181-83 and accompanying text *supra.*

198. Antarctic Treaty, *supra* note 4, art. XII.

199. *Id.* art. XII (2)(c).

death knell to the Treaty would probably sound if nonclaimant Treaty parties were to lodge competing claims of resource jurisdiction in Antarctica. If the effects of the Treaty were so neutralized, the world community would no longer have the benefit of the globe's only demilitarized continent. Moreover, the Treaty's emphasis on conservation and maintenance of environmental integrity would likely be lost in a rush to exploit the wealth of Antarctica. Consequences equally deleterious to Antarctica could also occur through the unregulated initiation of resource activities by states not party to the Treaty or by large multinational corporations of ambiguous state origin.

The commencement of resource exploitation, without the benefit of a recognized agreement, would in all likelihood evoke a negative response from the other members of the international community. A significant interest in Antarctica is already evident among states not party to the Treaty.[200] Members of the "Group of 77"[201] have become increasingly aware of the feasibility of including Antarctica in the area to be regulated by the proposed international authority for the seabed. This would then allow them to share in any exploitation of Antarctic wealth.[202]

Thus, any delay in taking immediate action toward a new, internationally acknowledged legal ordering of Antarctica will only make resolution of the Antarctic resource problem more difficult to achieve. As the demand for new sources of living and nonliving resources increases on a global scale, the economics of Antarctic exploitation rapidly approaches cost-benefit feasibility. When global resource demand has caused potential Antarctic resource activities to reach the point of economic feasibility, states might be forced by rational self-interest to take a harder line on the issue of resources in the southern polar region.

A majority of the experts meeting a the Nansen Foundation, referring to Antarctic offshore hydrocarbon potential, decided that it was "urgent for the Antarctic Treaty Consultative Parties to reach agreement on adequate political and legal measures to be taken within the framework of the Antarctic Treaty"[203] in order to avoid

200. *See* Mitchell, *Antarctica: A Special Case*, OCEANS, 56, 58-59 (May-June 1977) (signs of a growing discontent among the non-Treaty members of the international community regarding any preferential rights which might inure to Treaty parties).

201. The "Group of 77" is a coalition of more than one hundred third world countries which are seeking to enlarge their influence in maritime politics. This heterogeneous group consists of both landlocked and coastal states. It should also be noted that two Consultative Parties to the Antarctic Treaty, Argentina and Chile, are members of the "group."

202. *See* Shapley, *Antarctic Problems: Tiny Krill to Usher in New Resource Era*, 196 SCIENCE 503, 505 (1977).

203. Nansen Foundation Report, *supra* note 77, at 75. A minority view which emerged

unregulated commercial activity on the continental shelf of Antarctica. The Nansen group concluded their report as follows: "The group hopes that it will also be possible to establish the necessary legal dispositions before mineral exploration and exploitation gets under way—with or against the will of the Contracting Parties."[204]

While the Antarctic Treaty establishes the skeletal structure of a legal order, it fails to provide a solution to sovereignty issues that exist among Treaty members. It has been suggested that contracting parties who do not recognize the sovereignty claims of other Treaty members could initiate nonliving resource exploitation at their will.[205] These activities will be limited only by Treaty provisions such as those designed to preserve the environmental integrity of the continent[206] or to ban nuclear explosions[207] and not by the asserted sovereignty claims of fellow Treaty members. Yet even those applicable Treaty sections do not provide a legal order relevant to most of the international community. Although Article X[208] provides a basis for action by contracting parties if nonsignatories commence resource exploitation, these agreements have no direct effect on them. At most, the Treaty may be read to provide some indirect restraints on the activities of these states;[209] the Treaty, however, does not bind nonsignatories to its provisions.[210]

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from the meeting suggested that the matter, while important, was not urgent. *Id.*

204. *Id.* at 84.

205. Mitchell, *supra* note 200, at 59 (clash between claimants and nonclaimants raises doubts as to whether parties to the Treaty could reach an overall agreement concerning resource activities).

206. Antarctic Treaty, *supra* note 4, art. IX(1)(f).

207. *Id.* art. V.

208. Article X provides that: "Each of the Contracting Parties undertakes to exert appropriate efforts, consistent with the Charter of the United Nations, to the end that no one engages in any activity in Antarctica contrary to the principles or purposes of the present Treaty." *Id.* art. X.

209. The only provisions of the Treaty which might affect the initiation of resource activities by nonsignatory states are Articles III and VII. In Article III, the contracting parties agree that "to promote international cooperation in scientific investigation" information concerning plans for scientific programs, personnel and observations in Antarctica would be exchanged "to the greatest extent feasible and practicable." *Id.* art. III. Such an obligation is not specifically restricted to contracting parties and may be read to apply to nonsignatories as well.

In much the same way, Article VII provides that contracting parties are entitled to designate inspectors with "complete freedom of access at any time to any or all areas of Antarctica." *Id.* art. VII. The Treaty does not specifically limit this right of inspection to the activities of the contracting parties. It apparently recognizes the right of Treaty parties to inspect a ship of nonsignatory registry even though such an inspection would violate "flag sovereignty" of the nonsignatory state. *See* Bassiouni, *Theories of Jurisdiction and Their Application in Extradition Law and Practice*, 5 CAL. W. INT'L L.J. 1, 19-20 (1974). Bassiouni explained that "vessels, aircraft and spacecraft are an extension of the territory [of the flag state] and, therefore, the territoriality theory applies to them by extension." *Id.* at 19.

210. *See* Rose, *supra* note 184, at 20; *but cf.* Nansen Foundation Report, *supra* note 77, at 81 (experts expressed the opinion that "the Parties to the Antarctic Treaty had under-

The status quo in Antarctica with regard to potential initiation of resource activities is one of legal and political uncertainty. A practicable solution must be found to maintain the fragile Antarctic ecosystem and to provide for orderly resource development without creating extreme international dissension. Any further delays will only promote greater intractability on the part of all states concerned and increase the likelihood of a resource "strike," accentuated by the subsequent disorder which would inevitably result from the unilateral initiation of resource activities. Antarctic resources could assume such a high priority that powerful states may become entirely unwilling to grant concessions to an internationally acknowledged Antarctic resource solution. National interests could conceivably dictate unilateral actions in overt disregard of the interests of other states with potentially undesirable consequences for the international community.

V. Working Towards a Solution of the Antarctic Resource Problem

A. *General Considerations*

From an international perspective there are certain objectives that solution to the Antarctic resource problem might ideally achieve. These include: (1) the continued demilitarization of Antarctica; (2) the continued freedom of scientific investigation and compulsory sharing of scientific information; (3) the maintenance of the environmental integrity of Antarctica; (4) the political stabilization of Antarctica through the establishment of a legal regime sufficient to provide security for investment necessary to commence resource activities; and (5) the orderly and efficient exploitation and sharing of Antarctic resources for the common well-being of the international community.

While it is a simple exercise to list the laudable goals of a solution to the Antarctic resource problem, it is exceedingly difficult to construct a plan for implementation which would be workable and acceptable to all interested states.[211] To create a solution to the

taken certain obligations in respect to the Antarctic and had therefore certain rights vis-à-vis non-Parties to the Treaty.").

211. The problems involved in attempting to establish an international solution are illustrated in Evan Luard's analysis of the underlying motivation of individual governments. He suggested that:

> Governments exist—or believe they exist—to protect *national* interests. They recognize, in a theoretical way, the need for solutions which promote the wider interests of all mankind. But they assume that such solutions can only be the end product of a flight: of bitter and protracted wrangling among many different representatives, each bargaining for their own nation, rather than from a com-

Antarctic resource problem, all possible mutually acceptable arrangements should be analyzed. A realistic goal might be any solution that would preclude the potential consequences of inaction, and would still be acceptable to enough members of the international community to afford it a lasting effectiveness.

The following considerations are relevant to the practicability of any proposed solution to the resource problem: (1) control over all Antarctic resource activities; (2) control over all activities which may affect the Antarctic ecosystem; (3) access to Antarctic resources; (4) distribution of monetary gains derived from resource activities; (5) access to Antarctica for scientific, commercial and military purposes.

Moreover, any solution may have to deal with the following factors: (1) the sovereignty claims of the seven claimant Consultative Parties which arguably could include claims to portions of the continental shelf of Antarctica; (2) potential claims to territorial seas, exclusive fishing zones or "economic resource zones" stemming from the sovereignty claims; (3) the overlapping claims of Chile, Argentina and the United Kingdom; (4) the unclaimed sector; (5) the proprietary sensitivities of the nonclaimant Consultative Parties; and (6) assertions that Antarctica is an international zone not susceptible to sovereignty claims and thus is part of the "common heritage of mankind."[212]

For purposes of analysis, the countries of the world can be divided into three competing interest groups: the claimant Consultative Parties, the nonclaimant Consultative Parties and the non-Treaty states.

> mon, disinterested effort among all to devise the system that would best serve the interests and promote the welfare of the world as a whole. They accept the need for mutually acceptable arrangements. But their first aim is to ensure that the arrangements are acceptable to themselves. This is the inevitable effect of a situation in which political power and political parties are still organized on a national rather than an international basis.

E. LUARD, THE CONTROL OF THE SEA-BED 197 (1974).

212. Attempting to define the phrase, "common heritage of mankind," Ambassador Arvid Pardo of Malta identified three characteristics:

> First of all there is the absence of property. The common heritage engenders the right to use certain property, but not to own it. It implies the management of property and the obligation of the international community to transmit the common heritage, including resources and values, in historical terms. Common heritage implies management. Management not in the narrow sense of management of resources, but management of all uses. Third, common heritage implies sharing of benefits.

Note, *The Polar Regions and the Law of the Sea*, 8 CASE W. RES. J. INT'L L. 204, 215-16 (1976).

B. *Common Interests of Claimant Consultative Parties*

The claimant Consultative Parties have a common interest in securing their perceived sovereignty rights over respective Antarctic sectors. While some claimants, such as the United Kingdom, have indicated that they might be agreeable to an international solution,[213] others such as Australia, New Zealand, and especially Chile and Argentina, have indicated that their claims are not negotiable.[214] The basic problem confronting claimant states stems from the lack of general recognition of their claims, even by nonclaimant Consultative Parties. Until they acquire general recognition, claimants may not be able to exploit the natural resources of their sector. Furthermore, sector claimants face the prospect of losing their preceived exclusive rights if an "international solution" is effected by the international community. To obviate these problems, claimants may decide to reduce their claims of exclusive sovereignty in order to obtain recognition of lesser proprietary rights.

C. *Common Interests of Nonclaimant Consultative Parties*

Nonclaimant Consultative Parties may assert that their interests in Antarctica have now vested. The length of their connection with the Antarctic Treaty and the scope of their activities in the southern polar region could support such a contention. Perhaps the most significant of these interests is future access to the potentially rich hydrocarbon resources of the continental shelf of Antarctica.

Japan has long been a heavy importer of foreign oil. The United States now imports fifty-one percent of all the hydrocarbon fuel it consumes.[215] The Soviet Union as well will soon be dependent on foreign reserves of oil.[216] The increased capacity of oil exporting states to withhold hydrocarbons from the industrialized states was illustrated by the Organization of Petroleum Exporting Countries (OPEC) in 1973. That experience precipitated a reevaluation of the Antarctic policy of the United States which was previously viewed as an "international approach."[217] Today, the United States apparently favors free access and "nonpreferential rules applicable to all countries and nations for any possible development of resources in the future."[218] The experience of the United States during the oil

213. *See* note 41 and accompanying text *supra*.

214. *See* N.Y. Times, Jan. 17, 1977, at 35, col. 4.

215. *See* Miami Herald, Feb. 20, 1977, § A, at 24, col. 1. In 1976, the United States imported 41% of the oil that it needed. STATISTICAL REP. DIV., U.S. DEP'T OF COM., STATISTICAL ABSTRACT OF THE UNITED STATES 750 (1977).

216. Miami Herald, Apr. 19, 1977, § A, at 16, col. 1.

217. *See* Hayton, *supra* note 23, at 584.

218. *Antarctic Policy Hearing*, *supra* note 77, at 5.

crises of 1973 has caused those concerned to realize that disruption of access to foreign oil is the equivalent of a security threat.[219] It is not presumptuous to suggest that Japan and the Soviet Union share these same concerns. Therefore, it appears that freedom of access to Antarctic hydrocarbons would also be one of their primary objectives in any future solution to the Antarctic resource problem.

Although they may seek to advance only their own interests, the nonclaimant Consultative Parties may have to make concessions to achieve a solution which would receive general recognition. Without general acceptance by the international community, it is probable that no solution to the Antarctic resource problem would be lasting.

In any possible negotiations, nonclaimant Consultative Parties will probably not be able to dictate their policies to the lesser developed states. In recent years, Japan, the Soviet Union and the United States have become increasingly dependent on the developing states for supplies of natural resources and for military and commercial mobility. Previously, the underdeveloped countries could achieve their national goals by exploiting the Cold War competition between the East and West. Now that détente has ended the Cold War, the less developed states have begun to exploit the dependency of developed states to achieve their aims.[220] In order to avoid alienating developing countries, the claimant states will need to gain Third World approval of any solution to the resource development problem. The extent of concessions which the nonclaimant Consultative Parties will choose to make will depend on the priorities which they attach to achieving their goals in Antarctica.

The unique features of the Antarctic region—its abundance of marine living resources and strategic location—stimulate competitive international interests which may complicate efforts to reach a generally acceptable solution. As a result of the importance of fish in the food supplies of Japan and the Soviet Union, those states may desire freedom of access to the potentially enormous Antarctic krill fishery.[221] Additionally, the United States, Japan and the Soviet

219. *See* A. HOLLICK & R. OSGOOD, NEW ERA OF OCEAN POLITICS 87 (1974) (disruptions of America's access to oil poses economic threat to domestic welfare tantamount to a security threat).

220. *See id.* at 89-90. The authors argued that "one of the primary U.S. security imperatives may become the achievement of mutually advantageous and acceptable working relationships with the coastal states in the Third World." *Id.* at 90. For a discussion of the opportunity available to developing countries to use their natural resources as leverage for political pressure and harassment, see Bergsten, *The Threat From the Third World*, 15 FOREIGN POL'Y 102, 107-24 (Summer 1973).

221. *See generally* Lohr, *Krill*, 10 OCEANS 54 (May-June 1977) (Japan and the Soviet Union were the first countries to conduct systematic studies to develop methods for captur-

Union may establish commercial and military mobility as one of their priorities, and may reject any solution which does not grant them the right of transit for such traffic in the Antarctic seas and airspace.

D. *Common Interests of Non-Treaty States*

The states of the world community that are not Consultative Parties to the Antarctic Treaty have a wide range of interests in the future of Antarctica. Countries that rely heavily on the oceans as a source of food supply may have a significant interest in Antarctic krill.[222] Others, such as Brazil,[223] may have an interest in the exploitation of the nonliving resources of Antarctica. Oil importing countries may be interested in the early exploitation of Antarctic hydrocarbons; oil exporting countries (such as OPEC members) may be interested in delaying exploitation or at least wielding some control over such exploitation. All of these states, however, are certainly aware that any solution to the resource problem designed for the exclusive benefit of the Consultative Parties would not be in their interest. They might favor an approach that would provide them with some early benefit or, in the alternative, an approach that would give them time to acquire the technology necessary for them to be competitive Antarctic exploiters.

Because of the range and complexity of the often divergent national interests involved, any workable and internationally recognized solution to the Antarctic resource problem would be invaluable. While it would be difficult to design a solution acceptable to the Consultative Parties alone, the task of satisfying the more than one hundred other members of the international community will be far more arduous. Yet, such a solution must be attempted.

VI. The Viability of Four Potential Solutions to the Antarctic Resource Problem

The four potentially viable solutions to the Antarctic resource problem which merit consideration are: (1) an international solution; (2) a solution whereby the Antarctic sovereignty claims would

ing and processing Antarctic krill); Shapley, *supra* note 202, at 504 (Japan and the Soviet Union market krill for human consumption).

222. *See generally* Lohr, *supra* note 221, at 54. A total of eight countries have seriously investigated Antarctic krill potential. Among them are the following Consultative Parties: Australia, Japan, New Zealand, Norway, Poland and the Soviet Union. Other interested states are Taiwan and West Germany. *Id. See also* Shapley, *supra* note 202, at 504 (technological breakthroughs by West Germans will make large scale harvesting possible).

223. *See* Shapley, *Antarctica: World Hunger for Oil Spurs Security Council Review*, 184 Science 776 (1974) (Brazil interested in South Pole oil deposits).

be recognized by the Consultative Parties; (3) a solution whereby the International Court of Justice would determine the relative status of Antarctic sovereignty claims; and (4) a solution wherein the Consultative Parties would "pool" their respective sovereignty claims and declare an Antarctic condominium or joint Antarctic sovereignty.

A. *An International Solution*

States not party to the Antarctic Treaty have become progressively more interested in the future of Antarctica. These countries would naturally favor an international solution to the resource problem in Antarctica rather than a more exclusive approach in which they might realize little economic or political benefit. The principle advantage of an international approach is that it would include the entire international community and would thus eliminate many of the grounds for objections which could be raised under an approach involving an exclusive group of participants. That sole advantage, however, would probably be outweighed by a number of disadvantages which cast doubt upon the feasibility of an international solution.

An international solution could be developed by: (1) an international convention to create a new Antarctic Treaty intitated by the United Nations General Assembly; (2) an international trusteeship under the Charter of the United Nations,[224] or under an amendment specifically designed for Antarctica; or (3) the assimilation of all or part of the Antarctic Treaty area by the seabed authority as envisioned by some of the parties to the Third United Nations Conference on Law of the Sea (UNCLOS III).[225]

The feasibility of an international solution through a new convention involving all interested participants or through an international trusteeship is doubtful due to the potency of some of the sovereignty claims.[226] Furthermore, international regulation of resource exploitation in Antarctica would be extremely difficult to implement due to the diverse national interests and priorities of the international community. The slow and almost frustrating progress of UNCLOS III is an indication of the obstacles encountered in an attempt to resolve these complex issues. Thus, the need for an early resolution apparently precludes an approach through an interna-

224. *See* U.N. CHARTER art. 81. The provisions of Article 81 would permit a trusteeship agreement to be administered by the United Nations or by one or more of its members.

225. *See* Rose, *supra* note 184, at 24 (Law of the Sea Conference could provide a basis for outside, nonsignatory intervention in the Antarctic Treaty area).

226. *See generally* N.Y. Times, Jan. 17, 1977, at 35, col.4; *see also* note 230 *infra*.

tional convention or trusteeship. Finally, the manifestation of proprietary sensitivities by nonclaimant Consultative Parties[227] suggests that they might also vigorously oppose an international solution.[228]

The feasibility of an approach which would include Antarctica in the regime envisioned by UNCLOS III is also problematic. The addition of Antarctica to the complex package deal UNCLOS III negotiators are endeavoring to achieve could lead to a substantial reconsideration of priorities by the participants and could result in a significant setback in the progress accomplished thus far. In addition, the inclusion of the Antarctic resource problem within the scope of UNCLOS III might cause some of the Antarctic Treaty members to withdraw from the Law of the Sea Conference rather than relinquish their perceived rights in Antarctica.[229] Thus, the incorporation of Antarctica into the common heritage concept at UNCLOS III could result in the collapse of those negotiations.

B. *Recognition of Sector Claims by Consultative Parties*

The Consultative Parties to the Antarctic Treaty may attempt to resolve their uncertainties and internal disputes by a general recognition of all sovereignty claims. This plan would result in the establishment of coastal states which would be individually administered by the respective claimant. In addition, Consultative Parties would specifically restrict their recognition to only those claims currently asserted, maintaining the Treaty as an operative guideline for the control of future national or international efforts at exploration and exploitation.

This solution has several advantages. General recognition would satisfy the claimant parties, particularly those, like Chile and Argentina, which have pressed their claims most adamantly.[230] Moreover, division of the area into coastal states would facilitate

227. *See generally* notes 32-37 and accompanying text *supra*.

228. *See* Rose, *supra* note 184, at 23-24 (United States opposed to the inclusion of the seabed under the high seas of the Antarctic Treaty area within the jurisdiction of any international authority for the deep seabed which might be established by UNCLOS III).

229. A United States Department of State official reportedly said: "Off the record, Antarctica could blow the Conference right out of the water. Antarctica claimant nations would rather not have a sea law treaty than one that impaired their sovereignty in Antarctica." Shapley, *supra* note 202, at 505.

230. *See generally* Hayton, *supra* note 23, at 583-97. In Argentina, "[i]ntense popular interest in these claims had been reported; the younger generation is apparently educated to assert Argentina's rights 'with a dedication verging on fanaticism.'" P. JESSUP & H. TAUBENFELD, *supra* note 23, at 147-48 (citations omitted). In Chile, "[s]pecial instruction is required in the schools stressing Chilean rights and expeditions. As part of their growing economic and political nationalism Chileans have become extremely conscious of the 'Southland' frontier in general." *Id.* at 148.

resource exploitation by obviating the need for producers to negotiate development rights with a cumbersome international regulatory body.[231] Instead, producers could deal directly with the claimant state to acquire access to both inland and offshore rights in the claimed sector, as they do in all other parts of the world.

Unfortunately, the political, economic and legal disadvantages of this plan fatally undermine its feasibility. In such a plan there is no provision for the settlement of disputes over the overlapping claims, leaving a source of continuing conflict. The status of the unclaimed sectors, despite its generalized administration under the provisions of the Treaty, would be forever disputed by "have-not" states. Nonclaimant states, latecomers in Antarctica, might raise strong opposition based on a concern over the potential formation of an economic cartel among the sector claimants which would reduce access to the mineral and living resources of the area. In addition, since national sovereignty precludes international control, Treaty members may object to losing their right to govern activities which might affect the fragile Antarctic ecosystem. Finally, and perhaps most significantly, states excluded from the agreement would probably object to its exclusivity, thus denying the solution any chance for favorable international acceptance in terms of both its legality or desirability.

C. *Submission of Sovereignty Claims to the International Court of Justice*

Voluntary submission of competing Antarctic territorial claims to the International Court of Justice (I.C.J.) for settlement could result in international recognition of sovereignty claims. Were the court to confirm a state's claim, its right to the area would have international respectability, and the decision would be a legitimate defense against subsequent encroachments. In addition, this solution would settle disputes over overlapping claims such as those advanced by Argentina, Chile and the United Kingdom.

Considerations exist, however, which cast doubt on the feasibility of such an approach. There is no assurance that the I.C.J. would

231. *See generally* Letter from Global Marine Inc., Los Angeles, Cal. to Frank Alexander (May 20, 1977) (on file at the *University of Miami Law Review*) wherein a representative of the company stated:

> I believe our preference would be to assign jurisdiction over specific segments of the Antarctic to each of the Antarctic Treaty contracting nations, and to allow each country to negotiate or to solicit bids in the manner that each nation does with its own territory. Our fear would be that a condominium arrangement would be unwieldy and even slower to move than are the individual nations of the world today.

decide that any of the claimant Consultative Parties had a perfected sovereign title to any territory. A claimant state would hardly be satisfied if the court restricted its decision to a determination of which state had a superior inchoate sovereign title to disputed areas. Yet, a review of the underlying analysis in the decisions of *Clipperton Island,*[232] *Island of Palmas*[233] and *The Legal Status of Eastern Greenland*[234] indicates that the court might very well reach such a limited holding rather than elevate one state's claim to a perfected status.

As previously noted, the settlement of Antarctica has thus far been restricted to the maintenance of isolated scientific research stations. In *Clipperton Island,* effective occupation was defined as a "series of acts" extending over a period of time which manifests a state's intention to exercise exclusive control over an area.[235] The arbitrator noted, however, that if a territory were completely uninhabited, then at the first moment of occupation, the occupying state would have an "absolute and undisputed disposition" of the area.[236] Since several states have conducted research and exploratory activities subsequent to the first sovereignty claims, Antarctica is hardly at the disposition of any single state. Faced with this definition of occupancy and the situation that exists in Antarctica, the I.C.J.

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232. Clipperton Island Arbitral Award (France v. Mexico), Jan. 28, 1931, *reprinted in* 26 AM. J. INT'L L. 390 (1932).

233. Island of Palmas Case (United States v. Netherlands), Apr. 4, 1928, *reprinted in* 22 AM. J. INT'L L. 867 (1928).

234. [1933] P.C.I.J. 22, ser. A/B, No. 53.

235. 26 AM. J. INT'L L. at 393. In an analysis of the *Clipperton Island* opinion, one commentator suggested that a "series of acts" sufficient to establish effective occupancy is not accomplished by a single isolated act but rather is an involved process of development which takes place over a considerable time span:

> The great range of activities which have played a role in establishing effective occupation may be indicated by the following nonhomogenous itemization: the station of soldiers, erection of forts, maintenance of public order, cruising of warships in nearby waters, building of post offices, issuing of postage stamps, granting of licenses for exploitation of resources or exploration, granting of land and mineral rights, making of treaties with native populations, organizing of local forms of government, the exploration and mapping of the area, the carrying out of humanitarian and educational activities among the native population such as the establishment of missions, hospitals, schools, and research stations, trading with the native inhabitants, tilling the soil, bringing in settlers, and the building of communities, harbor installations, roads, and industries.

LAW IN SPACE, *supra* note 46, at 844 & n.223.

236. 26 AM. J. INT'L L. at 394. In reaching this conclusion, the arbitrator stated:

> [I]f a territory, by virtue of the fact that it is completely uninhabited, is, from the first moment when the occupying state makes its appearance there, at the absolute and undisputed disposition of that state, from that moment the taking of possession must be considered as accomplished, and the occupancy is thereby completed.

Id.

would probably be hesitant to award perfected title to any claimant.[237] Furthermore, an exclusive appropriation award of Antarctic territories and adjacent portions of the continental shelf would effectively foreclose other interested states, especially the United States and the Soviet Union, from making claims in those areas.

If the I.C.J. did decide to restrict its decision to merely a determination of which competing state had the superior inchoate title, the result of such a decision would not resolve the Antarctic sovereignty issues. Instead, new issues would arise over settlement, future sovereignty claims by other states and how long existing inchoate titles would remain inviolate. Such a result would hardly solve the Antarctic resource problem.

Even if the I.C.J. were to make a determination that would, in effect, install the respective claimants as sovereigns in Antarctica, the above approach would nevertheless be plagued with innumerable difficulties. There is ample reason to believe that the nonclaimant Consultative Parties would not be amenable to the solution since it would not guarantee them access to Antarctica for scientific purposes or for resource activity. The establishment of coastal states in Antarctica could be followed by declarations of offshore marine jurisdiction, effecting a diminution of areas within the Southern Ocean currently considered to be part of the high seas. This would entail undesirable restrictions on the activities of commercial transport, fishing and military vessels operating under the flags of the nonclaimant Consultative Parties. The remainder of the international community might also react negatively to a solution that would grant the right of appropriation to seven states to the exclusion of all others.

In addition, it is improbable that Chile and Argentina would submit to the jurisdiction of the I.C.J. They have refused to do so in the past,[238] and there are no indications that their consistently intractible positions are softening.[239] It is doubtful that they would agree to I.C.J. jurisdiction to decide the dispute concerning the

237. In *Island of Palmas*, the arbitrator found there was a series of "unchallenged acts of peaceful display of Netherlands sovereignty in the period from 1700 to 1906, and which . . . may be regarded as sufficiently proving the existence of Netherlands sovereignty." 22 AM. J. INT'L L. at 912. In the Legal Status of Eastern Greenland, [1933] P.C.I.J. 22, ser. A/B, No. 53, the International Court of Justice granted an award of sovereignty to Denmark. Denmark, by virtue of succession, acquired an interest in the sovereignty exercised by the then joint King of Denmark and Norway from 1721 to 1814. Subsequently, Denmark engaged in continuous activities displaying its authority over the territory. No country asserting a sector claim in Antartica can show an equivalent period of unchallenged acts manifesting a peaceful display of sovereignty.

238. *See* notes 41-42 and accompanying text *supra*.

239. *See generally* note 230 *supra*.

overlapping claims in the Antarctic Penninsula area, especially in view of the duration and extent of English activities there.[240]

D. *Joint Antarctic Sovereignty*

By "pooling" their rights and interests in the Antarctic Treaty area, the Consultative Parties could establish a new legal order; this arrangement has been termed a "condominium" by several commentators.[241] Such a declaration of joint Antarctic sovereignty by the Consultative Parties could resolve many sovereignty problems. A single Antarctic coastal state would arguably be afforded jurisdiction over its continental shelf for purposes of resource exploitation by virtue of the 1958 Geneva Convention on the Continental Shelf.[242] A similar declaration by interested states established a valid sovereignty claim in the Spitzbergen Treaty.[243] In that multilateral agreement, Norway was declared sovereign over a group of islands within the northern polar circle, yet, by virtue of the agreement, other countries were guaranteed access to its resources. The Spitzbergen Treaty is an example of a possible legal basis for joint Antarctic sovereignty. The basic criteria for a perfected sovereign title, general international recognition, would at least be approached by the mutual recognition of the Treaty members to a joint Antarctic sovereignty. In its final form, a joint sovereignty agreement could contain concessions to the interests of the international community and could thereby gain recognition, or at least tacit acceptance by non-Treaty states.

A condominium approach would obviate the necessity of resolving the difficult problems created by the overlapping claims of Argentina, Chile and the United Kingdom since these three Consultative Parties could exchange perceived interests in their respective sector claims for an interest in a much larger whole. Moreover, the problem of the substantial unclaimed sector in Antarctica might be resolved since this territory would be comprehended by any joint

240. *See* note 174 *supra*. For a comparison of the acts of sovereignty exercised by Argentina, Chile and Great Britain, see P. JESSUP & H. TAUBENFELD, *supra* note 23, at 143-50. *See also* LAW IN SPACE, *supra* note 46, at 861-62 (Great Britain most active of all Antarctic claimants). It is significant to note that "[e]ven the activities of Great Britain upon the Antarctic continent could . . . scarcely be said to constitute the effective occupation necessary to exclusive appropriation." *Id.* at 862.

241. *See* P. JESSUP & H. TAUBENFELD, *supra* note 23, at 171-90; Hambro, *Some Notes on the Antarctic Treaty Collaboration*, 68 AM. J. INT'L L. 221, 224-25; Rose, *supra* note 184, at 26-27; Nansen Foundation Report, *supra* note 77, at 81.

242. Convention on the Continental Shelf, *supra* note 189, at art. 2. Article 2 provides in pertinent part: "The coastal State exercises over the continental shelf sovereign rights for the purpose of exploring it and exploiting its natural resources."

243. Spitzbergen Treaty, Feb. 9, 1920, 2 L.N.T.S. 8.

sovereignty agreement. Marine boundaries on the continental shelves adjacent to Antarctic sector claims would also be jointly held.

This method provides a better legal basis for sovereignty in Antarctica by virtue of the pooling of activities, and exercises of authority and occupations by the Consultative Parties. Furthermore, nonclaimant Consultative Parties would gain rights in a new Antarctic legal order which would ensure their access to Antarctic resources. This solution could be accomplished either by spawning joint Antarctic sovereignty by utilizing the framework of the Antarctic Treaty, which has functioned smoothly for eighteen years, or by creating joint sovereignty independently while retaining the laudable goals and objectives of the Treaty. By providing a legal order and a resource regulatory mechanism, the plan would reduce the likelihood of any harmful independent resource activity. It would simultaneously provide sufficient security to encourage investment by any interested private concerns. Rent income from the resource leases for commercial activity would accrue in favor of the Consultative Parties.

Although a declaration of joint Antarctic sovereignty would inure to the common benefit of the Consultative Parties, consolidate their claims and safeguard their interests, problems accompany such an approach. A primary difficulty is gaining support from the claimant Consultative Parties because support of such a scheme would diminish their individual interests.

Perhaps the most significant problem, however, is the structure and international status of any new joint Antarctic sovereignty mechanism. Because Antarctica would become an area of shared sovereignty, it could not be considered a territorial extension of the states which would be parties to the joint Antarctic sovereignty agreement. This raises several questions. To be afforded the status of a coastal state with sovereignty in the adjacent continental shelf, would the new legal entity have to be declared a separate and new independent state? Would it pass its own laws and have its own legislature?

Another disadvantage of such a proposed solution is that a declaration of joint Antarctic sovereignty would most likely be construed as a new claim, and thus in derogation of the Antarctic Treaty.[244] A declaration of joint sovereignty necessarily implies that each claimant would assert "sovereignty in common" with the other

244. *See* Antarctic Treaty, *supra* note 4, art. IV, which provides in pertinent part: "No new claim, or enlargement of an existing claim, to territorial sovereignty in Antarctica shall be asserted while the present Treaty is in force."

Consultative Parties over all the territory encompassed by the Antarctic Treaty, including the continental shelf of Antarctica. For the claimant states, this would be a departure from their prior sector claims and thus would have to be considered as new claims. With respect to the nonclaimant Consultative Parties, this would be an assertion of sovereignty claims for the first time. Notwithstanding the joint nature of the claims, the creation of these new interests would have to be considered as new claims. Finally, the substantial unclaimed sector would be claimed for the first time, constituting another new claim on the part of both claimant and nonclaimant Consultative Parties.

Although it would be possible to amend the Antarctic Treaty to provide for a joint Antarctic sovereignty claim, this would constitute an unheralded deviation from the practice established over the eighteen year period during which the Treaty prohibition against new or enlarged sovereignty claims was respected. The other states of the international community, for which the Antarctic Treaty in effect maintained the continent as an international area, could only view such a blatant departure from established practice as an attempt to exclude them from Antarctica. Significantly, a declaration of joint Antarctic sovereignty might be construed, both by developing and industrial states, as an imperialistic act on the part of the United States and the Soviet Union.

A joint Antarctic sovereignty approach, however, might also prove unacceptable to members of the claimant group. A joint assertion of sovereignty would provide claimants with a united front against potential intervention by an international body, as well as a common interest in the entire Antarctic continent, in exchange for relinquishment of a practically unrecognized sector claim. But the internal political implications to claimant countries could discourage such a course of action. This shared sovereignty approach would probably mandate an express, unequivocal renunciation of respective sector claims. Additionally, domestic legislation applicable to sector claims would have to be repealed. In view of the nationalistic fervor that exists within some of the claimant states over the issue of sector claims,[245] it is doubtful whether local political parties could or would adopt a joint sovereignty platform.

Apparently none of the four alternative approaches discussed afford a feasible solution to the Antarctic resource problem because they all seemingly fail to successfully accommodate the competing interests of the claimant Consultative Parties, the nonclaimant Consultative Parties and the remaining countries of the interna-

245. *See generally* note 230 *supra*.

tional community. Of the alternatives considered, the joint Antarctic sovereignty scheme comes closest to incorporating the interests of the three competing groups. Joint Antarctic sovereignty by synthesizing the interests of both Treaty member groups, would at least provide equal rights for the claimant and nonclaimant Consultative Parties while creating a united front against possible outside intervention by other members of the international community.

The joint Antarctic sovereignty approach, however, has several serious shortcomings: (1) the claimant Consultative Parties would be forced to publicly disavow their Antarctic sovereignty claims—an unlikely prospect considering the potentially adverse domestic political consequences; (2) a declaration of joint Antarctic sovereignty would most probably be construed as a new claim and thus prohibited by the Antarctic Treaty; (3) a declaration of joint Antarctic sovereignty might appear to non-Treaty members as a blatant attempt by the Treaty parties to appropriate Antarctica for their exclusive demesne without regard to other interests; and (4) this solution could terminally disrupt UNCLOS III.

VII. A Recommended Approach

A. *Joint Antarctic Resource Jurisdiction (J.A.R.J.)*

The unique physical and juridical character of Antarctica requires a sui generis approach to the Antarctic resource problem. It is recommended that the Consultative Parties declare joint exclusive resource jurisdiction over the continent and the continental shelf of Antarctica. It is submitted that such "Joint Antarctic Resource Jurisdiction" (J.A.R.J.) would provide a legal order which would be both pertinent to future Antarctic resource activities and acceptable to the claimant and nonclaimant Consultative Parties, as well as to the remainder of the international community.

A J.A.R.J. declaration could be implemented pursuant to the Antarctic Treaty procedures[246] and in such a manner as to leave the Treaty intact.[247] An additional measure should also be passed concurrent with the J.A.R.J. declaration initiating a five year moratorium on nonliving resource activities in Antarctica.[248] This time would afford the Consultative Parties ample opportunity to study

246. A J.A.R.J. declaration could be implemented as a measure "in furtherance of the principles and objectives of the Treaty" under Article IX or as an amendment pursuant to Article XII. Antarctic Treaty, *supra* note 4, art. IX & XII. For a discussion of modification procedures, see Nansen Foundation Report, *supra* note 77, at 81.

247. Since a J.A.R.J. declaration would not technically be a claim of territorial sovereignty, Article IV of the Antarctic Treaty (which freezes sovereignty claims in Antarctica) would need no modification. *See* Antarctic Treaty, *supra* note 4, art. IV.

248. Such a measure could be implemented under Article IX. *Id.* art. IV.

the environmental impact of hydrocarbon exploitation on the continental shelf of Antarctica.

Shelf areas designated as suitable for commercial resource activities after the moratorium would then be divided into concession blocks.[249] All interested states of the world community could bid for the rights to explore these blocks. Revenues generated through leasing concession blocks for exploration purposes would inure to the Consultative Parties on an equal basis. Subsequent exploitation of continental shelf hydrocarbons would then be taxed according to rates established by the world petroleum market. Revenues generated through exploitation taxes would inure to both the Consultative Parties and to a new United Nations trust fund created for the purpose of aiding underdeveloped states.

Since all Antarctic Treaty provisions would remain operative, every country would still have an opportunity to accede to the Treaty and thereafter qualify for consultative status.[250] Any state thus qualified as a Consultative Party would share in J.A.R.J. Accordingly, no member of the international community would be foreclosed from an opportunity to share in the nonliving resources of Antarctica.

A J.A.R.J. declaration would also provide a convenient opportunity to affirm international access to the living resources of Antarctica. The declaration should expressly provide that the waters of the Southern Ocean retain the status of high seas. All states would thus be formally assured of an opportunity to enter into a future treaty regulating the Antarctic krill fishery[251] concurrent with their accession to J.A.R.J. This would guarantee, for all countries, continuing access to Antarctic living resources.

A J.A.R.J. declaration, thus formulated, would afford significant inducements to all interested parties to attempt to reach an Antarctic resource agreement. Consultative claimants and nonclaimants, as well as the remainder of the international community, would benefit from such a declaration.

B. *J.A.R.J. and the Claimant Consultative Parties*

The J.A.R.J. approach would appeal to the claimant Consultative Parties for a number of reasons. At the onset, each claimant

249. To expedite resource development, the measure initiating the moratorium should specifically provide that issues concerning the designation of shelf areas suitable for commercial resource activity and the designation of concession blocks would be decided by a majority vote rather than the present unanimous requirement. *See id.* art. IX(4).

250. *See id.* art. XIII(1).

251. Antarctic krill regulation is currently under discussion by the Consultative Parties. *See* Shapley, *supra* note 202, at 503-05.

Consultative Party would acquire rights to nonliving resources in all of continental Antarctica and on the continental shelf. All seven sector claimants would consolidate their interests in Antarctic nonliving resources with each other and with the nonclaimant Consultative Parties. This mutual recognition would provide a substantial line of mutual resistance to intervention by non-J.A.R.J. states endeavoring to assert claims of sovereign entitlement or to annex Antarctica as part of "the common heritage of mankind."[252] The aggregate strength embodied in a J.A.R.J. accord would be a significant impediment to the initiation of unregulated resource activity by non-J.A.R.J. parties. Additionally, because of the common interest created, any threat of encroachment upon sector claims by non-J.A.R.J. parties would be extinquished.

A J.A.R.J. agreement would enable Consultative Parties to exercise considerable control over the administration of Antarctica in substantive areas such as conservation and environmental protection.[253] Consultative Parties would still continue to exercise their rights as Consultative Parties under the Treaty, including their right to vote on new members[254] and on amendments or modifications to the Treaty.[255] Finally, because J.A.R.J. establishes a joint interest in all of Antarctica rather than individual interests in particular sectors, the problems involved with the overlapping claims on the Antarctic Penninsula and of the unclaimed sector disappear. This could be accomplished without requiring claimants to publicly disavow their nonresource Antarctic sovereignty claims.[256]

C. *J.A.R.J. and the Nonclaimant Consultative Parties*

Should a J.A.R.J. approach be achieved, nonclaimant Consultative Parties would benefit as well. Initially, they would be assured

252. *See* note 212 *supra.*

253. *See* Antarctic Treaty, *supra* note 4, art. IX(1)(f).

254. *Id.* art. XIII(1).

255. *Id.* art. IX(4).

256. The issue of Antarctic territorial sovereignty, in contrast with the issue of resource sovereignty, would be left open. This practice has been employed in other cases involving sovereignty disputes over uninhabited territories. Canton and Enderbury Islands of the Phoenix Island group north of Samoa have been under the joint administration of the United States and the United Kingdom since 1939. P. JESSUP & H. TAUBENFELD, *supra* note 23, at 18-20. The uninhabited archipelago of Spitzbergen, located between northern Greenland and Franz Joseph Land, became the scene of international rivalry over nonliving resource claims and access for strategic purposes in the early twentieth century. The dispute was resolved in 1920 pursuant to an agreement whereby Denmark, France, Great Britain, Italy, Japan, the Netherlands, Russia, Sweden and the United States recognized a limited sovereignty over Spitzbergen. Norway, however, still had access to Spitzbergen's nonliving resources. *See* Spitzbergen Treaty, *supra* note 244. *See generally* P. JESSUP & H. TAUBENFELD, *supra* note 23, at 34-39.

of nondiscriminatory access to the continental shelf of Antarctica and its hydrocarbons once the five year moratorium ended.[257] Because of the vast energy demands of several of the nonclaimant Consultative Parties, particularly Japan, the United States and the Soviet Union, this is a significant advantage.[258] In addition, the possible formation of an OPEC-like hydrocarbon cartel controlling Antarctic resources would be virtually eliminated.

The continuing status of the Southern Ocean as high seas would allow nonclaimant Consultative Parties to continue to exercise the freedoms of the high seas in Antarctic waters. By not recognizing individual sector claims, a J.A.R.J. agreement would also ensure continued freedom of transit in Antarctic seas and airspace for nonclaimant Consultative Parties.

If a J.A.R.J. agreement is formed, nonclaimants would function on an equal basis with claimants. As a result, many of the benefits which would inure to Treaty claimants would also operate in favor of nonclaimant Consultative Parties. This package of mutual benefits would include the following: (1) the continued right to protect the environmental integrity of the continent;[259] (2) the security afforded by a united front, both in terms of investment security and protection against intrusion into Antarctic affairs by non-Treaty members; and (3) the opportunity to enter a future treaty concerning the regulation of Antarctic krill.

D. *J.A.R.J. and Nonconsultative Parties*

Those members of the international community who have acceded to the Treaty but who do not have consultative status should also be amenable to a J.A.R.J. approach since they would benefit from many of its advantages. The developing countries among this group would benefit directly from the revenue sharing provisions, thus acquiring a new, direct economic stake in Antarctic development with no cost outlay. All states would continue to have the opportunity to engage in scientific pursuits in the Antarctic Treaty area in addition to gaining nondiscriminatory access to potential Antarctic resources. The most significant advantage, however, would be the opportunity afforded all states to accede to the Treaty and attain consultative status upon meeting the requisites

257. Access would be nondiscriminatory in that all interested parties could bid on an equal basis for the resource leases. All parties, even claimants, would be expected to pay royalties for interests in Antarctic nonliving resources.

258. For a discussion of the interests that these industrial countries have in Antarctic hydrocarbon deposits, see notes 214-19 and accompanying text *supra*.

259. *See* Antarctic Treaty, *supra* note 4, art. IX(1)(f).

enumerated in the Treaty.[260]

Under J.A.R.J., all states would continue to exercise their high seas freedoms in the Southern Ocean. Moreover, since J.A.R.J. would assume jurisdiction over the continental shelf of Antarctica, UNCLOS III would be unrestrained in extending the scope of its jurisdiction to all waters and submerged lands of the Treaty area, except the continental shelf, thus avoiding potential disruption of the conference.[261]

The world community would continue to benefit from the demilitarized status of Antarctica, which would remain unchanged by J.A.R.J.[262] The ecological efforts fostered by the Antarctic Treaty would not be affected by J.A.R.J. and would continue to inure to the benefit of all. Finally, interested non-Treaty and Treaty states would have an opportunity to enter into a future treaty concerning regulation of Antarctic krill.[263]

VIII. CONCLUSION

Any formulation of a practicable approach to the Antarctic resource problem must be one that compromises the respective interests of the three competing groups of states. No such approach, standing alone, can possibly provide for the realization of all the objectives which an ideal solution to the Antarctic resource problem could theoretically achieve. The J.A.R.J. approach is no exception. J.A.R.J., and indeed any prospective agreement on Antarctica, pre-

260. *Id.* art. IX(2). *But see* notes 65-68 and accompanying text *supra* (although several acceding parties have applied for consultative status, only Poland has been accepted). One commentator has stated:

> The Treaty itself perpetuates . . . exclusivity. For, while it is open to accession by any country that is a member of the United Nations, or has been invited to join by all consultative parties, full consultative membership can only be attained by an acceding party 'during such time as . . . [it] . . . demonstrates its interest in Antarctica by conducting substantial scientific activity there.' However, the original twelve signatories remain consultative members whether or not they carry out scientific research in Antarctica.

Mitchell, *supra* note 200, at 58.

If a J.A.R.J. declaration is to gain international recognition, the exclusivity practiced by the original 12 parties to the Antarctic Treaty must be eliminated. The exclusivity must be replaced by a nondiscriminatory mechanism which would grant full consultative membership only according to the criteria defined in the Treaty. In addition, there must be a nondiscriminatory application of the requirements for maintaining consultative status.

261. For a discussion of the interrelationship between sovereignty in Antarctica and UNCLOS III, see notes 227-30 and accompanying text *supra*.

262. *See* Antarctic Treaty, *supra* note 4, art. I.

263. Because of the high potential value of the Antarctic krill fishery, it is possible that many states would participate in such a treaty. Since meaningful research might be undertaken more quickly pursuant to a J.A.R.J. agreement, many states might accede to the Antarctic Treaty and recognize J.A.R.J., if only to hasten responsible exploitation of this much needed protein source.

supposes a willingness on the part of claimants and nonclaimants to compromise their diametrically opposed positions. Claimants, who will be required to agree to a modification of their sovereignty claims and the diversion of portions of the prospective royalties to a trust fund under J.A.R.J., must appreciate the importance of the international legitimization of their claims. It must be positively demonstrated that practical development of Antarctic claims is impossible without such global recognition.

The international community, who will at least tacitly accede to modified sovereignty claims under J.A.R.J., should realize that the prospective benefits of J.A.R.J. exceed the present potential of these states for independent development. Nondiscriminatory access, trust fund receipts and a prospective overall benefit from an increase in the size of the world's resource market as a result of Antarctic production, are justifications for the compromise of fixed antisovereignty goals by the international community. Since many of the benefits of J.A.R.J. accrue without any active participation or expense, the argument for compromise is formidable.

Under J.A.R.J., nonclaimant Consultative Parties would be required to accede to modified sovereignty claims. However, since these states have not asserted express claims, but have only asserted a right to make claims, such a concession seems modest in light of the consequent benefits. Under the recommended approach, nonclaimant Consultative Parties would share on an equal basis with claimant states in the revenues which would be generated from the resource leases. Additionally, the security of investment and exploration assured by J.A.R.J., coupled with the guarantee of nondiscriminatory access to all nonliving Antarctic resources, should ensure cooperation of the nonclaimant Consultative Parties.

The J.A.R.J. approach does not represent a final solution to the Antarctic resource problem. The ultimate solution to the krill issue and to other serious problems involved in the establishment of an Antarctic nonliving resource regulatory mechanism will have to look to the future for resolution. Yet, a declaration of Joint Antarctic Resource Jurisdiction would provide the framework for the creation of a practicable nonliving resource regulatory mechanism.[264] This mechanism would ensure the location, assessment and exploitation of Antarctic nonliving resources in a manner consonant with positive conservation and environmental principles.

The J.A.R.J. approach would not only provide a legal order

264. This regulatory mechanism will have to resolve such difficult issues as the establishment of guidelines for hydrocarbon exploration and production, lease issuance, revenue sharing, taxes and dispute settlement.

relevant to future Antarctic resource activities, but would preserve the Antarctic Treaty. It also offers a scheme which should be acceptable to claimant and nonclaimant Consultative Parties and a sufficient number of the remaining members of the international community to ensure its viability.