Spring 3-1-1973

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Recommended Citation
Louis B. Sohn, The Impact of Technological Changes on International Law, 30 Wash. & Lee L. Rev. 1 (1973), https://scholarlycommons.law.wlu.edu/wlulr/vol30/iss1/2
THE IMPACT OF TECHNOLOGICAL CHANGES ON INTERNATIONAL LAW*

LOUIS B. SOHN†

I. Introduction

I feel very honored in having been selected to deliver this John Randolph Tucker Lecture, but I am sure that I cannot match Professor Tucker's own performance at Washington and Lee School of Law. As you well know he had "a national reputation for Attic wit, irrepressible humor, thrilling eloquence, high legal attainments, unspotted private character, and wide personal popularity." Similarly, it would be difficult for me to compete with the many distinguished lecturers which have preceded me on this platform.

While many alumni of the Washington and Lee School of Law made their mark on the domestic scene, some of them have had distinguished careers also in the field of international relations. John W. Davis (B.L. 1895) and Newton D. Baker, Jr. (B.L. 1894), in particular, come to mind. I would like to point out also that one of the previous John Randolph Tucker lecturers, former Dean Hardy C. Dillard of Virginia Law School, is now a judge of the International Court of Justice at The Hague. Finally, I have noticed with pleasure that in recent years you have been broadening your offerings in the field of international law, and I hope that in the great new program on which you are now embarking at the new Frances Lewis Law Center, you will allot sufficient place to the rapidly growing areas of international, transnational and world law. A Law Center devoted to investigating problems on the frontiers of the law cannot, in the interdependent world of the last decades of the Twentieth Century, neglect the challenge of the new realms beyond national boundaries.

Before embarking on the central part of my lecture, I would like to

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make another excursion into history. A hundred years ago there lived in Lexington a man who pioneered in the several fields which I shall be discussing today, and I would like to pay a well-deserved tribute to him on this occasion. You all know the Maury river which flows through Lexington, and some of you might have seen the memorial to Matthew Fontaine Maury in the beautiful spot in the Goshen Pass which he loved so much. According to the inscription on that memorial, Matthew Fontaine Maury was the “Pathfinder of the Sea, the genius who first snatched from ocean and atmosphere the secrets of the sea.” This tribute is not an overstatement. It is generally agreed among the experts that Maury was not only one of the world’s best oceanographers but that he was also responsible for important scientific advances in several areas. He was the first to propose a world weather watch, and it was due to his efforts that the first International Maritime Meteorological Conference was held in Brussels in 1853. He was also the first to suggest in 1860-61 that an international Antarctic expedition be organized in order to explore the impact of the South Pole on the world’s weather. He made it possible to lay the first transatlantic cable by conducting a detailed study in the 1850’s of the configuration of the crucial part of the floor of the Atlantic Ocean between America and Europe. Finally, he organized a world-wide system whereby more than 1,000 ships from many nations made observations of currents, winds and other phenomena, and on the basis of it he constructed new “Sailing Directions” which enabled the Flying Cloud to cut the sailing time from London to San Francisco from 180 days to a miraculous 90 days. Today’s “Pilot Charts” of the United States Navy Hydrographic Office are direct descendents of those constructed by Maury and still contain a reference to the fact that they are founded upon his researches. If Matthew Fontaine Maury were present here today, he would be very pleased that in this town of Lexington where he spent his last five years people are still willing to discuss some problems which were dear to his heart.

II. The Dynamic Character of Modern International Law

Turning now to the main topic of this lecture, it seems desirable to emphasize in the first place that the generally prevailing point of view that international law is a moribund legal system is quite erroneous. Since the end of World War II, international law has greatly increased in depth and scope. During that period some 12,000 international agreements have

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2Id., at 350, 360.
3Id., at 225-57.
been registered or filed with the United Nations,\textsuperscript{6} and there are at least 5,000 other treaties which States have failed to register with the United Nations. The International Law Commission of the United Nations has been actively engaged in codifying international law and a larger measure of agreement on many important issues has been reached within the Commission's framework than in any comparable period in history.\textsuperscript{7}

To implement many international agreements, general and special international organizations have been established, several of which have quasi-legislative power. For instance, the International Civil Aviation Organization, the World Health Organization, and the World Meteorological Organization have the power to adopt regulations which come into effect for all States which have not specifically rejected them.\textsuperscript{8} In these cases the old principle that an international agreement becomes binding on a State only upon its express acceptance or formal ratification has been reversed, and a rule becomes binding on a State which neglects to take a negative action. The rules adopted under these provisions are voluminous and many international travellers benefit directly from their smooth adoption and almost universal application.

Another interesting example is the international labor legislation adopted under the auspices of the International Labor Organization over the last fifty years. On this limited subject, more than 130 conventions were adopted during that period; they were ratified altogether by more than 120 States; and the total number of ratifications exceeds 3,700.\textsuperscript{9}

The crucial point is that most rules of international law are so well adapted to the requirements of international relations that they are applied daily by some 130 Foreign Offices without any difficulty. If in some cases problems of interpretation arise they are usually solved through bilateral negotiations, again without too much trouble. In some instances, international organizations provide the necessary assistance in finding a solution to a more difficult problem. Of course, most people, including lawyers, are not interested in this prevalent pattern of successful international cooperation. They prefer to point to the few pathological cases in which an international dispute reaches a boiling point and occupies the front pages of newspapers. One cannot deny that these cases are important, as any one of them can escalate into a general conflagration, but it is still important to note that these tense situations represent only a


\textsuperscript{7}The Work of the International Law Commission 61-166, U.N. Publ. 67. 5.4 (1968).

\textsuperscript{8}See H. BRIGGS, THE INTERNATIONAL LAW COMMISSION (1965).

\textsuperscript{9}See E. YEMIN, LEGISLATIVE POWERS IN THE UN AND SPECIALIZED AGENCIES 114-205 (1969).

\textsuperscript{9}A chart of ratifications, as of June 1, 1971, is annexed to 103 INTERNATIONAL LABOUR REVIEW (1971).
microscopic proportion of the thousands of bilateral relationships which exist between the more than 130 States of the world.

It is against this general background, which some might consider as painted with a too optimistic brush, that the case studies here presented should be considered.

III. Antarctica

The international expedition to Antarctica suggested by Matthew Fontaine Maury did not take place. By the beginning of the Twentieth Century several countries started claiming various portions of Antarctica. Some of these claims overlapped, and several disputes arose between the claimant States, leading on occasion to serious incidents. In 1955 the United Kingdom filed applications against Argentina and Chile with the International Court of Justice, but the Court had to declare that it could not deal with these cases as Argentina and Chile did not accept the Court’s jurisdiction for this purpose.

Nevertheless, as part of the International Geophysical Year, in 1957-58, a vast international cooperative effort was mounted to “undertake geophysical observations in Antarctica.” Twelve countries established some sixty scientific bases on the continent, without regard to national claims, and closely coordinated scientific programs were successfully executed.

At the same time, the Commission to Study the Organization of Peace, a private organization of considerable importance, has suggested that “Antarctica be owned and administered directly by the United Nations, through a Specialized Agency to be set up for that purpose,” and made various proposals as to the scope and powers of such an agency.

The United States proposed an “agreement on some form of internationalization” of Antarctica in 1948, but as the response of other countries was not favorable, no further action was taken at that time.
couraged by the success of the International Geophysical Year and by the fact that new technological developments made operations in Antarctica on a year-round basis feasible, the United States decided to try again, and on May 2, 1958, President Eisenhower invited the other countries participating in that Year's activities to a conference on Antarctica. Its purpose was to avoid "political conflict" in Antarctica, to ensure that it "shall be open to all nations to conduct scientific or other peaceful activities" in Antarctica, and to work out the necessary joint administrative arrangements. All national rights and claims would remain unaffected for the duration of the proposed treaty.15

These objectives were achieved when the Antarctic Treaty was signed in Washington on December 1, 1959.16 The parties to the treaty recognized that "it is in the interest of all mankind that Antarctica shall continue forever to be used exclusively for peaceful purposes and shall not become the scene or object of international discord." Consequently, they agreed on a prohibition of "any measures of a military nature, such as the establishment of military bases and fortifications, the carrying out of military maneuvers, as well as the testing of any type of weapons." Similarly prohibited were "nuclear explosions in Antarctica and the disposal there of radioactive waste material." At the same time, "the use of military personnel or equipment for scientific research or for any other peaceful purpose" was allowed.17

Arrangements were made for exchanges of scientific information and scientific personnel, and for mutual inspection, both on the ground and through aerial observation, to ensure the observance of the provisions of the treaty. The treaty also provided for periodic consultative meetings of the participating countries. Various recommendations adopted at these meetings have been put into effect by an accelerated procedure, as soon as they were approved by all the countries concerned.18

This document was pioneering in several respects: it demilitarized a vast area, provided for an international inspection system, arranged for an effective system of international cooperation in a very difficult environment, and established smoothly working machinery for the implementation of the treaty.

The consultative meetings, held under the treaty, have shown from the

139 For text, see [1961] 1 U.S.T. 794, T.I.A.S. No. 4780, 402 U.N.T.S. 71. See also DEP'T STATE, THE CONFERENCE ON ANTARCTICA: CONFERENCE DOCUMENTS (1960). For comments on the treaty, see H. Taubenfeld, A Treaty for Antarctica, 531 INT'L CONCILIA-
beginning an interest in measures to conserve the living resources of the treaty area and adopted various recommendations and guidelines for that purpose, which were promptly put into effect. This is another example of an efficient international legislative process at work in an area where previously conflicts were approaching the stage of potential military engagements. The new scientific and technological developments both opened the area for exploration and possible exploitation and provided the means for making international cooperation possible and effective. Here again another Virginian, Admiral Richard E. Byrd, was the trailblazer, and he certainly would have been pleased by what has now been accomplished.

IV. Outer Space

The issue of extending international law to new areas opened to mankind through revolutionary technological developments arose next with respect to outer space.

Even before the first “sputnik” was launched by the Soviet Union on October 4, 1957, the United States expressed its willingness to “mutually control the outer space missile and satellite development;” and proposed that steps be taken “toward the objective of assuring that future development in outer space be devoted exclusively to peaceful and scientific purposes.”

The Commission to Study the Organization of Peace soon thereafter suggested that this approach was too limited and that the principle be accepted that “outer space is not subject to ownership or control by individual states but only by the international community, represented by the United Nations,” and that in the long run “international ownership and operation of all or certain types of spacecraft” be adopted. As it pointed out, it is more practical to establish “governmental” controls

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over an area before it is occupied."

Immediately after the launching of the "sputnik," Mr. Khrushchev proposed that the United States negotiate with the Soviet Union an agreement for control of outer space vehicles. The United States replied merely that the matter called for a multilateral rather than bilateral international study. It is not the place here to detail the intricate international negotiations on the subject, but one might note President Kennedy's statement in 1961 that the rule of law should extend beyond the earth to "man's new domain—outer space" which "must not be riven by the old bitter concepts of imperialism and sovereign claims." He proposed "extending the United Nations Charter to the limits of man's exploration in the universe, reserving outer space for peaceful uses, prohibiting weapons of mass destruction in space or on celestial bodies, and opening the mysteries and benefits of space to every nation." With the assistance of the United Nations Committee on the Peaceful Uses of Outer Space, established in 1959, a breakthrough was achieved in 1963 when two agreements were announced in a rather novel form.

In the first place, Ambassador Stevenson stated in the General Assembly of the United Nations on October 16, 1963, that the "United States has no intention of placing in orbit around the earth any weapons of mass destruction, of installing such weapons on celestial bodies, or of stationing such weapons in outer space in any other manner." After the Soviet representative made a similar statement, the General Assembly welcomed these two statements and solemnly called upon all States to refrain from such activities. Without signing any agreement, the goal

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26C.S.O.P., supra note 13, at 218-19 (1957). Similarly, Secretary of State Dulles stated in July 1957 that the "use of outer space is still sufficiently experimental to make it possible to assure that future developments in this new area of knowledge and experimentation will be for the benefit of mankind and not for its destruction." 2 DOCUMENTS ON DISARMAMENT, 1945-1959, at 825, 832 (1960). See also P. JESSUP & H. TAUBENFELD, supra note 13, at 251-82; C. JENKS, supra note 13, at 399-400.


of banning nuclear weapons from outer space was thus achieved.

Secondly, two months later the General Assembly adopted the Declaration of Legal Principles Governing the Activities of States in the Exploration and Exploitation and Use of Outer Space which included the following nine basic principles:31

1. The exploration and use of outer space shall be carried on for the benefit and in the interests of all mankind.
2. Outer space and celestial bodies are free for exploration and use by all States on a basis of equality and in accordance with international law.
3. Outer space and celestial bodies are not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.
4. The activities of States in the exploration and use of outer space shall be carried on in accordance with international law, including the Charter of the United Nations, in the interest of maintaining international peace and security and promoting international cooperation and understanding.
5. States bear international responsibility for national activities in outer space whether carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried on in conformity with the principles set forth in the present Declaration. The activities of non-governmental entities in outer space shall require authorization and continuing supervision by the State concerned. When activities are carried on in outer space by an international organization, responsibility for compliance with the principles set forth in this Declaration shall be borne by the international organization and by the States participating in it.
6. In the exploration and use of outer space, States shall be guided by the principle of co-operation and mutual assistance and shall conduct all their activities in outer space with due regard for the corresponding interests of other States. If a State has reason to believe that an outer space activity or experiment planned by it or its nationals would cause potentially harmful interference with activities of other States in the peaceful exploration and use of outer space, it shall undertake appropriate international consultations before proceeding with any such activity or experiment. A State which has reason to believe that an outer space activity or experiment planned by another State would cause potentially

harmful interference with activities in the peaceful exploration and use of outer space may request consultation concerning the activity or experiment.

7. The State on whose registry an object launched into outer space is carried shall retain jurisdiction and control over such object, and any personnel thereon, while in outer space. Ownership of objects launched into outer space, and of their component parts, is not affected by their passage through outer space or by their return to the earth. Such objects or component parts found beyond the limits of the State of registry shall be returned to that State, which shall furnish identifying data upon request prior to return.

8. Each State which launches or procures the launching of an object into outer space, and each State from whose territory or facility an object is launched, is internationally liable for damage to a foreign State or to its natural or juridicial persons by such object or its component parts on the earth, in air space, or in outer space.

9. States shall regard astronauts as envoys of mankind in outer space, and shall render to them all possible assistance in the event of accident, distress, or emergency landing on the territory of a foreign State or on the high seas. Astronauts who make such a landing shall be safely and promptly returned to the State of registry of their space vehicle.

Both the substance and the form of this Declaration are important. Activities in outer space shall be conducted not in the selfish interest of any nation but "for the benefit and in the interests of all mankind." Neither outer space itself nor any celestial body may be appropriated by any State. Astronauts shall be regarded as envoys of mankind and all possible assistance shall be rendered to them in case of an emergency.

These principles are both novel and far-reaching. They present a completely new approach to the problem of conquest of space, quite different from the principles which governed the imperial conquests of the Nineteenth Century.

This statement of principles is in the form of a declaration, not of an agreement. Nevertheless, there is a wide consensus that this declaration established new rules of international law. As one cannot really call it a treaty, it must be considered as a new method of developing customary international law. In the old days, customary international law was devel-

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23As Ambassador Stevenson stated at the time of the adoption of the Declaration, in the view of the United States the operative paragraphs of that instrument contained legal principles which "reflect international law as it is accepted by the Members of the United Nations." [1963] Documents on Disarmament 630, at 632 (1964). See also C. Jenks, Space Law 183-88 (1965).
oped by the laborious process of collecting many diplomatic notes, judicial decisions, national and international, and the writings of eminent scholars. If there was a wide measure of agreement on a particular rule, a national or international decision-maker might be willing to conclude that a new rule has been established. The process usually took a long time, because similar cases did not arise very often and because official documents are usually published with deliberate delay. But the United Nations opened here a whole range of new possibilities. Not only can new agreements be drafted under United Nations auspices and with the help of United Nations committees, but the presence of permanent delegates from all nations at the United Nations headquarters permits a constant exchange of views and speeds up the negotiation process. As United Nations representatives can now get instantaneous replies to their queries and immediate instructions with respect to new proposals, their situation is quite different from old diplomats who had to wait for months for a reply to their letters, and did not dare therefore to go far beyond their original instructions. On the other hand, as the officials of the Foreign Ministries had difficulty in knowing what was occurring in far-away negotiations, they had to reserve to themselves the final approval of the documents agreed upon. Now information can be transmitted quickly in both directions, and the process of final approval can be expedited. While it took several years of preliminary discussions and a few months of hard, last-minute negotiations, with repeated calls for changes in instructions, once the Declaration was arrived at, all the countries concerned were willing to adopt the new principles relating to outer space without further formalities. As one of my colleagues stated, we have in this case an excellent example of “instant” international law—an amazing development, which many traditionalists among international lawyers find difficult to reconcile with their concept of sources of international law. Thus, new application of technology and science lead not only to new rules but also to new methods of creating new rules.32

If I could stop here, it would be a fitting climax. But the history of the United Nations is full of anticlimaxes, and it is necessary to disclose here that simultaneously with the adoption of the Declaration, the United Nations started to prepare supplementary international agreements on the subject, and in 1966 the General Assembly approved an elaborate Treaty on Principles Governing the Activities of States in the Exploration

and Use of Outer Space, including the Moon and Other Celestial Bodies.\(^3\) This treaty was opened for signature on January 27, 1967, and by 1972 it was ratified by more than sixty States.\(^5\) While some provisions of the Treaty merely repeat the principles of the Declaration, there are some new elements in it. In particular, it strengthened the rules relating to the demilitarization of outer space and celestial bodies and to various methods of international cooperation in outer space. It followed the example of the Antarctic Treaty in opening all installations on the moon and other celestial bodies to inspection by other parties to the space treaty. It finally made more precise some of the obligations under the Declaration, for instance with respect to liability for any damage caused by space activities on the moon or other celestial bodies. It is doubtful whether the new treaty was really necessary, as any necessary refinements could have been embodied in additional resolutions of the General Assembly. Some authors have even considered the space treaty "a retrograde step," characterized by "a desire to avoid too open commitments in this strange new region."\(^3\) It had, however, a psychological effect and helped to maintain the momentum in the development of international law in this field before the views of interested countries had become rigidified.

Of course, this was not the end of the story and several other agreements relating to outer space have been concluded or are under preparation, including a draft treaty concerning the moon proposed by the Soviet Union.\(^3\) There is also the exciting area of satellite communications where new problems have led to new solutions including Intelsat, the international consortium for common management of this remarkable communication medium.\(^3\) But before we venture too far into space, it might be useful to explore an area closer to us, the depths of the oceans.

V. Sea-bed

While the attention of mankind was centered on the exploits of the astronauts, spectacular advances in oceanography and marine technology

\(^3\)J. Fawcett, INTERNATIONAL LAW AND THE USES OF OUTER SPACE 14-16 (1968).
opened for exploration and exploitation the seven-tenths of the earth surface which is hidden under the seas.

Great battles have been waged in the past for the control of the seven seas, but they might pale into insignificance should the nations of the world decide to fight for the new riches hidden at the bottom of the oceans. This issue has been of special concern to the Government of the United States; President Johnson issued the following warning at the launching of the research ship Oceanographer on July 13, 1966:

Under no circumstances, must we ever allow the prospect of rich harvest and mineral wealth to create a new form of colonial competition among the maritime nations. We must be careful to avoid a race to grab and to hold the lands under the high seas. We must ensure that the deep and the ocean bottoms are, and remain, the legacy of all human beings.

Similarly, President Nixon, in his statement on the United States policy for the sea-bed, of May 23, 1970, pointed out that the nations of the world were facing the issue "whether the oceans will be used rationally and equitably and for the benefit of mankind or whether they will become an arena of unrestrained exploitation and conflicting jurisdictional claims in which even the most advantaged states will be losers." He added that "the law of the sea is inadequate to meet the needs of modern technology and the concerns of the international community. If it is not modernized multilaterally, unilateral action and international conflict are inevitable." He concluded that international agreements are needed to save over two-thirds of the earth's surface from national conflict and rivalry, protect it from pollution, and put it to use for the benefit of all.

Returning to the origin of the international proposals on this subject, it may be noted that the Commission to Study the Organization of Peace had recommended in 1957 that "the floor of the high seas be recognized as 'res communis' and its ownership and control be conceded to the United Nations," and that the General Assembly establish appropriate administrative arrangements. Elaborating on this suggestion, the Commission proposed in 1966 that no nation be allowed "to appropriate the sea or sea-beds beyond the twelve-mile limit for fish or beyond the conti-
nental shelf for minerals” and that “the United Nations take title to these areas.”

The matter was brought officially to the attention of the United Nations in 1967 by the Government of Malta, acting on the initiative of Ambassador Arvid Pardo. That Government urged the General Assembly to prepare a declaration and a treaty, similar to those with respect to outer space, in order to achieve the “reservation exclusively for peaceful purposes of the sea-bed and the ocean floor, underlying the seas beyond the limits of present national jurisdiction, and the use of their resources in the interests of mankind.” It proposed also the creation of an international agency “to assume jurisdiction, as a trustee for all countries, over the sea-bed and ocean floor,” and “to regulate, supervise and control all activities thereon.” Before the General Assembly, Ambassador Pardo suggested the adoption of a resolution which would declare that “the sea-bed and the ocean floor are a common heritage of mankind and should be used and exploited for peaceful purposes and for the exclusive benefit of mankind as a whole,” giving preferential consideration to the needs of poor countries. The General Assembly established first a special committee on the subject, and later a permanent Committee on the Peaceful Uses of the Sea-Bed and the Ocean Floor beyond the Limits of National Jurisdiction.

After two years of hard work, and despite strong opposition by some groups of States, the Committee prepared and the General Assembly adopted a compromise Declaration of Principles Governing the Sea-Bed and the Ocean Floor, and the Subsoil Thereof, beyond the Limits of National Jurisdiction. This declaration has the same character as the declaration on outer space and, pending the coming into effect of a parallel treaty, constitutes the new international law on this question. Its substantive provisions are as follows:

1. The sea-bed and ocean floor, and the subsoil thereof, beyond the limits of national jurisdiction (hereinafter referred to as the area), as well as the resources of the area, are the common heritage of mankind.

2. The area shall not be subject to appropriation by any means by States or persons, natural or juridical, and no State shall claim or exercise sovereignty or sovereign rights over any part thereof.

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4C.S.O.P., supra note 13, at 39.
3. No State or person, natural or juridical, shall claim, exercise or acquire rights with respect to the area or its resources incompatible with the international regime to be established and the principles of this Declaration.

4. All activities regarding the exploration and exploitation of the resources of the area and other related activities shall be governed by the international regime to be established.

5. The area shall be open to use exclusively for peaceful purposes by all States, whether coastal or land-locked, without discrimination, in accordance with the international regime to be established.

6. States shall act in the area in accordance with the applicable principles and rules of international law, including the Charter of the United Nations and the Declaration on Principles of International Law concerning Friendly Relations and Co-operation among States in accordance with the Charter of the United Nations, adopted by the General Assembly on 24 October 1970, in the interests of maintaining international peace and security and promoting international co-operation and mutual understanding.

7. The exploration of the area and the exploitation of its resources shall be carried out for the benefit of mankind as a whole, irrespective of the geographical location of States, whether land-locked or coastal, and taking into particular consideration the interests and needs of the developing countries.

8. The area shall be reserved exclusively for peaceful purposes, without prejudice to any measures which have been or may be agreed upon in the context of international negotiations undertaken in the field of disarmament and which may be applicable to a broader area. One or more international agreements shall be concluded as soon as possible in order to implement effectively this principle and to constitute a step towards the exclusion of the seabed, the ocean floor and the subsoil thereof from the arms race.

9. On the basis of the principles of this Declaration, an international regime applying to the area and its resources and including appropriate international machinery to give effect to its provisions shall be established by an international treaty of a universal character, generally agreed upon. The regime shall, inter alia, provide for the orderly and safe development and rational management of the area and its resources and for expanding opportunities in the use thereof, and ensure the equitable sharing by States in the benefits derived therefrom, taking into particular consideration the interests and needs of the developing countries, whether land-locked or coastal.

10. States shall promote international co-operation in scientific research exclusively for peaceful purposes:
(a) By participation in international programmes and by encouraging co-operation in scientific research by personnel of different countries;

(b) Through effective publication of research programmes and dissemination of the results of research through international channels;

(c) By co-operation in measures to strengthen research capabilities of developing countries, including the participation of their nationals in research programmes.

No such activity shall form the legal basis for any claims with respect to any part of the area or its resources.

11. With respect to activities in the area and acting in conformity with the international regime to be established, States shall take appropriate measures for and shall co-operate in the adoption and implementation of international rules, standards and procedures for, inter alia:

(a) The prevention of pollution and contamination, and other hazards to the marine environment, including the coastline, and of interference with the ecological balance of the marine environment;

(b) The protection and conservation of the natural resources of the area and the prevention of damage to the flora and fauna of the marine environment.

12. In their activities in the areas, including those relating to its resources, States shall pay due regard to the rights and legitimate interests of coastal States in the region of such activities, as well as of all other States, which may be affected by such activities. Consultations shall be maintained with the coastal States concerned with respect to activities relating to the exploration of the area and the exploitation of its resources with a view to avoid infringement of such rights and interests.

13. Nothing herein shall affect:

(a) The legal status of the waters superjacent to the area or that of the air space above those waters;

(b) The rights of coastal States with respect to measures to prevent, mitigate or eliminate grave and imminent danger to their coastline or related interests from pollution or threat thereof or from other hazardous occurrences resulting from or caused by any activities in the area, subject to the international regime to be established.

14. Every State shall have the responsibility to ensure that activities in the area, including those relating to its resources, whether undertaken by governmental agencies, or non-governmental entities or persons under its jurisdiction, or acting on its behalf, shall be carried out in conformity with the interna-
tional regime to be established. The same responsibility applies to international organizations and their members for activities undertaken by such organizations or on their behalf. Damage caused by such activities shall entail liability.

15. The parties to any dispute relating to activities in the area and its resources shall resolve such dispute by the measures mentioned in Article 33 of the Charter of the United Nations and such procedures for settling disputes as may be agreed upon in the international regime to be established.

At the same time, the General Assembly adopted a resolution for the convening in 1973 of a conference on the law of the sea which would deal not only with the establishment of an equitable international regime for the sea-bed but also with all the other problems of the sea, including fishing, the breadth of the territorial sea, international straits, the preservation of the marine environment and the prevention of pollution. Despite the urgency of the matter, the Sea-Bed Committee, which is also acting as the preparatory committee for the 1973 Conference, has made little progress on its broad agenda, except for some limited progress with respect to the sea-bed.

The opaque language of the Sea-Bed Declaration hides a number of important disagreements. Perhaps the most difficult issue is the precise definition of the area which is the common heritage of mankind, or, looking from the opposite point of view, where is the limit of national jurisdiction. The confusion started in 1945 when the United States, through the Truman Proclamation, announced that the United States "regards the natural resources of the subsoil and seabed of the continental shelf beneath the high seas but contiguous to the coasts of the United States as appertaining to the United States, subject to its jurisdiction and control." Other States followed suit with a variety of modifications; in particular some of them adopted as a limit for this extension of jurisdiction not the geological boundary of the continental shelf (on the average about 200 meters below the surface of the sea), but the distance of 200 nautical miles from the coast. The 1958 Convention on the Continental Shelf compounded the difficulty by adopting an ambiguous definition of the continental shelf. It provided, *inter alia*, that the term "continental...
shelf" refers to "the sea-bed and subsoil of the submarine area adjacent to the coast but outside the area of the territorial sea, to a depth of 200 meters or, beyond that limit, to where the depth of the superjacent waters admits of the exploitation of the natural resources of the said areas.\footnote{Convention on the Continental Shelf, Sep. 12, 1958, [1952] 1 U.S.T. 472, T.I.A.S. No. 5578, 499 U.N.T.S. 312 (effective June 10, 1964).} This open-ended definition was adopted as a result of the pressure of the Latin-American 200-milers, but at the time nobody really believed that one would be able in the foreseeable future to exploit the ocean depths below 200 meters. But here again technology has triumphed over the law and we are approaching the stage where any area under the surface of the sea, except perhaps a few especially deep trenches, can be subjected to exploitation. Consequently, it has been claimed that national sea-bed boundaries may be extended to the middle of the oceans, the median line between the coasts.\footnote{See INTERIM REPORT, supra note 39, at 10-50. For a map showing such a division, see id., between 88-89.} The 1970 Declaration does not really solve this problem as it refers merely to the area "beyond the limits of national jurisdiction," wherever these limits might be. But the idea of common heritage of mankind, around which the Declaration centers, will soon lose its meaning if the jurisdiction of all States continuously creeps toward the middle of the oceans as marine technology provides the necessary tools. To forestall this, the United States proposed in August 1971 a compromise\footnote{U.S. Draft U.N. Convention on the Int'l Sea-Bed Area, 25 U.N. GAOR Supp. 21, at 130-190, U.N. Doc. A/8021 (1970). For comments on this draft, see Ratiner, United States Oceans Policy: An Analysis, 2 J. MARITIME L. & COMMERCE 225-66 (1971); Knight, The Draft United Nations Convention on the International Seabed Area: Background, Description, and Some Preliminary Thoughts, 8 SAN DIEGO L. REV. 459-550 (1971). For an exhaustive bibliography on the law of the sea, including seabed, see WOODROW WILSON INT'L CENTER FOR SCHOLARS, OCEAN AFFAIRS BIBLIOGRAPHY (1971).} under which the area of common heritage would start at the 200-meter edge of the continental shelf; beyond that area the coastal State might exercise some important rights by delegation from an International Sea-Bed Authority, subject to international regulations against pollution and for preventing unjustifiable interference with other activities in the marine environment. There would be also a division of revenues between the coastal state and the International Authority. The boundary of this intermediate or trusteeship zone is not precisely defined in the U. S. proposal, and the United States has indicated flexibility on the matter.

Beyond the intermediate zone, the International Authority would completely control the exploitation of sea-bed resources through a licensing system. The revenue from these licenses would make the Authority financially self-sufficient, and any surplus would be used for promoting the development of the developing countries.
Other States, or groups of States, have submitted to the Sea-Bed Committee a variety of proposals differing considerably from the United States draft. The Committee is now trying to develop a compromise, and I hope that it will succeed.

VI. Conclusions

In this paper, it was not possible for me to explore in depth the issues presented, nor to deal with other important issues where the paths of technology and international law cross each other. International organizations are, for instance, concerned with the new weapons of mass destruction threatening to exterminate all life on earth, with the multiple threats to environment caused by modern technology, and with threats to human rights caused by such developments as computerized data banks, intrusion on the right of privacy through various electronic devices, personality changing drugs, and gene manipulation.

The important point is that international law is not standing still; the law of today is quite different from what it was in 1945. Whenever a sudden technological development threatens to upset international relations in an important area, international law has found a way to provide a quick answer through a new quasi-legislative method. There can be no doubt that as far as substance is concerned, international organizations have used this new method cautiously and wisely, and have come up with reasonable, functional solutions.

While there are some areas in which the rivalry between the superpowers and the divergent approaches of the older developed nations and the new developing nations have made progress and equitable settlement most difficult, in other fields, where mankind as a whole faces new challenges, rapid adaptations of the law are nevertheless possible. We have seen it happening in the three areas discussed here—Antarctica, space and seabed—and it is going to happen again soon with respect to the various aspects of the protection of the human environment. Other problems of similar kind and importance, not foreseeable at this point, are surely just around the corner.

On this short journey we have visited both Diana’s and Neptune’s realms. Many of you know Botticelli’s painting of the newborn Venus emerging from the sea. Similarly, a new world order is being born from the sea, and some day might enable us to cope even with Mars, not only the one in the sky but also the one whose shadow threatens us constantly on earth. By the year 2000 we might not reach the millennium but I hope that by that time we might solve quite a few problems which are bothering us today.